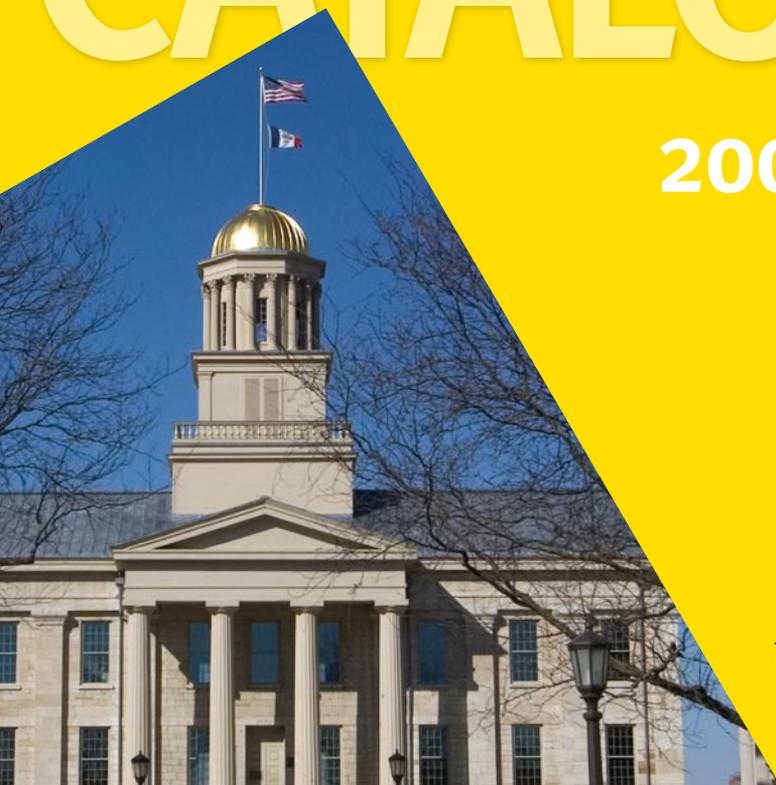




GENERAL CATALOG

2006-07



THE 
UNIVERSITY
OF IOWA

University Calendar 2006-2007

2006

August 21
September 4
November 20-26
November 23-24
December 8
December 11-15
December 15-16
December 25-26
December 27-January 12
January 1

Fall Semester/Winter Session

Classes begin
University holiday
Thanksgiving recess
University holidays
Classes end
Examination week
Commencement ceremonies
University holidays
Winter session
University holiday

2007

January 15
January 16
February 25
March 12-18
May 4
May 7-11
May 10-13, June 8

Spring Semester

University holiday (Martin Luther King Day)
Classes begin
Foundation day
Spring vacation
Classes end
Examination week
Commencement ceremonies

2007

May 14-June 1
May 28
June 4-July 27
June 18-July 27
July 4

Summer Sessions

Three-week summer session
University holiday
Eight-week summer session (first day is registration)
Six-week summer session (first day is registration)
University holiday

Some dates may change; see the most up-to-date academic calendar at
<http://www.registrar.uiowa.edu>.

Campus Visits for Prospective Students

The best introduction to The University of Iowa is a visit to the campus. Come first to the Admission Visitors Center, C110 Pomerantz Center, 213 N. Clinton St. Office hours: weekdays 8:30 a.m. to 4:30 p.m. and selected Saturday mornings. It is best to visit the campus on weekdays, when classes are in session and when other University offices are open. Please call the Office of Admissions to arrange for a campus visit: toll-free nationwide 1-800-553-IOWA (4692); direct dial 319-335-1569.

Visit The University of Iowa online at <http://www.uiowa.edu>.

The University of Iowa General Catalog

The General Catalog is published for informational purposes and should not be construed as the basis of a contract between a student and The University of Iowa. Every effort is made to provide information that is accurate at the time of publication. However, information on courses, curricula, fees, policies, regulations, and other matters is subject to change at any time. Visit the Catalog online or view a PDF version at <http://www.registrar.uiowa.edu/registrar>.

The General Catalog is produced by the Office of the Registrar and the Office of University Relations.

The University of Iowa General Catalog 2006-2007

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The University's annual viewbook and *Transfer Guide* provide condensed general information for prospective first-year and transfer students concerning University colleges, departments, schools, and programs. Also included is information on admission, fees, scholarships, student financial aid, housing, and student services. An online course schedule (<http://isis.uiowa.edu/courses>) provides information about courses offered in a particular semester.

Areas of study and application for

admission: Office of Admissions, The University of Iowa, 107 Calvin Hall, Iowa City, IA 52242-1396; toll-free nationwide 1-800-553-IOWA (4692); direct dial 319-335-3847.

E-mail: admissions@uiowa.edu

Web site: <http://www.uiowa.edu/admissions>

Housing information and application:

Housing Office, The University of Iowa, 17 Burge Hall, Iowa City, IA 52242-1298; 319-335-3009.

E-mail: reshall-housing@uiowa.edu

Web site: <http://www.housing.uiowa.edu>

Scholarships, loans, and student

employment: Office of Student Financial Aid, The University of Iowa, 208 Calvin Hall, Iowa City, IA 52242-1315; 319-335-1450.

E-mail: financial-aid@uiowa.edu

Web site: <http://www.uiowa.edu/financial-aid>

Honors study: University Honors Program, The University of Iowa, 420 Blank Honors Center, Iowa City, IA 52242-0454; 319-335-1681.

E-mail: honors-program@uiowa.edu

Web site: <http://www.uiowa.edu/~honors>

The General Catalog is produced by the Office of the Registrar and the Office of University Relations.

The University of Iowa prohibits discrimination in employment, educational programs, and activities on the basis of race, national origin, color, creed, religion, sex, age, disability, veteran status, sexual orientation, gender identity, or associational preference. The University also affirms its commitment to providing equal opportunities and equal access to University facilities. For additional information, contact the Office of Equal Opportunity and Diversity, 319-335-0705.

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Undergraduate Study Programs

The University of Iowa offers the following undergraduate majors, pre-majors and interest areas, certificates, and minors. Some majors offer Teacher Education Programs, as indicated below. Each major links to the appropriate Catalog section. Additional information about all majors is available on the Office of Admissions web site Undergraduate Admissions: Majors & Programs.

Majors and Tracks/Emphases

- Accounting (B.B.A.)
- Actuarial Science (B.S.): see Statistics and Actuarial Science
- African American Studies (B.A.)
- American Studies (B.A.)
- Ancient Civilization (B.A.): see Classics
- Anthropology (B.A., B.S.)
- Applied Physics (B.S.): see Physics and Astronomy
- Astronomy (B.A., B.S.): see Physics and Astronomy
- Art (B.A., B.F.A.): see Art and Art History
 - Option: Teacher Education Program
- Art History (B.A.): see Art and Art History
 - Option: Teacher Education Program
- Asian Languages and Literature (B.A.)
 - Chinese Track
 - Hindi Track
 - Japanese Track
 - Sanskrit Track
- Astronomy (B.A., B.S.): see Physics and Astronomy
- Athletic Training (B.S.): see Exercise Science (Integrative Physiology)
- Biochemistry (B.A., B.S.)
- Biology (B.A., B.S.): see Biological Sciences
 - Cell and Developmental Biology Track
 - Comprehensive Biology Track
 - Evolution Track
 - Genetics and Biotechnology Track
 - Neurobiology Track
 - Physiology and Molecular Biology of Plants Track

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- Biomedical Engineering (B.S.E.)
 - Bioinformatics/Computational Biology Track
 - Biomaterials Track
 - Biosystems/Bioimaging Track
 - Cardiovascular Biomechanics Track
 - Musculoskeletal Biomechanics Track
 - Pre-Medicine Track
 - Tissue Engineering Track
- Business Administration (B.B.A.): see Business
- Chemical Engineering (B.S.E.): see Chemical and
 - Biochemical Engineering
 - Biochemical Engineering Track
 - Business Track
 - Chemical Process Engineering Track
 - Engineering and Physical Sciences Track
 - Entrepreneurship Track
 - Environmental Engineering Track
 - Polymers Track
 - Pre-Medicine Track
- Chemistry (B.A., B.S.)
- Cinema (B.A.): see Cinema and Comparative Literature
- Civil Engineering (B.S.E.): see Civil and Environmental Engineering
 - Civil Subtrack
 - Environmental Subtrack
 - Civil Engineering Practice Track (Civil or Environmental)
 - Entrepreneurial Career Path Track (Civil or Environmental)
 - Environmental Health Engineering Track (Environmental)
 - Environmental Remediation and Control Track (Environmental)
 - Green Engineering Track (Environmental)
 - Management Track (Civil or Environmental)
 - Structures, Mechanics, and Materials Track (Civil or Environmental)
 - Transportation Engineering Track (Civil or Environmental)
 - Urban and Regional Planning Track (Civil or Environmental)
 - Water Resources Engineering Track (Civil or Environmental)
- Classical Languages (B.A.): see Classics
- Clinical Laboratory Sciences (B.S.)
- Communication Studies (B.A.)
- Comparative Literature (B.A.): see Cinema and Comparative Literature
 - Foreign Language and Literature Track
 - Literature and Arts Track
- Computer Science (B.A., B.S.)
- Dance (B.A., B.F.A.)
- Economics (B.A., B.B.A., B.S.)
- Electrical Engineering (B.S.E.): see Electrical and Computer Engineering
 - Computer Engineering Subtrack
 - Electrical Engineering Subtrack
 - Information Engineering Subtrack
- Elementary Education (B.A., B.S.): see Teaching and Learning
- Engineering (B.S.E.)
- English (B.A.)
 - Option: Teacher Education Program
- Environmental Sciences (B.S.)
 - Biosciences Track
 - Chemical Sciences Track
 - Geosciences Track
 - Hydrosciences Track
- Exercise Science (Integrative Physiology) (B.S.)
- Finance (B.B.A.)
- French (B.A.): See French and Italian
 - Culture and Civilization Track
 - Interdisciplinary Studies Track
 - Language Track
 - Literature Track
 - Teaching Track
- Geography (B.A., B.S.)
 - Environmental Studies Track
 - Geographic Information Science Track
 - Geography and Social Change Track
- Geoscience (B.A., B.S.)
- German (B.A.)
 - Applied German Track
 - Comprehensive Track
 - Humanities Track
- Health and Sport Studies (B.A.)
 - Health Promotion Track
 - Sport Studies Track
- History (B.A.)
- Industrial Engineering (B.S.E.): see Mechanical and Industrial Engineering
 - Computer and Information Systems Track
 - Entrepreneurship Track
 - Human Factors and Ergonomics Track
 - Management Track
 - Manufacturing and Logistics Systems Track
 - Medical Systems Track
- Interdepartmental Studies (B.A.)
 - Business Studies Track
 - Health Sciences Track
 - Individualized Plan of Study Track
- International Studies (B.A.)
 - African Studies Emphasis
 - Caribbean Studies Emphasis
 - Development Emphasis
 - East Asian Studies Emphasis
 - European Studies Emphasis
 - Global Artistic Tradition and Change Emphasis
 - Global Health Emphasis
 - Global Resources and Environment Emphasis
 - Human Rights Emphasis
 - International Business Emphasis
 - International Communication and Information Emphasis
 - International Politics and International Relations Emphasis
 - Latin American Studies Emphasis

- Middle East and Muslim World Studies
 Emphasis
 Postcolonial and Diasporic Studies Emphasis
 Russian, East European, and Eurasian Studies
 Emphasis
 Self-Directed Emphasis
 South Asian Studies Emphasis
 War, Peace, and Security Emphasis
 Italian (B.A.): see French and Italian
 Journalism and Mass Communication (B.A., B.S.)
 Leisure Studies (B.S.)
 Therapeutic Recreation Emphasis
 Liberal Studies (B.L.S.)
 Linguistics (B.A.)
 Teaching English as a Second Language
 Emphasis
 Literature, Science, and the Arts (B.A.)
 Management (B.B.A.): see Management and
 Organizations
 Management Information Systems (B.B.A.): see
 Management Sciences
 Marketing (B.B.A.)
 Mathematics (B.A., B.S.)
 General Track (Program A)
 Math Education Track (Program B)
 Specialization Areas Track (Program C)
 Mechanical Engineering (B.S.E.): see Mechanical
 and Industrial Engineering
 Bioengineering Track
 Energy and Utilization Track
 Entrepreneurship Track
 Environmental Transport Processes Track
 Management Track
 Manufacturing and Materials Processing Track
 Mechanical Engineering Design Track
 Robotics and Mechatronics Track
 Simulation and Visualization Track
 Microbiology (B.S.)
 Music (B.A., B.M.)
 Brass/Woodwind Track (Teacher Education
 Program)
 Composition Track
 Jazz Studies Track (Option: Teacher Education
 Program)
 Music Therapy Track
 Organ Track
 Percussion Track (Option: Teacher Education
 Program)
 Piano Track (Option: Teacher Education
 Program)
 String Track (Teacher Education Program)
 Voice Track (Teacher Education Program)
 Nuclear Medicine Technology (B.S.)
 Nursing (B.S.N.)
 Articulation Option 1
 Articulation Option 2
 Articulation Option 3
 Articulation Option 4
 Oral Health Science (B.S.): see College of
 Dentistry
 Performing Arts Entrepreneurship (B.A.)
 Dance Emphasis
 Music Emphasis
 Theatre Arts Emphasis
 Pharmacy (Pharm.D.)
 Philosophy (B.A.)
 Physics (B.A., B.S.): see Physics and Astronomy
 Political Science (B.A., B.S.)
 Portuguese (B.A.): see Spanish and Portuguese
 Psychology (B.A., B.S.)
 Radiation Sciences (B.S.)
 Religious Studies (B.A.)
 Russian (B.A.)
 Science Education (B.S.)
 Biology Emphasis
 Chemistry Emphasis
 Earth Science Emphasis
 Physics Emphasis
 Social Work (B.A.)
 Sociology (B.A., B.S.)
 Spanish (B.A.): see Spanish and Portuguese
 Speech and Hearing Science (B.A.): see Speech
 Pathology and Audiology
 Statistics (B.S.): see Statistics and Actuarial
 Science
 Math Track
 Statistical Computing Track
 Statistics in Business, Industry, Government,
 and Research Track
 Theatre Arts (B.A.)
 Women's Studies (B.A.)

Pre-Majors and Interest Areas

Information about most pre-majors and interest areas is available on the Office of Admissions web site Undergraduate Admissions: Majors & Programs. If the pre-major or interest area is not listed, click on the link to the corresponding major (e.g., for information on Actuarial Science Interest, click on Actuarial Science).

Pre-Majors

- Pre-Accounting
- Pre-Business
- Pre-Chiropractic
- Pre-Dentistry
- Pre-Law
- Pre-Medicine
- Pre-Mortuary Science
- Pre-Optometry
- Pre-Physical Therapy
- Pre-Physician Assistant
- Pre-Podiatric Medicine
- Pre-RN/B.S.N. (listed under Nursing)
- Pre-Veterinary Medicine

Interest Areas

Actuarial Science Interest
Athletic Training Interest
Clinical Laboratory Sciences Interest
Communication Studies Interest
Dance Interest
Elementary Education Interest
Exercise Science (Integrative Physiology) Interest
Health Promotion Interest (listed under Health and Sport Studies)
Interdepartmental Studies Interest
Journalism and Mass Communication Interest
Leisure Studies Interest
Liberal Studies Interest
Music Interest
Nuclear Medicine Technology Interest
Nursing Interest
Pharmacy Interest
Radiation Sciences Interest
Secondary Education Interest
Social Work Interest
Therapeutic Recreation Interest (listed under Leisure Studies)

Certificates

Certificate in Aging Studies
Certificate in American Indian and Native Studies
Certificate in American Sign Language and Deaf Studies: see American Sign Language
Certificate in Entrepreneurship Studies: see Entrepreneurship
Certificate in Global Health Studies
Certificate in International Business
Certificate in Latin American Studies
Certificate in Medieval Studies
Certificate in Museum Studies
Certificate in Philosophies and Ethics of Politics, Law, and Economics
Certificate in Risk Management and Insurance
Certificate in Sexuality Studies
Certificate in Technological Entrepreneurship: see Entrepreneurship and Engineering
Postbaccalaureate Certificate in Classics

Minors

Actuarial Science: see Statistics and Actuarial Science
African American Studies
Aging Studies
American Indian and Native Studies
American Studies
Ancient Civilization: see Classics
Anthropology
Art: see Art and Art History
Art History: see Art and Art History

Asian Languages: see Asian Languages and Literature
Astronomy: see Physics and Astronomy
Biology: see Biological Sciences
Business Administration: see Business
Chemistry
Cinema: see Cinema and Comparative Literature
Classical Languages: see Classics
Communication Studies
Comparative Literature: see Cinema and Comparative Literature
Computer Science
Dance
Economics
Educational Psychology: see Psychological and Quantitative Foundations
English
Exercise Science (Integrative Physiology)
French: see French and Italian
General Education: see Education
Geography
Geoscience
German
Global Health Studies
Greek: see Classics
Health and Sport Studies
History
Human Relations: see Education
International Studies
Italian: see French and Italian
Latin: see Classics
Latin American Studies
Leisure Studies
Linguistics
Mass Communication: see Journalism and Mass Communication
Mathematics
Microbiology
Music
Philosophy
Physics: see Physics and Astronomy
Political Science
Portuguese: see Spanish and Portuguese
Psychology
Religious Studies
Russian
Social Work
Sociology
Spanish: see Spanish and Portuguese
Statistics: see Statistics and Actuarial Science
Theatre Arts
Women's Studies

Four-Year Graduation Plan

The Four-Year Graduation Plan is a partnership between students and the University. Students

who sign the Four-Year Graduation Plan agree to a number of conditions that guide their studies and their progress toward a degree. The University's colleges and departments also agree to certain conditions. They ensure the availability of courses that students need for graduation; they also guarantee that they will provide certain remedies to a student facing a delay in graduation due to lack of a course, as long as the student has met the conditions of the four-year plan. The Tippie College of Business and the Colleges of Engineering, Liberal Arts and Sciences, and Nursing participate in the four-year plan.

Only students who enter the University directly from high school are eligible to participate in the four-year plan. General information on the Four-Year Graduation Plan is available from the Office of Admissions. Information also is available from the participating colleges and the Academic Advising Center.

Graduate and Professional Study Programs

See the Graduate College section of the Catalog for a list of University of Iowa graduate degrees and certificates, and for information about graduate programs and procedures.

For information about professional degrees and programs, see the appropriate college sections in the Catalog.

Course Numbering

Each course in the regular University curriculum has an identifying number, preceded by the number of the college, department, or program that administers the course. For example, "034:001" is the code for the course numbered 001 in the Department of Sociology (034), entitled "Introduction to Sociology Principles." Course numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduate and graduate students, and numbers 200 and above designate courses primarily for graduate students.

Tippie College of Business

6A	Accounting
6B	Business Administration
6E	Economics
6F	Finance

6J	Management and Organizations
6K	Management Sciences
6M	Marketing
6N	M.B.A. Program
6T	Entrepreneurship

College of Dentistry

82	Operative Dentistry
83	Endodontics
84	Prosthodontics
86	Oral Pathology, Radiology, and Medicine
87	Oral and Maxillofacial Surgery
89	Orthodontics
90	Pediatric Dentistry
92	Periodontics
111	Preventive and Community Dentistry
112	Dentistry Nondepartmental
114	Family Dentistry
151	Oral Science

College of Education

7B	Educational Policy and Leadership Studies
7C	Counseling, Rehabilitation, and Student Development
7E	Elementary Education
7P	Psychological and Quantitative Foundations
7S	Secondary Education
7U	Special Education
7W	Instructional Design and Technology
7X	Education Interdivisional

College of Engineering

51	Biomedical Engineering
52	Chemical and Biochemical Engineering
53	Civil and Environmental Engineering
55	Electrical and Computer Engineering
56	Industrial Engineering
57	Engineering Core

12 Learning at Iowa

58	Mechanical Engineering	1Z	Calligraphy
59	Core Engineering	2	Biological Sciences
Graduate College			
21	Library and Information Science	3	Speech Pathology and Audiology
22A	Applied Mathematical and Computational Sciences	4	Chemistry
102	Urban and Regional Planning	6	Prebusiness
108	Center for the Book	6E	Economics
127	Genetics	8	English
132	Neuroscience	8A	English Department Nonmajor Course Work
142	Molecular and Cellular Biology	8C	Creative Writing—Writers' Workshop
148	Immunology	8G	General Education—Literature
156	Biosciences	8L	English Language and Linguistics Instruction
160	Rhetorics of Inquiry	8N	Nonfiction Writing
163	Translational Biomedicine	8P	English Professional
164	Second Language Acquisition	8W	English Writing
650	Graduate College Nondepartmental	9	French
College of Law			
91	Law	10	Rhetoric
660	Law College Nondepartmental	12	Geoscience
College of Liberal Arts and Sciences			
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1C	Ceramics	16	History
1D	Design	16A	American History
1E	Art Education	16E	European History
1F	Drawing	16W	World History
1G	Metalworking and Jewelry	18	Italian
1H	Art History	19	Journalism and Mass Communication
1J	Multimedia and Video Art	20E	Classics in English
1K	Painting	20G	Greek
1L	Photography	20L	Latin
1M	Printmaking	22C	Computer Science
1N	Sculpture	22M	Mathematics
1P	Art Interdepartmental	22S	Statistics and Actuarial Science
1X	Papermaking	25	Music
1Y	Bookbinding	26	Philosophy
		27	Exercise Science (Integrative Physiology)
		28	Health and Sport Studies

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29	Physics and Astronomy	195	Arabic Language and Literature
30	Political Science	610	Liberal Arts and Sciences Nondepartmental
31	Psychology		
32	Religious Studies		
33	Literature, Science, and the Arts		
34	Sociology		
35	Spanish		
36	Communication Studies		
38	Portuguese		
39	Asian Languages and Literature		
39J	Japanese		
41	Russian		
42	Social Work		
44	Geography		
45	American Studies		
48	Cinema and Comparative Literature		
49	Theatre Arts		
61	Microbiology		
97	Science Education		
99	Biochemistry		
103	Linguistics		
113	Anthropology		
129	African American Studies		
130	Latin American Studies		
131	Women's Studies		
137	Dance		
144	Philosophies and Ethics of Politics, Law, and Economics		
145	Interdepartmental Studies		
149	American Indian and Native Studies		
152	Global Health Studies		
153	Aging Studies Program		
154	Sexuality Studies		
158	American Sign Language		
159	Environmental Sciences		
162	Medieval Studies Certificate		
169	Leisure Studies		
187	International Studies		
			Carver College of Medicine
		50	Medicine Nondepartmental
		60	Anatomy and Cell Biology
		61	Microbiology
		62	Dermatology
		64	Neurology
		66	Obstetrics and Gynecology
		67	Ophthalmology and Visual Sciences
		68	Otolaryngology—Head and Neck Surgery
		69	Pathology
		70	Pediatrics
		71	Pharmacology
		72	Physiology and Biophysics
		73	Psychiatry
		74	Radiology
		75	Surgery
		76	Orthopaedics and Rehabilitation
		77	Free Radical and Radiation Biology
		78	Internal Medicine
		79	Urology
		99	Biochemistry
		101	Physical Therapy and Rehabilitation Science
		115	Family Medicine
		116	Anesthesiology
		117	Physician Assistant Program
		183	Neurosurgery
		184	Emergency Medicine
		186	Radiation Oncology
		193	Cardiothoracic Surgery
		670	Radiologic Technology Program
		671	Orthoptics Teaching Program
		672	Radiation Therapy Program
		673	Diagnostic Medical Sonography

14 Learning at Iowa

674	Magnetic Resonance Imaging
675	Vascular Imaging Technology
676	Computed Tomography Program
677	EMT—Paramedic Program
678	Quality Management/PACS
679	Breast Imaging Program

College of Nursing

96	All courses
----	-------------

College of Pharmacy

46	All courses
----	-------------

College of Public Health

170	Master of Public Health
171	Biostatistics
172	Community and Behavioral Health
173	Epidemiology
174	Health Management and Policy
175	Occupational and Environmental Health
185	Public Health Genetics

University College

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Grading System

The University uses a letter grading system for individual courses but computes grade-point average according to a numerical scale. Grade-point averages are displayed at the bottom of students' grade reports and are truncated so as not to exceed 4.00. All of the following marks appear on the permanent record.

Grade points for each semester hour

A+	=	4.33
A	=	4.00
A-	=	3.67
B+	=	3.33
B	=	3.00
B-	=	2.67
C+	=	2.33
C	=	2.00
C-	=	1.67
D+	=	1.33
D	=	1.00
D-	=	0.67
F	=	0

Not used in computing grade-point average:

S	=	Satisfactory
P	=	Pass
U	=	Unsatisfactory
N	=	Nonpass

Other marks on the permanent record:

- I = Incomplete
- O = No grade reported
- R = Registered
- W = Withdrawn
- # = Second-grade-only option
- * = Honors

The College of Law uses a numeric grading system.

Admission

Web site: <http://www.uiowa.edu/admissions>

For up-to-date information about admission to The University of Iowa, contact the Office of Admissions or visit its web site:
<http://www.uiowa.edu/admissions>.

Registration

For information about registration, tuition and fees, residency status, transcripts, and classroom scheduling, contact the Office of the Registrar or visit its web site: <http://www.registrar.uiowa.edu/>.

Financial Aid

Web site: <http://www.uiowa.edu/financial-aid>

For information about student scholarships, loans, grants, and employment, contact the Office of Student Financial Aid or visit its web site: <http://www.uiowa.edu/financial-aid/>.

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Dean: Linda Maxson

Executive associate dean: Raúl Curto

Associate dean for academic programs: Helena Dettmer

Associate dean for research and development: Joseph K. Kearney

Web site: <http://www.clas.uiowa.edu>

The College of Liberal Arts and Sciences (CLAS) is the oldest and largest of the 11 colleges that make up The University of Iowa. Students from all over the United States and more than 50 other nations study together in the college. Every University of Iowa undergraduate takes courses offered by the college, and more than 75 percent of undergraduates earn their degrees from the College of Liberal Arts and Sciences.

The college provides a comprehensive liberal arts education and advanced education in specialized areas. It offers more than 50 majors, as well as certificates, minors, and opportunities for interdisciplinary work. Students can even design their own majors, through the Bachelor of Arts in interdepartmental studies.

Students participate in the college's decisions by serving on the Dean's Student Advisory Committee and as members of the Educational Policy Committee and the General Education Curriculum Committee. Students also are invited to serve on ad hoc college committees. Many departments have an undergraduate student group or association, and students from the College of Liberal Arts and Sciences serve in the University of Iowa Student Government.

The College on the Internet

The college's web site (<http://www.clas.uiowa.edu>) serves as a gateway to departmental web sites, where departments post extended and updated information about their programs, faculty, and students. The college's site also includes information from the Office of the Dean and the CLAS Academic Programs & Services office, news of the college, and links to other helpful sites. Students can find information on academic policies and procedures, including the college's General Education Program, in the Student Academic Handbook. A print version of the college's handbook is published each fall as part of the booklet *Information for University of Iowa Students*.

CLAS Academic Programs & Services Office

The CLAS Academic Programs & Services office is an integral part of the College of Liberal Arts and Sciences Office of the Dean. Led by the associate dean for academic programs, the staff welcomes students wishing to declare or change majors, file second-grade-only options, or request permission to register late, add or drop a course late, or withdraw an entire registration after the established deadlines.

Staff members answer questions about the General Education Program, graduation requirements, and college policies affecting students; work with students on academic probation and those who are reinstated; conduct semiannual reviews of students on academic probation and take dismissal actions when students do not meet academic standards; and respond to requests for reinstatement to the college.

Students in the College of Liberal Arts and Sciences may request exceptions to the rules and requirements of the college by petitioning the Student Appeals Committee through CLAS Academic Programs & Services.

CLAS Academic Programs & Services also considers evidence and recommends appropriate disciplinary action for student plagiarism, cheating, forgery, and other academic misconduct.

Nondepartmental Courses

610:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

610:099 Peer Mentoring 1-2 s.h.
Opportunities to participate in classroom and course activities as mentors for other students.

610:150 U.S. Latino/a Cultural Studies 3 s.h.
Topics vary.

African American Studies

Coordinator: Tisch Jones

Associate professors: Venise Berry (Journalism and Mass Communication/African American Studies), Tisch Jones (Theatre Arts/African American Studies), Michael Lomax (Health and Sport Studies/African American Studies), Kevin Mumford (History/African American Studies), Richard B. Turner (Religious Studies/African American Studies)

Assistant professors: Tim Havens (Communication Studies/African American Studies), Lina Hill (English/African American Studies), Michael Hill (English/African American Studies), Sydné Mahone (Theatre Arts/African American Studies), Wayne Santoro (Sociology/African American Studies), Miriam Thaggert (English/African American Studies), Bridget Tsemo (Rhetoric/African American Studies), Vershawn Young (Rhetoric/African American Studies)

Undergraduate degree: B.A. in African American Studies

Undergraduate nondegree program: Minor in African American Studies

Graduate degree: M.A. in African American World Studies

Web site:

African American studies focuses on the study of people of African descent in the United States and the African diaspora. The African American Studies Program originated in 1969 through courses intended to foster awareness of African Americans' role in the development of the United States and the world. Because a thorough understanding of the African American experience cannot be achieved through study restricted to the perspective of a single discipline, all students are required to pursue courses in the humanities, social sciences, and performing arts. The African American Studies Program draws upon faculty from communication studies, health and sport studies, history, journalism and mass communication, religious studies, rhetoric, sociology, and theatre arts. Future course work in political economy, gender and sexism, and the construction of race and identity is planned.

Undergraduate Program

Bachelor of Arts

Requirements for the major in African American studies have changed. Students who entered the college in or after summer 2006, or who

declared the major on or after the first day of fall semester 2006, must complete the program described below. Students who declared the major in African American world studies before the first day of fall semester 2006 may choose to complete the old requirements, but they must complete all requirements and graduate by August 2010.

The Bachelor of Arts in African American studies requires 33 s.h. (11 courses) in the major. Students must maintain a g.p.a. of at least 2.00 in the major. Transfer credit is evaluated case-by-case and is limited to 9 s.h.

INTRODUCTORY COURSES

Students are required to complete both 129:060 Introduction to African American Society and 129:061 Introduction to African American Culture.

Introduction to African American Society examines the construction of social and historical institutions in the United States and the African diaspora (e.g., Black church, Black family, gender, sexuality). The course may include readings in political science, religion, history, sociology, geography, anthropology, and other disciplines.

Introduction to African American Culture presents themes in African American cultural studies. It includes readings in literature, music, film studies, religious studies, and the visual and performing arts.

Both 129:060 and 129:061 are prerequisites for 100-level courses. Students must already have taken one of the two courses and must be taking the other before they may enroll in 100-level courses.

SENIOR SEMINAR

Students are required to take 129:199 Senior Seminar in their senior year. The course requires an original research paper on the historical and/or contemporary experiences of people of African descent in the United States and/or the global diaspora. Students use research methodologies from the social sciences, humanities, or performing arts in preparing the paper. At least one senior seminar is offered each year. It may cover a variety of topics.

AFRICAN AMERICAN STUDIES CORE

Students must complete five courses (15 s.h.) in the social sciences, humanities, and performing arts. They must select one course from each of the following five topical areas. Additional courses may be approved; consult an African American studies advisor.

History

One of these:

- 129:050 Introduction to African American Religions 3 s.h.
- 129:065 Introduction to African American History 3 s.h.
- 129:123 Twentieth Century African American Religion: Civil Rights to Hip Hop 3 s.h.
- 129:124 Black Culture and Experience 3 s.h.
- 129:137 History of Slavery in the U.S.A. 3-4 s.h.
- 129:184 Black Metropolis: Twentieth Century 3 s.h.
- 129:187 African American History 1865-Present 3 s.h.
- 129:189 Themes in African American History 3 s.h.

Social Inequality, Social Movements, and Politics

One of these:

- 028:079 Race and Ethnicity in Sport 3 s.h.
- 034:126 Social Movements in the U.S. 3 s.h.
- 034:152 African American and Latino Inequality 3 s.h.
- 039:161 Insurgency and Globalization of Discontent 3 s.h.
- 129:153 The Civil Rights Movement 3 s.h.

Literature

One of these:

- 129:116 African American Literature I 3 s.h.
- 129:117 African American Literature II 3 s.h.
- 129:130 African American Literary/Rhetorical Criticism I 3 s.h.
- 129:131 African American Literary/Rhetorical Criticism II 3 s.h.
- 129:140 Topics in African American Studies arr.
- 129:181 African American Autobiography 3 s.h.

Media and Performing Arts

One of these:

- 036:076 Race, Ethnicity, and Media 3 s.h.
- 049:192 Topics: Culturally Diverse Theatre (when topic is Iowa's Black theatre history) 3 s.h.
- 129:122 African-Americans and Mass Communication 3 s.h.

- 129:128 Racial Narrative and American Performance 3 s.h.
- 129:175 African American Theatre I 3 s.h.
- 129:191 African American Theatre II 3 s.h.

Africa and the Diaspora

One of these:

- 129:008 Literatures of the African Peoples 3 s.h.
- 129:063 African American Islam/International Perspective 3 s.h.
- 129:119 African Literature 3 s.h.
- 129:124 Black Culture and Experience 3 s.h.
- 129:138 African and African American Interactions 3 s.h.
- 129:163 Precolonial African History 3 s.h.
- 129:164 African History since 1880 3 s.h.

ELECTIVES

Students must select three elective courses (total of 9 s.h.). Most students select electives from the list of courses in the social science, humanities, and performing arts core (above). However, with approval from an African American studies advisor, students may count up to two relevant courses offered by other departments, and not cross-referenced with African American studies, as partial fulfillment of the elective requirement.

LANGUAGE REQUIREMENT

The language requirement for the African American studies major is the same as that of the College of Liberal Arts and Sciences General Education Program. Students are encouraged, but not required, to take African language (Swahili is currently offered) or Spanish language courses to fulfill the language requirement.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

During the first year of study, students should focus on completing the General Education Program, perhaps including beginning Swahili to complete the foreign language component, or taking Spanish language course work.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least three courses in the major, including 129:060 and

129:061, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: four more courses in the major (for a total of seven) and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least eight courses in the major, including the senior seminar (may be taken in the seventh or eighth semester)

During the eighth semester: enrollment in all remaining course work in the major (including the senior seminar if not taken in the seventh semester), all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The University Honors Program provides a stimulating and integrative educational experience for undergraduate majors who perform at a high level. The honors program in African American studies offers students the opportunity to pursue special interests in individual in-depth research. Honors students in African American studies must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students complete all of the required course work for the major (33 s.h.).

Students who wish to graduate with honors in African American studies are encouraged to register for up to 6 s.h. in 129:095 Honors Project. Work in this course enhances the student's ability to complete honors projects under the guidance of the supervising faculty member. Students take 129:095 with the approval of their African American studies advisor, who typically supervises the course. Students may count up to 6 s.h. earned in 129:095 toward the 33 s.h. required for the major.

Under the guidance of the African American studies advisor, the honors student defines a research project (thesis) using primary, secondary, or archival sources. The thesis may build upon the student's final project for the senior seminar (129:199), but research for the honors thesis must be distinct from that for the student's senior seminar paper and must be more thorough and sophisticated. Students make project proposals by the end of their junior year. Each student completes a thesis under the guidance of a

supervising faculty member and presents the results as a senior essay to a committee of three faculty members, including the supervising African American faculty member, and two other African American faculty members of the student's choice. The student's committee may choose to hear an oral defense of the honors thesis, usually during the student's last semester.

Students should use one or more of their elective courses to develop the honors thesis.

Minor

Students who wish to earn a minor in African American studies select five courses (15 s.h.) in African American studies in consultation with their advisors. They must select either 129:060 Introduction to African American Society or 129:061 Introduction to African American Culture, and one course from each of the following four topical areas from the social science, humanities, and performing arts core (12 s.h.): history; social inequality, social movements, and politics; literature; and media and the performing arts. Three (9 s.h.) of the four courses from the social science, humanities, and performing arts core (12 s.h.) must be taken at The University of Iowa. Students must earn a g.p.a. of at least 2.00 in all courses in the minor.

Courses used to complete another major or minor may not be used to complete a minor in African American studies. No course accepted toward the minor may be taken pass/nonpass.

Graduate Program

The African American Studies Program is not accepting graduate students in 2006-07.

Cocurricular Activities

Afro-American Cultural Center

African American studies encourages students to use facilities of the Afro-American Cultural Center. The center serves as a museum and library of educational and cultural artifacts and exhibits of Black culture, providing cultural enrichment for Black people of the Iowa City community and a cultural meeting place for Black students. It also attempts to provide a knowledge of Black culture that will promote diversity among all members of the University community.

Student Association

The African American Studies Student Association aims to promote knowledge about people of African descent by sponsoring programs on various topics. Any University of Iowa student interested in African American studies is eligible to become a member.

Courses

For Undergraduates

129:008 Literatures of the African Peoples 3 s.h.
Works in English by authors of African descent from America, continental Africa, the Caribbean. GE: foreign civilization and culture or humanities. Prerequisite: 08G:001. Same as 08G:014.

129:050 Introduction to African American Religions 3 s.h.
Same as 032:034.

129:060 Introduction to African American Society 3 s.h.
Social and cultural history of African Americans through framework of general works in anthropology, sociology, history. GE: cultural diversity or social sciences.

129:061 Introduction to African American Culture 3 s.h.
Interdisciplinary look at Black culture in the United States through significant contributions of the humanities (music, art, literature, drama, philosophy) to development of Black culture. GE: cultural diversity or humanities. Same as 045:030.

129:063 African American Islam/International Perspective 3 s.h.
Same as 032:063.

129:065 Introduction to African American History 3 s.h.
GE: cultural diversity. Same as 16A:065.

129:069 Selected African American Authors 3 s.h.
Same as 008:069.

129:076 Race, Ethnicity, and Media 3 s.h.
Same as 036:076.

129:095 Honors Project arr.
Independent research and writing on interdisciplinary topic. Prerequisite: consent of instructor.

For Advanced Undergraduate and Graduate Students

129:116 African American Literature I 3 s.h.
African American writers from 18th century to 1940 examined in relation to cultural, social, literary, historical influences. Same as 008:116.

129:117 African American Literature II 3 s.h.
Literary developments among African Americans 1935 to present; writers and works in relation to cultural, political, social, literary influences on African Americans. Same as 008:117.

129:119 African Literature 3 s.h.
Portrayal in fiction of contemporary African states. Same as 008:119.

129:122 African-Americans and Mass Communication 3 s.h.
GE: cultural diversity. Same as 019:165.

129:123 Twentieth Century African American Religion: Civil Rights to Hip Hop 3 s.h.
Same as 032:126.

129:124 Black Culture and Experience 3 s.h.
Topics vary.

129:128 Racial Narrative and American Performance 3 s.h.
Same as 010:128, 048:128.

129:130 African American Literary/Rhetorical Criticism I 3 s.h.
Same as 008:160, 010:132.

129:131 African American Literary/Rhetorical Criticism II 3 s.h.
Prerequisite: 008:160 or 010:132 or 129:130. Same as 008:166, 010:133, 160:162.

129:137 History of Slavery in the U.S.A. 3-4 s.h.
Same as 16A:147.

129:138 African and African American Interactions 3 s.h.
The slave trade, its legacy in Africa and the Americas; cultural, political interaction between Africans and African Americans; images of Africa in African American thought; Afrocentrism, its African critics. Same as 16W:119.

129:139 African American Poetry 3 s.h.
Same as 008:139.

129:140 Topics in African American Studies arr.
Different topic each semester.

129:153 The Civil Rights Movement 3 s.h.
Same as 045:153.

129:158 Topics in African Cinema 3 s.h.
Same as 008:157.

129:161 Insurgency and Globalization of Discontent 3 s.h.
Same as 039:161.

129:162 Midwest African American Literature and Culture 3 s.h.
Same as 008:162.

129:163 Precolonial African History 3 s.h.
Africa to 1880; introduction of oral tradition, other sources; political development; ecological change; slavery and the slave trade. GE: foreign civilization and culture. Same as 16W:120.

129:164 African History Since 1880 3 s.h.
Africa in colonial, post-colonial periods; economic and political structures of colonialism; social change, political life in the 20th century. GE: foreign civilization and culture. Same as 16W:121.

129:175 African American Theatre I 3 s.h.
Theory and performance; study of history and theory related to stage presentations or performances by Black Americans; responsibility for African American Theater productions. Same as 049:190.

129:179 Independent Study arr.
Topics vary. Prerequisite: consent of instructor.

129:181 African American Autobiography 3 s.h.
Same as 008:137.

129:184 Black Metropolis: Twentieth Century 3 s.h.
Black popular culture and the African American urban experience. Same as 16A:184.

129:186 African American Drama 3 s.h.
Same as 008:186, 049:186.

- 129:187 African American History 1865-Present** 3 s.h.
Same as 16A:188.
- 129:189 Themes in African American History** 3 s.h.
Same as 16A:185.
- 129:191 African American Theatre II** 3 s.h.
Advanced version of 129:175, with focus on different plays; for theatre arts and African American studies majors. Prerequisite: consent of instructor. Same as 049:191.
- 129:199 Senior Seminar** 3 s.h.
African American, African, and African Caribbean culture and experience; comparative approach to synthesize students' earlier study. Prerequisites: African American studies senior standing and consent of instructor.

For Graduate Students

- 129:205 Gender and Race in Nineteenth Century U.S.** arr.
Same as 016:205, 131:206.
- 129:211 Introduction to Research in African American Culture** arr.
Methodologies, bibliographies, issues, resources significant to study of African American culture. Prerequisite: consent of instructor. Same as 045:210.
- 129:212 Advanced Readings in Black Culture** arr.
Textual, social, political analyses of works by Black authors.
- 129:221 Analytical Exposition in Afro-American Studies** 3 s.h.
Synthesis of primary and secondary research materials for analytical and comprehensive studies in Black culture, other related graduate courses, and future publications.
- 129:227 Three African Writers** 3 s.h.
Same as 008:227.
- 129:231 Crossing Borders Seminar** 2-3 s.h.
Repeatable. Same as 01H:247, 008:231, 013:262, 016:247, 030:242, 035:273, 044:286, 048:247, 113:247.
- 129:245 Readings: African American Historiography** arr.
Same as 016:245.
- 129:246 Seminar: African American History** arr.
Same as 016:246.
- 129:259 Seminar: Interpreting Oral Histories** arr.
Interpretations and methods applied by historians in varied world regions to forms of oral history, ranging from old oral traditions to contemporary autobiographical testimony. Same as 016:259.
- 129:287 Readings: African American Women's History** arr.
Same as 016:287, 131:287.
- 129:312 Advanced Research in African American Culture** arr.
Seminar or independent study; for graduate students concentrating in African American studies. Prerequisites: basic African American studies courses and 129:211.
- 129:350 Seminar: Critical Theory** 3 s.h.
Theory in context of African American literature, culture.

American Studies

Chair: Lauren Rabinovitz

Professors: Susan Birrell (Health and Sport Studies/Women's Studies/American Studies), Horace A. Porter (English/American Studies), Lauren Rabinovitz (American Studies/Cinema and Comparative Literature), John Raeburn (American Studies/English)

Professors emeriti: Richard P. Horwitz, Albert E. Stone (American Studies/English)

Associate professors: Lafayette Adams (English/American Studies), Jane Desmond, Robert Latham (English/Sexuality Studies/American Studies), Kim Marra (Theatre Arts/American Studies), Laura Rigal (American Studies/English)

Assistant professor: Nicholas Yablon

Undergraduate degree: B.A. in American Studies

Undergraduate nondegree program: Minor in American Studies

Graduate degrees: M.A., Ph.D. in American Studies

Web site: <http://www.uiowa.edu/~amstud>

The Department of American Studies provides an interdisciplinary introduction to American culture, past and present. It helps students acquire a broad familiarity with the dynamics of cultural experience and explore aspects of life in the United States, such as popular and fine arts, institutions, values, gender and ethnic relations, artifacts, and the everyday life of a diverse citizenry.

Undergraduate Program

Bachelor of Arts

The B.A. program in American studies stresses broad training in cultural analysis and communication. Although it offers no explicit vocational training, the program provides preparation for careers in business, education, government, journalism, or social service; for advanced study in the humanities, the social sciences, theology, or business; or for professional study in law or medicine. Internships can be arranged, through the University's Pomerantz Career Center.

Required Courses

A distinctive feature of the American studies major is the opportunity to develop broad training in cultural analysis as well as emphasis of

particular interests within the study of American culture. With the help of their American studies advisor, students may elect to pursue one of three focus areas within American studies, or they may create an individual plan of study. Each focus area allows students to group courses in American studies and other departments around a specific interdisciplinary theme, topic, or set of social issues. Focus areas are described below.

Shortly after declaring a major, a student should meet with his or her faculty advisor to explore the range of course work available and to begin shaping an individual plan of study. By the student's second term in the major, the student and advisor should have agreed upon a plan of study and focus area for completing the major requirements.

The B.A. in American Studies usually requires 12 courses totaling 36 s.h. in the major. Courses in American studies must include 045:020 Sources for American Studies and 045:090 Seminar in American Cultural Studies. Requirements are as follows.

American studies requirement: six core courses, including 045:020 and 045:090	18 s.h.
American history: two courses	6 s.h.
Special interest focus area: four courses in American studies and/or other departments	12 s.h.

At least 24 s.h. of course work toward the major must be earned at The University of Iowa.

American Studies Focus Areas

Students should consult regularly with the Department of American Studies about courses offered by American studies and other departments that apply toward each focus area. No more than two courses from a single department outside American studies may be applied toward any one focus area.

ETHNIC STUDIES, DIVERSITY, AND DIFFERENCES

Students choose this focus to develop interdisciplinary understanding of an individual ethnic and/or racial group (e.g., Latino/a studies, Jewish-American studies) or to examine broadly gender, race, sexuality, social class, region, national origins, and age in the United States. Emphasis is on the historic emergence of

categories of social difference, especially as revealed in cultural practices and artifacts, geography and cityscapes, leisure, and popular expression.

AMERICAN ARTS, LITERATURE, AND POPULAR CULTURE

Students who choose this focus examine artistic creations to discover how they are shaped by cultural preconceptions, norms, and standards, and how in turn these expressive forms affect ongoing developments in cultural life. Emphasis is on skills in the formal analysis of artistic artifacts, historical inquiry, and cultural contextualization.

AMERICAN SOCIETY, POLITICS, AND EVERYDAY LIFE

Students who choose this focus consider the dynamics of social change, the emergence and fate of political movements, and the forms and practice of everyday life in America. The area encompasses the tradition of revolution in America, the effects of technological and economic change, and the roles of the family, workplace, and community from the colonial era to the digital age.

INDIVIDUALLY DESIGNED FOCUS AREA

Individually designed focus areas may concentrate on an interdisciplinary topic, theme, group of people, or time period. Students who wish to design their own interdisciplinary focus area should consult with their American studies advisor for appropriate courses.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: declaration of the major, discussion of a plan of study with an American Studies advisor, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses from the plan of study and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least nine courses from the plan of study

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The American studies honors program offers students the opportunity to pursue special interests in individual, in-depth research. Honors candidates must be members of the University Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Under the guidance of the undergraduate honors advisor, honors candidates define a research project. Project proposals ideally are made by the end of the junior year. Each candidate completes the project under the guidance of a supervising faculty member and may register for up to 6 s.h. in 045:095 Honors Project.

Results of the research project are presented in a senior essay to a committee of three faculty members, including the supervising faculty member, the honors advisor, and a third faculty member of the student's choice. (When the honors advisor is the supervising faculty member, the candidate may select the other two faculty members.) The candidate's committee may choose to hear an oral defense of the final project, usually in the 12th week of the last semester.

Minor

Students interested in a minor in American studies should consult American studies faculty members. The minor requires a minimum of 15 s.h. in American studies with a g.p.a. of at least 2.00. At least 12 of the 15 s.h. must be taken at The University of Iowa in advanced courses. All core courses numbered above 045:001 are considered advanced for the minor.

Graduate Programs

Master of Arts

The M.A. in American studies may be a terminal degree or preliminary to a Ph.D. in American studies or another discipline. It usually includes 12 courses totaling 36 s.h. Requirements include the following.

045:200-045:201 Theory and Practice in American Studies I-II 6 s.h.
Two other core courses in American studies 6 s.h.

M.A. students also select from five to eight additional courses relevant to a topic or period of cultural history. These courses may be grouped to address more than one topic and must be chosen from more than one discipline; they usually include at least two courses in American history and courses focusing on American diversity.

Master's degree candidates must perform satisfactorily in 045:400 Masters Preparation (3 s.h.), which includes a comprehensive examination on course work and basic concepts.

The M.A. also may be taken with thesis, for credit up to 6 s.h. Students should consult the program chair for details.

Joint M.A./J.D.

A joint program leading to an M.A. in American studies and a J.D. from the College of Law provides a broad cultural context for the study and practice of law. Similar joint programs can be arranged in other professional fields, such as journalism and social work.

Doctor of Philosophy

The Ph.D. program in American studies requires a minimum of 72 s.h. of course work, which includes a core of American studies courses in interdisciplinary methods and substantial course work in two major fields. Course requirements are as follows.

045:200-045:201 Theory and Practice in American Studies I-II (introductory seminars) 6 s.h.
Two or more additional core graduate courses in American Studies 6 s.h.
First major field (at least six courses) 18 s.h.
Second major field (at least six courses) 18 s.h.
Electives 6 s.h.
Dissertation (up to 18 s.h.)

Although American studies Ph.D. students are permitted considerable flexibility in planning a program, they must meet certain basic requirements.

The introductory seminars 045:200-045:201 Theory and Practice in American Studies I-II should be taken as early as possible, one during each of the first two years in residence. The additional American Studies graduate courses provide further models for interdisciplinary inquiry.

The two major fields may be defined to correspond with the student's strongest intellectual interests, but they must be interdisciplinary in concept and multidisciplinary in scope. Each must include course work from more than one of the University's departments and programs. They also should be designed to emphasize a generous but well-defined period of American cultural history; therefore, historical knowledge is essential to all doctoral plans of study. The two major fields may, and usually should, have an intellectual relationship with each other.

The program expects doctoral students to address the cultural diversity of American life in their course work and reading.

ADMISSION TO PH.D. CANDIDACY

Advising is important. Each doctoral student and his or her faculty advisor map out a coherent plan of study that reflects the student's particular interests in American cultural studies. The plan of study usually has been formulated tentatively by the end of the first year in residence. During the first semester of the second year, the student submits the plan to the entire faculty, which reviews it and meets with the student to discuss it. When the faculty accepts the plan of study, the student is admitted to Ph.D. candidacy. In the next three or four semesters, the candidate completes the established plan and begins to prepare for comprehensive examinations.

COMPREHENSIVE EXAMINATIONS

The comprehensive exam comprises three written portions and an oral examination.

The position paper is always written in advance of the rest of the exam and under the supervision of an American studies faculty member. In it, the candidate lays out his or her general approach to American cultural studies and provides an exemplification of that approach.

The remaining two written exams explore the candidate's major fields; these are at least four hours long, but may be given on a take-home basis at the examiner's discretion.

The oral examination covers material from the position paper and the two written exams.

THESIS

The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis on an interdisciplinary topic whose investigation involves more than one field or discipline.

Internships

Qualified graduate students in American studies can arrange internships with a number of local agencies, including the State Historical Society of Iowa, the Division of Historic Preservation, the University of Iowa Museum of Art, the Iowa Humanities Board, Brucemore, the Herbert Hoover Presidential Library and Museum, and the Putnam Museum of History and Natural Science. With special permission, candidates conducting research during such on-the-job training may receive academic credit through 045:320 Independent Study or 045:350 Material Culture Internship. Other internships with social agencies, government, or business also may be arranged.

Courses

Primarily for Undergraduates

- 045:001 Understanding American Cultures** 4 s.h.
The United States in historical, contemporary, and transnational perspective; social and cultural diversity and conflict in American life; debates on concepts of America, the American Dream, national culture, citizenship. GE: humanities.
- 045:005 American Issues** 3 s.h.
Representative issues: radio and American culture; cultural history of the Civil War era; American history, literature, culture.
- 045:020 Sources for American Studies** 3 s.h.
Variety of historic and contemporary sources, such as literature, law, photography, painting, film, TV, music, fashions, environments, events of everyday life.
- 045:029 First-Year Seminar** 2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, fieldtrips). Prerequisite: first- or second-semester standing.
- 045:030 Introduction to African American Culture** 3 s.h.
GE: cultural diversity or humanities. Same as 129:061.
- 045:060 Sexuality and Popular Culture in the Postwar U.S.** 3 s.h.
Same as 008:050, 154:060.
- 045:074 Popular Music in American Culture** 3 s.h.
History, development, and social context of American popular music in the 20th century. Same as 016:074.
- 045:075 American Popular Music** 3 s.h.
- 045:090 Seminar in American Cultural Studies** 3 s.h.
Interdisciplinary perspectives on a single theme or period.
- 045:095 Honors Project** arr.
Independent interdisciplinary research, writing.
- 045:100 Independent Study** arr.
Prerequisite: consent of instructor.

For Undergraduate and Graduate Students

- 045:110 Gilded Age in America** 3 s.h.
End of the Civil War to turn of 20th century, through historical documents, literature, arts, and journalism; social, cultural, and political experience.
- 045:115 American Culture of the 1930s** 3 s.h.
The Great Depression through historical records, literature, photography, movies, other arts; emphasis on expression of American life and thought, social and cultural experience.
- 045:116 Cultural Geographies of North America** 3 s.h.
Same as 044:115.
- 045:123 American Literature and History** 3 s.h.
Examination of fictional histories (novels about history), their relationship to historical interpretation. Same as 008:123.
- 045:130 Dance in American Culture** 3 s.h.
Social, popular, theatrical forms since the 1960s; emphasis on relationships among aesthetics, the body, cultural politics.
- 045:139 Race, Gender, Class, and the American Frontier** 3 s.h.
How race, gender, and class shape cross-cultural encounter and imperial expansion on regional frontiers; how frontiers are represented in literature, art, and film.
- 045:145 Immigration and American Culture** 3 s.h.
Immigrants and immigrant communities.
- 045:150 Topics in American Cultural Studies** 3 s.h.
Special topics in American history, literature, culture.
- 045:151 American Business Cultures** 3 s.h.
Historical and contemporary records of business and corporate experiences as part of American life and thought, including representations of business in American novels, movies, history, autobiography; emphasis on questions of relationships between gender, ethnicity, class, and sexuality and corporate identities.
- 045:152 Fairs and Amusement Parks** 3 s.h.
Nineteenth- and 20th-century international expositions, amusement parks, and theme parks as cultural events of U.S. self-definition.
- 045:153 The Civil Rights Movement** 3 s.h.
History of the American civil rights movement. Same as 129:153.
- 045:154 Foodways in American Culture** 3 s.h.
Cultural significance of production, distribution, and consumption of food in the United States.
- 045:155 Performing America Queerly** 3 s.h.
Impact of queer sexualities on live stage and social performance and related concepts of national identity in the United States, 19th-21st centuries. Same as 049:115, 154:135.
- 045:156 Arts in America** 3 s.h.
Relationship of the arts to their cultural context and to popular culture; focus on contemporary arts (e.g., music, dance, visual arts, theater, literature).
- 045:157 Gender on Stage** 3 s.h.
How gendered bodies and roles are displayed on stage; popular, elite, experimental, traditional, mass media theatre, dance, music; performing gender in everyday life, theorizing spectatorship, politics of drag, feminist theatre. Same as 131:157.
- 045:159 Representations of Revolution** 3 s.h.
Cultural politics of the revolutionary tradition in American culture from 1776 to 1976.

045:161 Museums and the Politics of Representation	3 s.h.	045:258 Seminar: Technology and American Culture	3 s.h.
Types of museums (natural history, art, ethnic, social history, eccentric) at national, regional, local levels.			
045:163 Storytelling and Urban Engagement	3 s.h.	045:260 Seminar: History, Literature, and American Culture	arr.
Same as 008:158, 102:158.		Same as 008:465.	
045:165 The Culture of Nature	3 s.h.	045:269 Readings on the American South: Gender and Race in American History	arr.
How ideas of “the natural” and “the cultural” underpin beliefs, laws, and social practices; relationship between these two concepts; construction of notions of a natural world; idea of landscape and nature as a resource to be used, appreciated, articulated, or enjoyed; focus on analysis of relationships to animals.		Same as 016:269.	
045:174 The American Vacation	3 s.h.	045:293 Seminar in American Visual Culture	3 s.h.
Weekends, holidays, vacations as bounded time-outs invested with cultural significance; history, ideology of these time-outs with particular attention to how race, class, and gender shape experiences and meanings. Same as 028:179.		Visual expression, its relation to cultural history. Repeatable.	
045:180 Theory and Practice of Cultural Studies	3 s.h.	045:299 American Studies Proseminar	1-2 s.h.
Issues, methods, and materials of cultural studies, from post-structuralism and western Marxism to the study of subcultures and everyday life.		Intensive reading on American cultural analysis topics; may include screenings, field trips, guest speakers, special events. Repeatable.	
045:185 America in the World	3 s.h.	045:300 American Film and American Culture	3 s.h.
How U.S. activity influences lives worldwide.		Relationships between film and culture as developed in a particular approach, period, subject. Same as 048:300.	
045:193 American Photography	3 s.h.	045:320 Independent Study	arr.
Popular and art photographs as expressions of American life, thought.		Repeatable. Prerequisite: consent of instructor.	
045:198 American Communities	3 s.h.	045:350 Material Culture Internship	0-5 s.h.
Studies of selected peoples and places in America; emphasis on books in anthropology, history, journalism, sociology and on documentary film.		Independent work in the field or in a field school, curating or interpreting material culture. Prerequisite: consent of instructor.	
045:199 Interviewing Americans	3 s.h.	045:400 Masters Preparation	0-3 s.h.
Contemporary Americans through interviews; questioning and recording techniques, ethnographic writing. Same as 113:106.		Writing for M.A. exam. Prerequisites: American Studies nonthesis M.A. candidacy and consent of instructor.	
		045:450 M.A. Thesis	0-6 s.h.
		Prerequisite: consent of instructor.	
		045:500 American Studies Position Paper	3 s.h.
		Writing for the Ph.D. comprehensive exam. Prerequisite: consent of instructor.	
		045:600 Ph.D. Thesis	arr.
		Repeatable. Prerequisite: consent of instructor.	

Primarily for Graduate Students

045:200 Theory and Practice of American Studies I	3 s.h.
Theories, methods, cases in culture studies; emphasis on social science approaches. Prerequisite: American studies graduate standing or consent of instructor.	
045:201 Theory and Practice in American Studies II	3 s.h.
Prerequisite: American studies graduate standing or consent of instructor.	
045:210 Introduction to Research in African American Culture	arr.
Same as 129:211.	
045:230 Seminar: Performing Arts in American Culture	3 s.h.
American theater, dance, music, and performance.	
045:242 African American Cultural and Literary Criticism 1900-Present	3 s.h.
Diverse range of African American cultural and literary criticism from 1900 to the present; the new negro; racial integration; race, gender, and sexuality; Black public intellectuals. Same as 008:242.	
045:250 Seminar: Topics in American Studies	3 s.h.
American cultural history; urbanization, mass media, pluralism, assimilation. Repeatable.	

Anthropology

Chair: Russell Ciochon

Professors: Thomas H. Charlton, Michael Chibnik, Russell Ciochon (Anthropology/Pediatric Dentistry), Virginia Dominguez, Ellen Lewin (Women's Studies/Anthropology), Toni Tripp Reimer (Nursing/Anthropology)

Professors emeriti: Mac Marshall, Margery Wolf

Associate professors: Rudolf Colloredo-Mansfeld, James Enloe, Robert Franciscus, Laura Graham, Katina Lillios, Sonia Ryang, Scott Schnell, Glenn Storey (Classics/Anthropology)

Associate professor emeriti: Marshall B. McKusick, Douglas Midgett

Adjunct associate professors: Kevin Kelly, Alfrieta Monagan, Rachele Saltzman

Assistant professors: Nanette Barkey (Anthropology/Community and Behavioral Health), William Graves, Adi M. Hastings, Meena R. Khandelwal (Anthropology/Women's Studies), Erica Prussing (Anthropology/Community and Behavioral Health)

Adjunct assistant professors: Katherine Dernbach, John Doershuk, Brittittine French, Karen Haslett, Velana Huntington, Stephen C. Lensink, Maureen McCue, Elizabeth Prine Pauls

Adjunct instructor: Shirley J. Schermer

Undergraduate degrees: B.A., B.S. in Anthropology

Undergraduate nondegree program: Minor in Anthropology

Graduate degrees: M.A., Ph.D. in Anthropology

Web site: <http://www.uiowa.edu/~anthro>

Anthropology is the comparative study of peoples and cultures past and present. The discipline's four major subfields—cultural anthropology, biological anthropology, linguistic anthropology, and archaeology—have important connections to other social sciences, physical and biological sciences, and to the arts and humanities.

Anthropology provides a framework for understanding the relation of human beings to their natural environment and to the social and cultural worlds they create and inhabit. The field provides insight into biological and sociocultural evolution and includes a focus on economic, social, and political organizations, symbolic systems, and social systems. Comparative studies of these and other aspects of past and present cultures yield information on regularities and differences.

Undergraduate Program

The Department of Anthropology offers the Bachelor of Arts and the Bachelor of Science. Either program is appropriate preparation for advanced training or careers in anthropology, allied fields, and professional programs. Students who complete an anthropology major gain special understanding of human relations and expertise for jobs involving international or cross-cultural work, cultural resource management, and social and ethnic diversity in the United States.

Upon graduation, anthropology majors embark on careers in government work, international affairs, public health, gerontology, urban and regional planning, conservation, social work, marketing, museum work, and education. Others pursue graduate study in law, business, and health care as well as anthropology and related social science disciplines. Some are employed in cultural resource management.

Bachelor of Arts, Bachelor of Science

The B.A. program has been designed to offer a comprehensive overview of anthropology's four main subfields and the broadest possible cross-cultural background. Students with interests in physical anthropology, archaeological lab work, and quantitative approaches within sociocultural or linguistic anthropology are encouraged to pursue the Bachelor of Science.

B.A. students must complete 33 s.h. in the major; at least 15 s.h. in the major must be earned at The University of Iowa.

B.S. students must complete 42 s.h. in the major (not including the semester hours for the minor); at least 15 s.h. in the major must be earned at The University of Iowa.

Common Requirements

All anthropology majors must complete the following courses.

One of these:

113:003 Introduction to the Study of Culture and Society

3 s.h.

- 113:010 Anthropology and Contemporary World Problems 3 s.h.
- All of these:
- 113:012 Introduction to Prehistory 3 s.h.
- 113:013 Human Origins 3 s.h.
- 113:014 Language, Culture, and Communication 3 s.h.
- 113:050 Issues in Anthropology 3 s.h.
- One 100-level course in archaeology (areal or topical) or biological anthropology
- One 100-level course in sociocultural or linguistic anthropology
- One 100-level course in area studies
- Three 100-level electives

Anthropology electives offer many choices, including courses dealing with biological anthropology, environment and culture, expressive culture (art, verbal arts, literature, music, and dance), gender, human evolution, human evolutionary anatomy, human osteology, human prehistory, identity, language and culture, medical anthropology, psychological anthropology, religion and ritual, and urban anthropology. Department faculty members offer area studies courses on Latin America, Africa, Europe, Japan, the Caribbean, the Middle East, South Asia, and Native North America.

Additional Bachelor of Arts Requirements

Students pursuing the B.A. are strongly encouraged to participate in archaeological field and laboratory research, independent studies in sociocultural anthropology, or linguistic anthropology research.

Additional Bachelor of Science Requirements

Students pursuing the B.S. must fulfill requirements in the following areas.

A quantitative, mathematical, or formal reasoning tool: at least two courses, minimum 6 s.h.

Directed laboratory or field research: at least one course, 3 s.h. (credit may be applied to honors major when appropriate)

Allied topical course work (related minor)

QUANTITATIVE, MATHEMATICAL, OR FORMAL REASONING TOOL

Students must complete a minimum of 6 s.h. beyond the courses used to complete the General Education Program quantitative or formal reasoning component. Students select specific courses or course sequences in consultation with their advisors.

DIRECTED LABORATORY OR FIELD RESEARCH

Students complete an approved directed research requirement (minimum of 3 s.h.) consisting of one of the following.

Laboratory research: a laboratory practicum in anthropology research labs or independent, faculty-guided, laboratory research, including use of the collections of the Office of the State Archaeologist.

Field research project: faculty-advised projects involving the collection of primary data in a fieldwork setting.

A University of Iowa field school program or approved equivalent (current field schools include Plum Grove Historical Archaeology and the University of Iowa Southwest Archaeology Field School).

An approved internship: typical approved internships include work in cultural resource management firms, museums, and public health research or education projects. To receive research credit for an internship, students must make a final report to their faculty advisor, summarizing the work accomplished or presenting materials that document the nature of the work.

ALLIED TOPICAL COURSE WORK

Students complete a topical specialization, consisting of at least a minor in one of the following allied fields: biological sciences, chemistry, computer science, economics, exercise science, geography, geoscience, global health studies, health and sport studies, linguistics, mathematics, psychology, science education, or statistics and actuarial science. Minors (or at least five courses) in other fields, chosen in consultation with the student’s advisor, may be applied toward this requirement.

Advising

Students who declare anthropology as their major when they are admitted to the College of Liberal Arts and Sciences are advised at the Academic Advising Center until they have earned 28 s.h. Students who have earned more than 28 s.h. are advised in the department. Students are assigned an advisor based on faculty advisor loads and student interests.

Transfer Students

Students pursuing the B.A. or B.S. must earn at least 15 s.h. in anthropology at The University of

Iowa. Students may apply semester hours earned at approved field schools offered by other institutions toward the B.A. or B.S. in anthropology.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Bachelor of Arts

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major and one-half of the semester hours required for graduation

Before the seventh semester begins: at least seven courses in the major and at least three-quarters of the hours required for graduation

Before the eighth semester begins: at least eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Before the third semester begins: at least one anthropology course or other course in the major, and one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least four anthropology courses or other courses in the major, one course in the minor area, one course for the quantitative or formal reasoning tool requirement, and one-half of the semester hours required for graduation

Before the seventh semester begins: at least seven courses in the major, three courses in the minor area, the second quantitative or formal reasoning tool course, and at least three-quarters of the hours required for graduation

Before the eighth semester begins: at least nine courses in the major, including the directed research requirement and four courses in the minor area

During the eighth semester: enrollment in all remaining course work in the major and in the

minor area, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

In addition to the regular requirements for a major in anthropology, honors students pursuing either the B.A. or the B.S. conduct an independent research project that culminates in a 30-50 page thesis. The project includes completion of 113:186 Honors Research Seminar, offered only fall semesters, and registration for 113:176 Honors Research, typically the next semester. They also must take one of their anthropology courses at the graduate level. To graduate with honors, students must have a g.p.a. of at least 3.50 in anthropology and be a member of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). For more information about honors in anthropology, contact the department's honors advisor.

Students pursuing the B.S. can count their directed research project or laboratory practicum towards the semester hours needed to complete honors requirements, but meeting the research requirement by itself does not meet the honors requirement. Students must work with their honors thesis advisor to structure their research so that it meets the added requirements of honors work.

Minor

To minor in anthropology, students must complete 15 s.h. in anthropology with a g.p.a. of at least 2.00. At least 12 s.h. must be taken at The University of Iowa in courses numbered 113:100 and above.

Graduate Programs

The graduate program emphasizes continuity from the Master of Arts to the Doctor of Philosophy. The department admits students who seek the Ph.D. Students seeking only the M.A. ordinarily are not admitted. Students must complete all M.A. requirements before advancing to the Ph.D. program. Entering graduate students are not required to have an undergraduate degree in anthropology. Applicants who hold an M.A. in anthropology from another institution may apply directly for admission to the Ph.D. program.

Once a student completes all requirements for the M.A., his or her committee makes a recommendation to the faculty concerning the students' potential for completing the Ph.D. The committee recommends continuation or dismissal from the program.

Master of Arts

The M.A. in anthropology is normally awarded to students after two years in the graduate program. The degree requires 30-36 s.h., depending on the student's previous anthropological training. No more than 9 s.h. earned in courses outside anthropology may be applied to the M.A. in anthropology.

In the first semester of the M.A. program, the director of graduate studies advises the student. By the end of the second semester, students must select an advisor and begin forming an M.A. committee. In consultation with the committee, the student develops a research project and writes an M.A. paper. The committee must approve the M.A. paper by the end of the fourth semester of study. The student also publicly presents the paper. As an alternative to the M.A. paper, students may choose to write a formal M.A. thesis, which must follow the Graduate College thesis guidelines. Students must submit a final copy of their M.A. thesis or paper to the department.

There are two options for the M.A.: general anthropology and feminist anthropology. Feminist anthropology has more specific requirements than general anthropology.

General Anthropology

Students in the general anthropology M.A. program must complete core seminars in at least three of the four subfields, for a total of 9 s.h. The four core seminars are as follows.

- 113:240 Seminar: Sociocultural Anthropology 3 s.h.
- 113:268 Seminar: Archaeological Theory and Method 3 s.h.
- 113:271 Seminar: Linguistic Anthropology 3 s.h.
- 113:285 Seminar: Biological Anthropology 3 s.h.

In addition, all students are required to take 113:210 Anthropological Data Analysis or another course in statistics within the first three years of their graduate program, preferably during their M.A. program (first two years of graduate study).

ELECTIVES

In consultation with their advisor and committee members, students select additional course work to complete the remaining semester hours required for the M.A. Elective hours may include courses in other disciplines, directed study, or up to 6 s.h. of thesis credit (if applicable).

Feminist Anthropology

Students in the feminist anthropology M.A. program must take two of the following three general anthropology core seminars.

- 113:240 Seminar: Sociocultural Anthropology 3 s.h.
- 113:268 Seminar: Archaeological Theory and Method 3 s.h.
- 113:271 Seminar: Linguistic Anthropology 3 s.h.

In addition, students must take the following feminist core seminars.

- 113:220 Seminar: Feminist Anthropology 3 s.h.
- 113:273 Seminar: Language and Gender 3 s.h.
- 113:290 Feminist Perspectives on Biology and Culture 3 s.h.

All students must take 113:210 Anthropological Data Analysis or another statistics course within the first three years of graduate study, preferably during the first two years.

ELECTIVES

Students must select two of these:

- 113:105 Motherhood and Reproduction 3 s.h.
- 113:107 Gendering India 3 s.h.
- 113:133 Anthropology of Women's Health 3 s.h.
- 113:141 History of Feminist Anthropology 3 s.h.
- 113:156 Sexuality and Culture 3 s.h.
- 113:180 Women Writing Culture 3 s.h.
- 113:182 Women, Health, and Healing 3 s.h.
- 113:221 Seminar: Feminist Ethnography 3 s.h.
- 113:223 Feminist Medical Anthropology 3 s.h.
- 113:224 Seminar: Feminist and Gender Archaeology 3 s.h.

In consultation with their advisor and committee members, students select additional course work to complete the remaining semester hours required for the M.A. Elective credit may include course work in other disciplines, directed study, or up to 6 s.h. of thesis credit (if applicable).

Doctor of Philosophy

The Ph.D. represents a balance between general anthropological competence obtained at the M.A. level and professional specialization and competence for independent research and teaching in one of four subfields: sociocultural anthropology, linguistic anthropology, archaeology, and biological anthropology.

To ensure focus on the student's research interests, the department has an integrated process of simultaneous preparation of reading lists, research proposals for submission to granting agencies, dissertation proposal, and position papers. In order to complete the degree, all doctoral candidates are required to complete appropriate course work and the Ph.D. comprehensive process, carry out original anthropological research, and write and defend a dissertation. Students work closely with their advisor and committee at all stages.

In the first semester after completing the M.A. (or the first semester in the program for students who enter with an M.A. in anthropology from another institution), the student selects an advisor. By the end of the second semester, the student selects a committee to oversee his or her completion of the comprehensive process.

The student immediately begins consulting with their advisor, and eventually their committee, to start compiling an annotated bibliography of works relevant to future research. The annotated bibliography is a working document for the student's use in the Ph.D. program; it is not a formal requirement and does not require formal review.

In the third and fourth semesters of the program, the student completes the comprehensive process. Then he or she may select a dissertation committee.

REQUIRED COURSE WORK

The Ph.D. requires a minimum of 72 s.h. beyond the B.A.

Students should take all lecture courses and seminars that are relevant to the areas they intend to cover in their position papers. A maximum of 18 s.h. earned in non-anthropology courses may be counted toward the 72 s.h. required for the Ph.D., including the maximum 9 s.h. that can be counted toward the master's degree.

Students must not rely heavily upon independent study courses.

Students must take at least one theory course beyond the course they took to fulfill the master's

requirements in their specialization subfield. This course should be chosen from one of the following lists.

Sociocultural Anthropology

113:116 Self and Others	3 s.h.
113:124 Colonialism and Culture	3 s.h.
113:135 Psychological Anthropology	3 s.h.
113:141 History of Feminist Anthropology	3 s.h.
113:142 Anthropology of Religion	2-3 s.h.
113:143 Environment and Culture	3 s.h.
113:144 Culture and Consumption	3 s.h.
113:145 Economic Anthropology of the Third World	3 s.h.
113:153 Cultural Politics	3 s.h.
113:156 Sexuality and Culture	3 s.h.
113:185 Medical Anthropology	3 s.h.
113:201 Seminar: Anthropological Theory	3 s.h.
113:205 Reading French Theorists	3 s.h.
113:208 Foundations of Ethnomusicology	3 s.h.
113:220 Seminar: Feminist Anthropology	3 s.h.
113:223 Feminist Medical Anthropology	3 s.h.
113:240 Seminar: Sociocultural Anthropology	3 s.h.
113:241 Economic Anthropology	3 s.h.
113:244 Seminar: Semiotics	3 s.h.
113:250 Seminar: Ritual and Performance	3 s.h.

Linguistic Anthropology

113:123 Language and Nationalism	3 s.h.
113:179 Language and Identity	3 s.h.
113:244 Seminar: Semiotics	3 s.h.
113:271 Seminar: Linguistic Anthropology	3 s.h.
113:273 Seminar: Language and Gender	3 s.h.

Archaeology

113:164 Comparative Prehistory	3 s.h.
113:178 Hunter-Gatherer Ethnoarchaeology	3 s.h.
113:191 Marxism and Archaeology	3 s.h.
113:224 Seminar: Feminist and Gender Archaeology	3 s.h.
113:258 Seminar: Zooarchaeology	3 s.h.
113:268 Seminar: Archaeological Theory and Method	3 s.h.

Biological Anthropology

113:165 Human Variation	3 s.h.
113:169 Human Evolutionary Anatomy	3 s.h.
113:170 Primate Evolutionary Biology	3 s.h.
113:187 Human Evolution	3 s.h.
113:188 Primate Behavior and Ecology	3 s.h.
113:285 Seminar: Biological Anthropology	3 s.h.
113:288 Seminar: Paleoanthropology	3 s.h.

FOREIGN LANGUAGE

All doctoral students must demonstrate reading and/or speaking knowledge of one foreign language. They must meet this requirement before beginning dissertation research.

THE PH.D. COMPREHENSIVE PROCESS

The comprehensive process consists of writing position papers and preparing a research proposal and prospectus defense. According to individual needs and in consultation with the committee, a student selects the order of completing these two tasks.

Successful completion of the comprehensive process advances the student to Ph.D. candidacy.

To remain in good academic standing, students must complete the comprehensive process by the end of the fourth semester in the Ph.D. program. Students who do not adhere to this timeline are placed on departmental probation.

Research Proposal and Prospectus Defense

Working closely with the committee, the student drafts a research proposal for the program of dissertation research and defends a research prospectus before the Ph.D. committee. The defense is open to students and faculty. A copy of the student's dissertation prospectus must be made available in the department office one week before the defense.

Position Papers

Position papers are two essays of publishable quality. One essay concerns the student's geographical area of specialization; the other deals with his or her primary topical area. In some fields (e.g., biological anthropology), a geographical area may not be relevant. The essays are responses to questions the committee prepares in consultation with the student.

Position papers should demonstrate analysis, evaluation, synthesis, and control of a body of information (knowledge and comprehension). They should critique a major problem or debate (application and analysis), and they should develop a position on an issue and provide an explanation or theoretical justification for the position (evaluation and synthesis).

DISSERTATION

All Ph.D. candidates are required to carry out original anthropological research. Students typically conduct dissertation research after defending their research prospectus and writing position papers. Dissertations usually are based on fieldwork. Some are based on data from

archival collections, laboratory projects, collections, or other source materials.

Archaeological Field Research

Under the direction of University archaeologists, students acquire skills in data recovery and interpretive techniques. Opportunities are available for students to participate in archaeological field research in central Mexico, France, the Netherlands, Portugal, Sicily, the U.S. Southwest, or at various sites in the U.S. Midwest. Occasional fieldwork in East and Southeast Asia is available to graduate students in the paleoanthropology research program.

Admission

Applicants for admission to the graduate program in anthropology are considered regardless of their previous field of training. Students without previous training in anthropology may be expected to perform additional work necessary to achieve competence expected for their degree objective.

Students normally are admitted directly to the Ph.D. program. For students without an M.A. in anthropology, the first two years of the Ph.D. program are devoted to fulfilling the requirements of the M.A. After those requirements are completed, the student's committee recommends to the faculty whether the student should continue to work toward the Ph.D.

Students with an M.A. in anthropology from another institution may proceed directly into a Ph.D. program organized around their special research interests.

Applicants for admission to the graduate program must meet the admission requirements of the Graduate College (see the Manual of Rules and Regulations of the Graduate College) and are required to submit the following:

- a completed University application form;
- transcripts of all previous undergraduate and graduate work;
- three letters of recommendation from individuals competent to judge the applicant's potential for graduate training;
- Graduate Record Examination (GRE) scores;
- TOEFL (Test of English as a Foreign Language) scores for international applicants whose first language is not English and whose previous university work was not conducted in English; and

at least one written example of previous work (for example, a term paper).

Applicants with an M.A. from another university must submit a copy of their master's thesis; applicants who earned an M.A. without thesis or whose thesis is not yet complete should submit written copies of three papers completed in graduate school.

Financial Support

Financial assistance, usually in the form of teaching and research assistantships, is offered to the majority of graduate students in good standing for up to five years. Students making satisfactory and timely progress through the graduate program are in good standing. Eligibility for financial aid is reduced after two years in the M.A. portion of the graduate program, after two years in the Ph.D. portion of the graduate program, or after one year of postdoctoral fieldwork or research enrollment. The department typically provides a one-year tuition scholarship to doctoral students conducting research for the dissertation. The amount and types of aid depend on departmental needs. The department awards financial aid to most entering graduate students every year.

Students are notified in writing of a provisional financial award before the semester or summer session for which the award has been granted. Financial aid awards are made before the end of the previous semester, so each award is contingent upon satisfactory completion of that semester's work by the awardee. Financial aid normally is given only to full-time students.

Resources, Facilities

The editorial office of the *American Ethnologist*, the official journal of the American Ethnological Society, has been housed in the Department of Anthropology since July 2002.

The department has access to the Iowa Archaeological Collections through the Office of the State Archaeologist and maintains its own archaeological collections (midwestern prehistoric and historical and comparative faunal material).

The department maintains a documented human osteology teaching collection amassed by the University of Iowa Carver College of Medicine, and it holds a substantial documented human osteology research collection originally from Stanford University's medical school that is

maintained jointly with the Office of the State Archaeologist.

Individual faculty members maintain field laboratories and conduct research outside the United States, maintaining ties with research institutions in foreign countries, including the Teotihuacán Archaeological Research Facility, in Mexico; the Laboratoire d'Ethnologie Préhistorique at Pincevent; the Centre de Recherches Archéologiques at Verberie, in France; the Institute of Technology Bandung (ITB), in Indonesia; the Gemeente Nijmegen, Bureau Archeologie, Nijmegen, the Netherlands, and the Deutsches Archäologisches Institut of Madrid.

The department also has well-equipped laboratories for the study of archaeology, biological anthropology, and a state-of-the-art multimedia linguistic anthropology lab.

The University is a charter member of the Human Relations Area Files (HRAF), an extensively annotated set of source materials on the peoples of the world—their environments, behavioral patterns, social lives, and cultures. Through HRAF and other library resources, anthropology students have access to source materials on more than 400 different cultures.

The University's exchange programs for Iowa students provide opportunities and some scholarships for study abroad.

Faculty

Members of the anthropology faculty have studied and lived in Africa, Asia, the Caribbean, Europe, Mesoamerica, the Middle East, Pacific Islands, South America, and the United States. Recent field research has been conducted in Angola, Belgium, Brazil, the eastern Caribbean, China, Czech Republic, Ecuador, Fiji, France, Greece, Honduras, Hungary, India, Indonesia, Israel, Italy, Japan, Mexico, Micronesia, Mozambique, Myanmar (formerly Burma), the Netherlands, Papua New Guinea, Peru, Portugal, Russia, native North America, the United States, and Vietnam.

Current faculty interests include patterns of political and economic development of emerging nations; the trade in Mexican folk art, material culture, and the politics of consumption; Andean peoples and cultures; indigenous movements; gender and the cultural politics surrounding sobriety in native North America; the cultural production of scientific knowledge about racial/ethnic disparities in infant mortality in U.S. public health; stress, blood pressure, and social

support in Mozambique; coping strategies in post-war Angola; West Indian migrants in London; political economy of the eastern Caribbean; environmental issues in the western United States; cultural politics, semiotics, and critical discourses in the United States and the Middle East; power, memory, and social inequality in ancient Iberia; language and gender; expressive culture and performance in the Brazilian Amazon; Sanskrit, colonial linguistics, cultural politics of language, religion, and ethnicity; spiritual tourism in India; community and conflict, ritualization, localized religion, and environmentalism in Japan; paleoanthropological investigations of Pleistocene karst caves in China and northern Vietnam; geological and paleoanthropological field surveys of the Plio-Pleistocene Sangiran Dome, in Java; Neanderthal craniofacial form, function, and evolutionary history; anatomical modernity and the origins of modern humans; historical archaeology of Iowa; precontact state systems and the historical archaeology of the Basin of Mexico; faunal and spatial analyses from Paleolithic sites in France and the Ukraine; and social and political organization of late prehistoric and early historic period Puebloan society in New Mexico.

Courses

For Undergraduates

- 113:003 Introduction to the Study of Culture and Society** 3 s.h.
Comparative study of culture, social organization. GE: social sciences.
- 113:010 Anthropology and Contemporary World Problems** 3 s.h.
Selected world problems from an anthropological perspective; current dilemmas and those faced by diverse human groups in recent times and distant past. GE: social sciences.
- 113:012 Introduction to Prehistory** 3 s.h.
Data, theories of evolution of human cultures from end of Pleistocene to emergence of complex societies; emphasis on prehistoric cultural information from world areas from which relatively complete sequences are available. GE: historical perspectives.
- 113:013 Human Origins** 3 s.h.
Processes, products of human evolution from perspectives of heredity and genetics, evolutionary theory, human biological characteristics, fossil record, artifactual evidence, biocultural behaviors. GE: natural sciences.
- 113:014 Language, Culture, and Communication** 3 s.h.
Human language in context of animal communication; development, acquisition of language; biological base; language as a linguistic system in cultural social context. GE: social sciences.
- 113:020 Introduction to Midwestern Prehistory** 3 s.h.
Prehistoric cultural sequence of Iowa viewed against background of North American prehistory; current and future research. Same as 149:020.

113:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

113:050 Issues in Anthropology 3 s.h.
In-depth exploration of methodological and theoretical issues in contemporary anthropology; emphasis on critical reading of primary texts.

113:051 Diversity in Action in American Society 1-3 s.h.
Consequences of American racial and cultural diversity as related to contemporary social issues and professional careers; assumptions that define diversity as a problem for educators.

113:075 Individual Study 1-3 s.h.
Readings in area or subdivision of anthropology in which student has had basic course work. Prerequisite: consent of instructor.

Advanced Courses

General Anthropology

113:103 Introduction to Museology 3 s.h.
History, philosophy, organization, programs of various kinds of museums and related cultural institutions; emphasis on American museums. GE: humanities. Same as 07S:112, 024:102, 097:115, 169:102.

113:128 Faces of Culture 3 s.h.
Human subsistence and adaptation to environment in cultures from all continents; cross-culture comparisons and general themes.

113:147 Special Topics in Anthropology 2-3 s.h.
Problems, concepts involved in comparing and contrasting behavior and ideas of different cultures.

113:148 Special Topics in Anthropology 3 s.h.
Problems, concepts involved in comparing and contrasting behavior and ideas of different cultures.

113:149 Special Topics in Anthropology 2-3 s.h.
Problems, concepts involved in comparing and contrasting behavior and ideas of different cultures.

113:151 Sociology of the Third World 3 s.h.
Economic development as a sociological problem: social institutions, social organization of underdeveloped areas; social, economic development programs; social change, consequences of industrialization and urbanization in underdeveloped areas. Prerequisite: 034:001 or 113:003. Same as 034:151.

113:209 Research Design and Proposal Writing 3 s.h.
Anthropological research design; preparation of proposals for fieldwork or laboratory analysis. Prerequisite: graduate standing or consent of instructor.

113:210 Anthropological Data Analysis 3 s.h.
Quantitative procedures for analyzing field data, library materials; elementary statistics, introduction to computers.

113:235 Graduate Teaching Proseminar 1 s.h.
Graduate student teaching skills: developing course guidelines, leading discussion, grading, review sessions, dealing with problem students and complaints; development of syllabi and teaching portfolios; mentoring of less-experienced teaching assistants. Repeatable. Prerequisite: graduate standing.

Area Studies

The following archaeology courses may be used to fulfill the area studies requirement: 113:150,

113:159, 113:163, 113:166, 113:167, 113:192, and 113:194. No single course may be used to fulfill both area studies and archaeology requirements.

113:104 Inside/Outside The Middle East 3 s.h.
Social, political relations in Middle Eastern societies; anthropological perspectives; understanding of Islam; nationalist movements, social revolutions; male-female relations; competing claims to cultural, historical authenticity.

113:106 Interviewing Americans 3 s.h.
Contemporary Americans through interviews; questioning, recording techniques, ethnographic writing. Same as 045:199.

113:107 Gendering India 3 s.h.
Aspects of Indian culture, including nation, family, sexuality, work, and religion, through the lens of gender; Hindu India, differences in region, caste, and class. Prerequisite: 113:003 or 131:010. Same as 131:107.

113:110 Indians of North America 3 s.h.
History, culture of American Indian peoples; emphasis on North America. GE: cultural diversity. Same as 149:110.

113:112 Understanding Africa 3 s.h.
Introduction to anthropological study of sub-Saharan Africa; continuing impact of colonialism and globalization, identity and nationalism, political and economic organization, belief systems, family life, environment, art, music, religion.

113:113 Africans in the New World 3 s.h.
Social, cultural history of African descendants in the New World; emphasis on continuity, change in U.S. populations; contemporary African American societies, emphasis on cultural unity, variation, liberation themes.

113:117 The Maya 3 s.h.
Maya of Guatemala, Mexico from the Classic Period (eighth century) to present; history, art, science, achievements, religion, cultural and social systems, language, politics, identity, contemporary problems.

113:118 Social Anthropology of the Caribbean 3 s.h.
Historical background, other factors underlying contemporary social, cultural situations in insular and circum-Caribbean region; emphasis on African American populations, cultural components. GE: foreign civilization and culture.

113:120 Popular Culture in South Asia 3 s.h.
Popular cultural forms (films, calendar art, music, comics, advertising) and their role in formation and expression of collective identities based on gender, ethnicity, caste, religion, and so forth in South Asia. Same as 039:119.

113:125 Japanese Society and Culture 3 s.h.
Cultural anthropology of Japan, including historical tradition, religious ethos, social organization, human ecology, educational and political institutions; emphasis on how these aspects relate to and influence one another. GE: foreign civilization and culture. Same as 39J:125.

113:126 Japanese Ethos: Narrative and Performance 3 s.h.
Japanese attitudes, relationships, and perceptions as expressed through various forms of narrative and performance, including myth, ritual, dance, theater, folklore, literature, and film. Prerequisite: 39J:125 or 113:125 or consent of instructor. Same as 39J:126.

113:127 Ethnology of Oceania 3 s.h.
Comparative ethnography of island Oceania (Polynesia, Micronesia, Melanesia); postcontact and current history of Pacific area, special problems of living in island habitats, contributions of Oceanic ethnography to anthropological theory; contemporary problems, research trends. GE: foreign civilization and culture.

113:129 Language/Politics of Culture in South Asia 3 s.h.
Key moments in the sociolinguistic history of premodern, colonial, and postcolonial linguistic communities in South Asia; roles of language in mediation of cultural and political processes. Same as 039:122.

113:131 Latin American Economy and Society 3 s.h.
Development, present structure of Latin American economy and society; emphasis on rural regions in context of national development; focus on area as a whole. GE: foreign civilization and culture.

113:132 Latin American Studies Seminar 3 s.h.
Interdisciplinary (anthropology, history, political science, Spanish and Portuguese). Same as 035:176, 038:176, 048:153, 130:176.

113:134 Gender and Indian Diaspora 3 s.h.
General theories of diaspora, which have expanded from the Jewish experience to explain African and Asian diasporas; theories in context of Indian diaspora populations and their relationship to the homeland. Prerequisite: 113:003 or consent of instructor. Same as 131:134.

Sociocultural Anthropology

113:105 Motherhood and Reproduction 3 s.h.
Motherhood and reproduction in feminist theory and scholarship viewed through various disciplines. Same as 131:142.

113:109 Literature and Anthropology 3 s.h.
Topics vary. Same as 008:151, 048:151.

113:115 Race, Racism, and Antiracism in the U.S. 3 s.h.
U.S. concepts of race and racism in historical comparative perspective; visual, legal, media, political, cultural, and intellectual arenas in which ideas about race are manifested, produced, consumed, contested. Prerequisite: sophomore or higher standing.

113:116 Self and Others 3 s.h.
Comparative, theoretical discussions of social identity; principles of social differentiation, categorization; sociopolitical histories, consequences; contextualization of U.S. notions of ethnicity, race, nation, class, gender, culture. Prerequisite: junior or higher standing or consent of instructor.

113:119 Urban Anthropology 3 s.h.
Cross-cultural approach; emphasis on urbanizing processes, migration and adaptation, aspects of class and ethnicity in urban settings, urban economic relations. GE: social sciences.

113:121 Health of Indigenous Peoples 3 s.h.
Health problems and services for indigenous populations worldwide, from perspective of Fourth World postcolonial politics. Prerequisite: 113:003 or 113:010 or consent of instructor. Same as 149:121, 152:121.

113:124 Colonialism and Culture 3 s.h.
Effects of the colonial encounter on the European colonizers and colonized populations: cultural effects and colonial modernities through varied thematic, sociohistorical, and geographic contexts. Prerequisite: 113:003 or 113:010 or consent of instructor.

113:133 The Anthropology of Women's Health 3 s.h.
How female gender intersects with culture, environment, and political economy to shape health and illness; reproductive health, violence, drug use, cancer; readings in anthropology, public health. Prerequisite: 113:003 or 113:010 or 131:010 or consent of instructor. Same as 131:133, 172:133.

113:135 Psychological Anthropology 3 s.h.
Cultural diversity in constructions of self, mind, and emotion; religious experience, altered states of consciousness, behavioral disorders. Prerequisite: 113:003 or 113:010.

- 113:136 Applied Anthropology** 3 s.h.
Practical health, environmental, and social problems viewed through an anthropological framework; how anthropological approaches are used to recognize and address applied problems. Same as 175:136.
- 113:137 Anthropology of Tourism** 3 s.h.
Anthropology of leisure tourism; history of tourism, seasonal rituals and pilgrimages, cultural or ethnic tourism, production and trade in ethnic arts, tourism as economic development.
- 113:138 Anthropology and Education** 3 s.h.
Sociocultural nature of education and impact of linguistic and cultural diversity on education; political, social, linguistic issues of educational practices and policies today.
- 113:139 Religion and Environmental Ethics** 3 s.h.
How humans conceptualize the biophysical environment through religious beliefs and practices; how images of the environment influence people's activities, how they are used by grassroots environmental movements. Prerequisite: junior or senior standing or consent of instructor. Same as 032:130, 033:139.
- 113:140 City and Society** 3 s.h.
Current issues in cross-cultural perspective; emphasis on Third World cities in the era of globalization, with attention to gender, race, class, citizenship.
- 113:141 History of Feminist Anthropology** 3 s.h.
Development and evolution of feminist critiques in cultural anthropology; readings from early studies by women ethnographers, classic writings that sought to give women cross-cultural visibility, recent experimental texts. Prerequisite: 113:003 or 131:010. Same as 131:141.
- 113:142 Anthropology of Religion** 2-3 s.h.
Approaches; religious roles; shamanism, witchcraft, curing, mythology; place of religion in social and cultural change. Same as 032:165.
- 113:143 Environment and Culture** 3 s.h.
Individual and group responses to scarcities of natural resources such as land, water, food. Prerequisite: 113:003 or 113:010 or graduate standing or consent of instructor.
- 113:144 Culture and Consumption** 3 s.h.
How social world is made through goods and commodities; gift giving, prestige economies, commodification, objects and ideology; politics of consumption; role of materialism in culture change; cases from prehistory to post-riot Los Angeles.
- 113:145 Economic Anthropology of the Third World** 3 s.h.
Ecological, cultural, and political theories of poverty; economies and adaptive practices of rural peoples in context of world economic system; ethnographic case studies of material practices and political institutions related to economy.
- 113:146 Anthropology of Death** 3 s.h.
How anthropologists and archaeologists study death, dying, mortuary rituals, and notions of the afterlife in contemporary North America and in different places and times. Prerequisite: 113:003 or 113:012 or graduate standing or consent of instructor.
- 113:153 Cultural Politics** 3 s.h.
Implicit and explicit manifestations of power in the arts, popular culture, institutions of learning, sites of historical preservation; illustrations, analyses drawn from variety of countries in addition to contemporary United States. Prerequisite: sophomore or higher standing.
- 113:155 Race and Ethnic Relations** 3 s.h.
Multidisciplinary study of intergroup relations; emphasis on historical, sociological, political issues in study of American minority groups. Prerequisite: 034:001 or 113:003 or consent of instructor.
- 113:156 Sexuality and Culture** 3 s.h.
How organization and meaning of sexuality are shaped by kinship, subsistence activities, and inequalities based on race, class, gender, and nation; focus on cultures outside the United States. Prerequisite: 113:003 or 131:010. Same as 131:156.
- 113:157 Alcohol and Culture** 3 s.h.
Cross-cultural view of use, abuse; focus on common patterns of drinking, social variability in drunken comportment; implications of studies of drinking in other cultures; drinking behaviors in American society. Prerequisite: 113:003 or consent of instructor.
- 113:180 Women Writing Culture** 3 s.h.
Feminist ethnography and other kinds of feminist narrative that write culture; pushing the boundaries of how anthropologists define ethnography. Prerequisite: 113:003 or 131:010. Same as 131:165.
- 113:181 Race, Ethnicity, and International Relations** 3 s.h.
Racial and ethnic conflict, particularly as threat to regional, world balances; efforts to alleviate conflict.
- 113:182 Women, Health, and Healing** 3 s.h.
Experiences of women as recipients and providers of health care; intersection of race, class, cultural variation on women's health; reproductive and nonreproductive health concerns. Same as 131:143.
- 113:184 Anthropology and International Health** 3 s.h.
Same as 152:184, 172:131.
- 113:185 Medical Anthropology** 3 s.h.
Major theoretical, methodological approaches; international health and development; biomedicine as a cultural system; ethnomedicine; anthropology and AIDS, human reproduction, epidemiology, ethnopsychiatry. Prerequisite: 113:003 or 113:010 or consent of instructor. Same as 152:185.
- 113:201 Seminar: Anthropological Theory** 3 s.h.
Contemporary theoretical issues in sociocultural anthropology.
- 113:202 Ethnographic Field Methods** 3 s.h.
Basic data-gathering techniques for field research in sociocultural anthropology. Prerequisite: anthropology graduate standing or consent of instructor.
- 113:205 Reading French Theorists** 3 s.h.
Influential modern/postmodern French scholars and their anthropological, cultural studies adaptations; Durkheim, Levi-Strauss, Foucault, Bourdieu, DeCerteau. Prerequisite: anthropology graduate standing or consent of instructor.
- 113:208 Foundations of Ethnomusicology** 3 s.h.
Ethnomusicology in relation to domains of musical, humanistic, social science scholarship on expressive culture and artistic processes. Prerequisites: senior standing and consent of instructor. Same as 025:319.
- 113:220 Seminar: Feminist Anthropology** 3 s.h.
Theory, methods, research, epistemology from a feminist perspective. Prerequisites: graduate standing and consent of instructor. Same as 131:220.
- 113:221 Seminar: Feminist Ethnography** 3 s.h.
Feminist critiques of traditional ethnographies, informed by contemporary feminisms. Prerequisite: 113:220 or 131:220 or consent of instructor. Same as 131:245.
- 113:223 Feminist Medical Anthropology** 3 s.h.
Directions feminists have taken in medical anthropological scholarship; focus on ethnographies that have become classics of the genre and on influential theoretical and applied work. Prerequisite: consent of instructor. Same as 131:223.
- 113:230 Crossing Borders Seminar: Introductory** 3-4 s.h.
Repeatable. Same as 01H:230, 008:230, 013:264, 016:293, 030:241, 035:272, 044:285, 048:230.

- 113:240 Seminar: Sociocultural Anthropology** 3 s.h.
Social institutions in the world's societies; problems in theory, method, interpretation. Prerequisite: anthropology graduate standing.
- 113:241 Economic Anthropology** 3 s.h.
Economic decision making; social institutions associated with production, distribution, consumption of goods; effects of economic development programs. Prerequisite: anthropology graduate or honors standing or consent of instructor.
- 113:247 Crossing Borders Seminar** 3 s.h.
Repeatable. Same as 01H:247, 008:231, 013:262, 016:247, 030:242, 035:273, 044:286, 048:247, 129:231.
- 113:248 Crossing Borders Proseminar** 1 s.h.
Same as 01H:330, 013:260, 016:244, 030:243, 035:271, 044:287, 048:244.
- 113:250 Seminar: Ritual and Performance** 3 s.h.
Approaches to comparative study of ritual in religious and secular contexts. Prerequisite: graduate standing or consent of instructor.
- 113:275 Development Policy and Planning in the Third World** 3 s.h.
Same as 07B:275, 034:275, 042:275, 044:275, 102:275.

Archaeology

The following archaeology courses may be used to fulfill the area studies requirement: 113:150, 113:159, 113:163, 113:166, 113:167, 113:192, and 113:194. No single course may be used to fulfill both area studies and archaeology requirements.

- 113:130 Archaeology of the Iberian Peninsula** 3 s.h.
Introduction to archaeology of the Iberian Peninsula, from earliest human occupation through period of Romanization.
- 113:150 Tribes and Chiefdoms of Ancient Europe** 3 s.h.
Archaeology of European societies between the Mesolithic and Iron Age; how ideas about Europe's prehistoric past have been used for political purposes. Prerequisite: 113:012 or graduate standing or consent of instructor.
- 113:158 Animal Bones in Archaeology** 3 s.h.
Use of faunal material in interpretation of archaeological remains, including skeletal anatomy, identification, taphonomy, determination of age and sex, seasonality, quantification, sampling, breakage and cutmarks, interpretations; laboratory sessions. Prerequisite: 113:012.
- 113:159 Southwestern Archaeology** 3 s.h.
Anthropological overview of prehistoric cultures of the American Southwest; emphasis on understanding archaeological arguments concerning major processes in the past. Same as 149:159.
- 113:161 Prehistoric People of the Ice Age** 3 s.h.
Hominid occupation of Old World during Pleistocene; hominid fossils, artifacts, settlement patterns, climatic reconstruction, evolutionary processes; survey and evaluation. Prerequisites: 113:012 and 113:168, or consent of instructor.
- 113:162 Laboratory Methods in Archaeology** arr.
Materials recovered by excavation; survey training. Prerequisite: consent of instructor.
- 113:163 Archaeology of Mesoamerica** 3 s.h.
Archaeological data related to the evolution of civilization in Mesoamerica; sequence from hunter-gatherers to A.D. 1519; emphasis on Central Mexico, Maya area, Oaxaca. Prerequisite: 113:012 or anthropology graduate standing or consent of instructor.
- 113:164 Comparative Prehistory** 3 s.h.
Cultural evolution in Old World, New World; emphasis on developments from pre-agricultural societies to appearance of urban civilizations; focus on Mesoamerica, Central Andes, Near East, Egypt, Indus Valley, China. Prerequisite: 113:012 or anthropology graduate standing or consent of instructor.
- 113:166 The Aztecs, Their Predecessors, and Their Contemporaries** 3 s.h.
Background for development of Aztec state, nature of civilization encountered by Spaniards in 1519, contemporary peoples affected by Aztecs. Prerequisite: 113:012 or anthropology graduate standing or consent of instructor.
- 113:167 North American Archaeology** 3 s.h.
Prehistoric cultural development north of Mexico from initial occupation to European contact and conquest; emphasis on dynamics of culture change. Same as 149:167.
- 113:168 Method and Theory in Archaeology** 3 s.h.
Current theoretical approaches, methods used to investigate the past; site formation processes, taphonomy, sampling and research design, typology and seriation, subsistence-settlement reconstruction, cultural evolution. Prerequisite: 113:012.
- 113:177 The Origins of Inequality** 3 s.h.
Major anthropological works concerning origins and development of social and political inequality in human societies. Prerequisite: 113:003 or 113:012 or consent of instructor.
- 113:178 Hunter-Gatherer Ethnoarchaeology** 3 s.h.
Variability in adaptations of hunter-gatherers on a global scale; emphasis on subsistence, mobility, social organization; archaeological record of prehistoric hunter-gatherers interpreted through study of modern societies. Prerequisite: graduate standing or consent of instructor.
- 113:189 Approaches to Geoarchaeology** 3 s.h.
Geoarchaeology as a multidisciplinary framework for human paleoecology; natural processes that create the archeological record, approaches to reconstructing landscapes of the past as contexts for archaeological deposits; site, intrasite, and landscape scales in light of erosion, deposition, weathering, and biological and human activity; dynamic nature of archaeological landscapes through time. Prerequisite: 012:136 or 113:012 or consent of instructor. Same as 012:185.
- 113:191 Marxism and Archaeology** 3 s.h.
Marxist approaches in archaeology and anthropology; works from influential Marxist scholars in the social sciences, including Marx and Engels; archaeological case studies employing Marxist perspectives. Prerequisite: 113:012 or graduate standing in anthropology or consent of instructor.
- 113:192 Greek Archaeology and Ethnohistory** 3 s.h.
Archaeology and ethnohistory of the Greek world, from end of Bronze Age to late Roman Empire; sociocultural processes that influence development and persistence of Greek civilization. Prerequisite: 113:012 or 113:013 or consent of instructor. Same as 20E:118.
- 113:193 Special Topics in Archaeology** 3 s.h.
- 113:194 Roman Archaeology** 3 s.h.
Archaeology and ethnohistory of Roman civilization from Iron Age eighth-century occupation of the Palatine Hill to the end of the Roman empire in the West, A.D. 476. Prerequisite: 113:012 or 113:013 or consent of instructor. Same as 20E:119.
- 113:198 Special Topics in Archaeology** 3 s.h.
- 113:199 Field Research in Archaeology** arr.
Beginning skills in site surveying and excavation, lab work, record keeping at nearby prehistoric sites. Prerequisite: consent of instructor.

113:224 Seminar: Feminist and Gender Archaeology 3 s.h.
Feminist perspectives on archaeological method, theory, and practice; roles of colonialism, capitalism, and positivism in development of the field; feminist case studies. Prerequisite: graduate standing. Same as 131:224.

113:258 Seminar: Zooarchaeology 3 s.h.
Interpretation of faunal material in archaeology; intensive survey of classic and recent literature on taphonomy, skeletal anatomy, population parameters, seasonality, quantification and sampling, butchering patterns, ethnoarchaeology, social and economic inferences. Prerequisite: 113:158 or consent of instructor.

113:268 Seminar: Archaeological Theory and Method 3 s.h.
Development, current status of theory, method in Americanist archaeology. Prerequisite: anthropology graduate standing or consent of instructor.

Biological Anthropology

113:165 Human Variation 3 s.h.
Range and patterning of biological diversity in contemporary human populations; past and present attempts to organize and explain human genetic, morphological variation in light of recent data, theory.

113:169 Human Evolutionary Anatomy 3 s.h.
Interpretation of skeletal remains as the basis for reconstructing forms, adaptations, lifestyles of prehistoric humans; body size, musculature, stance, activity patterns, brain size, and sexual dimorphism. Prerequisite: 113:190 or consent of instructor.

113:170 Primate Evolutionary Biology 3 s.h.
Origin and diversification of the primate order through fossil evidence, morphology, systematics, and biomolecular studies emphasizing phylogenetic interpretations, paleobiological and paleoecological reconstructions. Prerequisite: 113:013 or 002:131 or consent of instructor.

113:187 Human Evolution 3 s.h.
From earliest fossil record of apes to origin and diversification of hominid family and appearance of modern *Homo sapiens*; evidence from paleontology, comparative anatomy, biomolecular studies, archaeology considered from evolutionary perspective. Prerequisite: 002:131 or 012:121 or 113:013 or consent of instructor.

113:188 Primate Behavior and Ecology 3 s.h.
Systematics, anatomy, behavior, and ecology of the living species of primates; emphasis on adaptations and interactions of free-ranging primates. Prerequisite: 113:013 or 002:134 or consent of instructor.

113:190 Human Osteology 3 s.h.
The human skeletal system; normal and pathologic variation; skeletal measurement and analysis with application to paleoanthropology, forensic, and archaeological investigations. Prerequisite: 113:013 or consent of instructor.

113:195 Laboratory Methods in Biological Anthropology arr.
Specimen preparation, cataloging, moulding and casting, photography, computer analyses, library research. Prerequisite: consent of instructor.

113:285 Seminar: Biological Anthropology 3 s.h.
Physical anthropology, including heredity and genetics, evolutionary theory, human biological characteristics, primate and human fossil record, primate behavior and ecology, human adaptations. Prerequisite: graduate standing in anthropology or biological sciences or related department or consent of instructor.

113:288 Seminar: Paleoanthropology 3 s.h.
Current understandings of biocultural processes and events underlying Pleistocene human evolution; cross-disciplinary approach combining human paleontology and Paleolithic archaeology. Prerequisite: 113:161 or consent of instructor.

113:290 Feminist Perspectives on Biology and Culture 3 s.h.
Physical anthropology and prehistoric archaeology from a feminist perspective; emphasis on investigation of gender, rising importance of women investigators; human evolution, rise of the state, division of labor, social stratification in prehistory. Prerequisite: consent of instructor. Same as 131:290.

Linguistic Anthropology

113:100 Introduction to Linguistics 3 s.h.
Same as 08L:100, 103:100.

113:123 Language and Nationalism 3 s.h.
Varied cases of linguistic nationalism; how language has become a powerful symbol for expression of national identity across many contexts and circumstances.

113:171 Multi-Media Ethnography 3 s.h.
Methods for recording and analyzing socially situated language use; skills for documenting actual instances of speech and other forms of expressive culture as they occur; experience integrating digitized images of sound, movement, and ethnographic data; student projects involving language as it occurs in social interaction. Prerequisite: 103:011 or 113:014 or consent of instructor.

113:173 Language and Gender 3 s.h.
Gender-related language variation; current research on gender-specific linguistic forms and usage in the United States, other language communities; relevant principles of linguistic theory, analysis. GE: cultural diversity. Same as 103:150.

113:179 Language and Identity 3 s.h.
Relationship between using language and establishing or maintaining identity; cultural factors in language maintenance and loss. Prerequisite: 113:014 or 103:011 or consent of instructor.

113:244 Seminar: Semiotics 3 s.h.
Piercian semiotic and Saussurean semiological conceptual frameworks; focus on anthropological, linguistic issues.

113:271 Seminar: Linguistic Anthropology 3 s.h.
Fundamental concepts and methods employed in the anthropological study of language; principal areas of current research. Same as 103:220.

113:272 Special Topics: Linguistic Anthropology 3 s.h.
Varied topics. Repeatable. Same as 103:222.

113:273 Seminar: Language and Gender 3 s.h.
Role of language and discourse in cultural constructions of gender identities and relations, including domination and subordination; theoretical perspectives, methodological approaches that have shaped thought on the language/gender nexus. Prerequisite: 113:220 or 131:220 or consent of instructor. Same as 103:221.

Individual Reading and Research

113:176 Honors Research 2-4 s.h.
Project chosen in consultation with honors advisor. Prerequisite: consent of instructor.

113:183 Independent Study arr.
Prerequisite: consent of instructor.

113:186 Honors Research Seminar 2-4 s.h.

Preparation for writing honors thesis, including project conception and research, proposal writing, oral and written presentations of student research. Prerequisite: honors standing in anthropology. Pre- or corequisite: 113:176.

113:383 Independent Study: Anthropology arr.

Repeatable.

113:384 Research: Anthropology arr.

Repeatable.

113:385 Thesis arr.

Repeatable.

Art and Art History

Director: Dorothy Johnson

Professors: Craig E. Adcock, Chunghi Choo, John Dilg, Robert Glasgow, Ab Gratama, Sue E. Hettmansperger, Dorothy Johnson, Bunny McBride, Joni L. Kinsey, Virginia Myers, Christopher Roy, John Beldon Scott, Margaret Stratton, Steve Thunder-McGuire, Wallace J. Tomasini

Professors emeriti: Keith Achepohl, Wayne Begley, Hans Breder, Byron Burford, Charles D. Cuttler, Richard De Puma, Peter Feldstein, Stephen Foster, Charles Hindes, Hung-shu Hu, Mauricio Lasansky, Eugene Ludins, Joseph Patrick, Howard Rogovin, Julius Schmidt, Norval Tucker, George Walker

Associate professors: Thomas R. Aprile, Isabel Barbuzza, Robert Bork, Ronald M. Cohen, David O. Dunlap, Laurel Farrin, Julie Hochstrasser, Barbara Mooney, Robert Rorex, James Snitzer, Susan Chrysler White, Rachel Williams, Jon Winet, Kee-ho Yuen

Adjunct associate professor: Tim Barrett

Assistant professors: Sarah Adams, Brenda Longfellow

Undergraduate degrees: B.A., B.F.A. in Art, B.A. in Art History

Undergraduate nondegree programs: Minor in Art, Art History

Graduate degrees: M.A., M.F.A. in Art; M.A. in Art Education; M.A., Ph.D. in Art History

Web site: <http://www.uiowa.edu/~art>

The School of Art and Art History provides a creative, multidisciplinary environment for students of the studio arts, the history of art, and art education. Established in 1936, the school is firmly grounded in the College of Liberal Arts and Sciences. It encourages interaction among its diverse faculty as well as collaboration with related disciplines across campus.

Iowa's art and art history graduates enjoy success as practicing professional artists, professors of art history, teachers, museum directors and curators, theater designers, commercial designers, and art administrators.

Studio Art

The studio art program is based on the idea that the philosophical issues of society that are questioned and interpreted by artists are the basis for an artist's work. The diversity of concept and style among School of Art and Art History faculty members encourages students to seek and work toward a keen understanding of themselves as individuals capable of making their own personal statements as part of the philosophical continuum in art's history.

Studying the broad contexts in which art is made, understood, and used by society prepares studio art students to continue work in an academic setting as well as in museums, galleries, and a multiplicity of other venues. Graduate students are especially encouraged to examine the contexts of visual and verbal issues central to their own work and that of their contemporaries.

M.A. and M.F.A. students in art may major in ceramics, design, drawing, intermedia, metalsmithing and jewelry, painting, photography, printmaking, or sculpture.

Art History

Art history, a broad intellectual discipline, is central to the humanities. Diverse approaches characterize the school's art history faculty, who have interdisciplinary ties within and beyond the University. Their primary mission is to help students develop skills for exploring issues and problems central to the history of art as a whole as well as to its specialized areas. Because the major in art history stresses the development of critical visual thinking, it prepares students for graduate work in the history of art and for other professional fields as well.

Art Education

The Teacher Education Program in art prepares undergraduate and graduate students for licensure to teach art in grades K-12. Because teaching, like making art, is informed by experience, the art education area has established one of the nation's most extensive preservice teaching programs. Students conduct case studies of individuals making and responding to art, observe art classrooms, teach in a Saturday children's workshop, and participate in artist-in-residence programs in secondary schools. M.A. and Ph.D. students in art education draw on resources in American studies, anthropology, sociology, and the literature, science, and the arts program to prepare for positions as teachers in museums, colleges, or universities, or as art administrators.

Undergraduate Programs

Bachelor of Arts in Art

The Bachelor of Arts in art requires a minimum of 39 s.h. in the major. The program requires a foundation in art history as well as an understanding of the formal traditions and contemporary practices in art. Undergraduate students concentrating in studio art begin in the program leading to the B.A. and pursue broad-based knowledge in at least four areas of studio art. Especially interested students with proven abilities may transfer into the B.F.A. program. Application for such transfer normally is made early in the junior year. B.F.A. students may select an emphasis in ceramics, design, drawing, intermedia, metalsmithing and jewelry, painting, photography, printmaking, or sculpture.

B.A. students in art must earn at least 70 s.h. of credit in non-art courses. Cross-referenced courses originating in the School of Art and Art History may not be counted as non-art electives.

The B.A. in art requires the following.

Two art history courses chosen from these (preferably taken during the first two years):	
01H:002 Arts of Africa	3 s.h.
01H:003 Art of Pre-Columbian America, Native America, and Oceania	3 s.h.
01H:005 Western Art and Culture before 1400	3 s.h.
01H:006 Western Art and Culture after 1400	3 s.h.
01H:016 Asian Art and Culture	3 s.h.

Two additional art history courses chosen from 01H:001, 01H:004, 01H:010, and 01H:020-01H:199

6 s.h.

Two studio courses:	
01A:003 Basic Drawing (prerequisite for all studio courses)	3 s.h.
01A:004 Design Fundamentals (prerequisite for all studio courses)	3 s.h.

Any two of these three-dimensional courses:	
01C:060 Ceramics I	3 s.h.
01D:021 Problems in Design I: Form and Structure	3 s.h.
01G:084 Introduction to Jewelry and Metal Arts	3 s.h.
01J:090 Intermedia I	3 s.h.
01N:015 Undergraduate Sculpture I	3 s.h.

Any two of these two-dimensional courses, from two different studio areas (students may not use

more than one 01M course to satisfy this requirement):

01D:028 Graphic Design I	3 s.h.
01F:007 Life Drawing I	3 s.h.
01K:009 Painting I	3 s.h.
01L:034 Beginning Photography	3 s.h.
01M:021 Undergraduate Intaglio I	3 s.h.
01M:024 Undergraduate Relief I	3 s.h.
01M:031 Undergraduate Lithography	3 s.h.
01M:041 Undergraduate Monotype	3 s.h.

Electives chosen from School of Art and Art History courses must bring the total credit in art history, studio art, and art education to a minimum of 39 s.h. No more than 50 s.h. of credit in School of Art and Art History courses (art history, studio art, and art education combined) may be counted toward the 120 s.h. required for graduation with a B.A. in art.

Transfer Students

Transfer students majoring in art must complete a minimum of 12 s.h. in studio art at The University of Iowa. The studio hours must include work in at least two different studio areas.

Transfer students majoring in studio art must attend transfer portfolio review and show a portfolio of their art to faculty members, who determine the students' placement in, or exemption from, the sequence of basic studio courses.

Study Abroad

Students who wish to study abroad must meet with the undergraduate advisor before they depart to review approval of the studio art and art history courses they plan to take. Upon their return, they meet with the undergraduate advisor to determine which courses require portfolio review. Students may need to bring the original art work they completed during their study abroad back to campus for a portfolio review with a designated faculty member.

Bachelor of Fine Arts in Art

The Bachelor of Fine Arts in art requires 62 s.h. in the major (all in art and art history courses). Students must include 58 s.h. earned in courses outside the School of Art and Art History in the 120 s.h. required for graduation with a B.F.A. in art.

Prospective B.F.A. students must apply to enter the program after completing at least one semester of work in the studio area of

concentration, but before completing 50 s.h. in art. B.F.A. candidate reviews are held once each semester.

Students who wish to enter the B.F.A. program should consult the faculty in the studio area of concentration for information about the required portfolio review.

In addition to completing the General Education Program and major requirements listed above for the B.A. in art, B.F.A. students must complete three courses in a studio concentration area beyond the introductory or beginning course, as well as one introductory course and one advanced course in each of two additional studio areas.

B.F.A. students in drawing and painting are required to take 01F:106 Undergraduate Seminar in Drawing and Painting in addition to the three required studio courses for the concentration area.

B.F.A. students in painting are required to complete the following sequence.

01K:009 Painting I	3 s.h.
01K:010 Painting II	3 s.h.
or	
01K:025 Life Painting	3-4 s.h.
01K:046 Intermediate Painting	3 s.h.
01K:049 Advanced Painting	3 s.h.

Students may enroll in other painting classes in addition to the above sequence. Life Painting (01K:025) may be repeated once, but applies only once in the above sequence.

B.F.A. students must present an exhibition of their studio work, preferably at the School of Art and Art History.

Teacher licensure requirements are the same for art education B.A. and B.F.A. students.

B.A. and B.F.A. in Art with Art Education

The Art Education Program requires a broad foundation in formal traditions of studio art, substantive knowledge in art history, and art teacher certification course work. Undergraduate students in art education concentrate in studio art and pursue broad-based knowledge in at least four areas of studio art. They earn a B.A. or B.F.A. and art teacher licensure K-12. Students with proven abilities may transfer into the B.F.A. program; application for transfer normally is made early in the junior year. B.F.A. students may select an emphasis in ceramics, design, drawing,

intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, or sculpture.

Art education with a B.A. in art requires a minimum of 47 s.h. of art and art history course work (8 s.h. more than the minimum requirement for a B.A. without art teacher certification). B.A. students earn at least 70 s.h. in non-art courses. Cross-referenced courses that originate in the School of Art and Art History may not be counted as non-art electives. No more than 50 s.h. earned in School of Art and Art History courses (art history, studio art, and art education combined) may be counted toward the 120 s.h. required for graduation with a B.A. in art.

Art education with a B.F.A. requires a minimum of 62 s.h. of art and art history course work. Undergraduate students in art education who earn a B.F.A. with art teacher licensure K-12 typically complete an additional semester of course work. In addition to completing the General Education Program and the major requirements listed below for the B.A. in art with art education, B.F.A. candidates must complete three courses in a studio area of concentration beyond the introductory or beginning course, as well as one introductory course and one advanced-level course in each of two additional studio areas. All B.F.A. candidates in drawing and painting are required to take 01F:106 Undergraduate Seminar in Drawing and Painting in addition to the three required studio courses for the concentration area. Papermaking, calligraphy, and bookbinding courses may not be used as major or minor areas. Cross-referenced courses that originate in the School of Art and Art History may not be counted as non-art electives. Before they student teach, all B.F.A. candidates must have an exhibition of their studio work, preferably at the School of Art and Art History.

The B.F.A. requires that students earn 62 s.h. in School of Art and Art History courses and 58 s.h. in courses taken outside the school. No more than 62 s.h. in School of Art and Art History courses may be counted toward the 120 s.h. required for graduation with a B.F.A. in art.

Prospective B.F.A. students must apply to enter the program after completing at least one semester of work in the studio area of concentration but before completing 50 s.h. in art. B.F.A. candidate reviews are held once each semester.

Applications for admission must be submitted to the Teacher Education Program, Office of Teacher Education and Student Services, College

of Education. Deadlines are June 15 for fall admittance, October 15 for spring admittance, and March 15 for summer admittance.

The B.A. in art with art education (teacher certification) requires the following course work.

Two art history courses chosen from these (preferably taken during the first or second year):

- 01H:002 Arts of Africa 3 s.h.
- 01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
- 01H:005 Western Art and Culture before 1400 3 s.h.
- 01H:006 Western Art and Culture after 1400 3 s.h.
- 01H:016 Asian Art and Culture 3 s.h.

Two additional art history courses chosen from 01H:001, 01H:004, 01H:010, and 01H:020-01H:199 6 s.h.

Two studio courses:

- 01A:003 Basic Drawing 3 s.h.
- 01A:004 Design Fundamentals 3 s.h.

Two three-dimensional courses:

- 01C:060 Ceramics I 3 s.h.
- 01G:084 Introduction to Jewelry and Metal Arts 3 s.h.

Any two of these two-dimensional courses, from two different studio areas (students may not use more than one 01M course to satisfy this requirement):

- 01D:028 Graphic Design I 3 s.h.
- 01F:007 Life Drawing I 3 s.h.
- 01K:009 Painting I 3 s.h.
- 01L:034 Beginning Photography 3 s.h.
- 01M:021 Undergraduate Intaglio I 3 s.h.
- 01M:024 Undergraduate Relief I 3 s.h.
- 01M:031 Undergraduate Lithography 3 s.h.
- 01M:041 Undergraduate Monotype 3 s.h.

Two additional courses from the two-dimensional and three-dimensional requirements 6 s.h.

Electives, chosen only from courses offered by the School of Art and Art History, must bring the total credit in art history, studio art, and art education to a minimum of 47 s.h. Students often select two additional studio courses in an area of emphasis. No more than 50 s.h. of credit in art history, studio art, and art education courses, total, may be counted toward the degree.

Transfer Students

Transfer students majoring in art with art education must complete a minimum of 3 s.h. in art history and 12 s.h. in studio art at The

University of Iowa. The studio art credit must include work in at least two different studio areas.

Undergraduate transfer students majoring in studio art must show a portfolio of their art to faculty members on the Friday before a fall or spring semester begins. The faculty members determine each student's placement in or exemption from the sequence of basic studio courses.

Bachelor of Arts in Art History

The Bachelor of Arts in art history requires 45 s.h. in the major. The history of art is engaged in problems of historical analysis and the interpretation of culture, so the program provides students with a broad background in the humanities consistent with a liberal arts and sciences education. The undergraduate degree program provides students with a strong liberal arts background and prepares them for competitive placement in graduate schools across the country.

As students progress through the program, they become familiar with historical relationships between art objects and society, learn techniques of formal analysis, study patterns of patronage, and absorb methods for interpreting the meaning of paintings, sculptures, and architecture. In the course of their studies, art history majors develop their research abilities and writing skills.

The B.A. in art history requires the following course work. Not all courses are offered every year. Students should take required survey courses (numbered 002, 003, 005, 006, and 016) and introductory courses (numbered 020-085) before taking advanced courses (numbered 104-196).

Both of these, in sequence, normally during the first two years:

- 01H:005 Western Art and Culture before 1400 3 s.h.
- 01H:006 Western Art and Culture after 1400 3 s.h.

One of these:

- 01H:002 Arts of Africa 3 s.h.
- 01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
- 01H:016 Asian Art and Culture 3 s.h.

Four courses chosen from 01H:020 through 01H:085 12 s.h.

Four courses chosen from 01H:104 through 01H:196 12 s.h.

01H:199 Topics in Art History	3 s.h.
01H:010 Tutorial for Majors: Art History as a Discipline	3 s.h.
or	
01H:099 Undergraduate Seminar in the History of Art (normally in junior or senior year)	3 s.h.
Studio courses	6 s.h.

No more than 50 s.h. of credit in art and art history courses (art history and studio art) may be counted toward the minimum 120 s.h. required to graduate with a B.A. in art history.

CREDIT IN DISCIPLINES OUTSIDE ART HISTORY

Art history students must take courses in at least three of the following disciplines: anthropology, classics, history, literature, philosophy, political science, religion, sociology, or others approved by faculty advisors, for a total of 12 s.h.

Transfer Students

Transfer students planning to major in art history should meet with the undergraduate advisor to discuss the requirements they may fulfill with transfer courses. Art history transfer courses must be reviewed by the art history division head to determine the student's placement in or exemption from required art history courses.

Study Abroad

Students who wish to study abroad must meet with the undergraduate advisor and the head of art history before they depart to review approval of the art history courses they plan to take. Upon their return, they meet with the art history division head to review their art history course work and confirm the credit they have earned.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

B.A. in Art

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least four courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least eight courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 11 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.F.A. in Art

Admission to the program leading to the B.F.A. in art is limited and depends on the department's evaluation of the student's work. In order to participate in the Four-Year Graduation Plan, students must be admitted to the degree program on schedule as determined by the art advisor.

Before the third semester begins: at least four courses in the major and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least eight courses in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least 14 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 18 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Art History

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least four courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least eight courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 11 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Art majors and art history majors who are members of the University Honors Program may enroll in the School of Art and Art History honors program. Honors students must maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Honors in Art

Honors students in studio art must maintain a g.p.a. of at least 3.50 in the major. Each student must complete an honors project supervised by a faculty member, prepare a statement of the sources of the studio work, and hold an exhibition of the honors project. The statement may be based on the history of art, history of ideas, philosophy, and so forth, and should be written under the supervision of faculty in the student's studio concentration area. Students must register for O1P:190 Honors in Studio Art for 0-3 s.h.

Honors in Art History

To earn a degree with honors in art history, students must complete the requirements for the B.A. in art history with a g.p.a. of at least 3.50 in art history courses. There are two options for earning the degree with honors.

Option 1: Students take two upper-division courses with honors designation and complete an extra project, such as an annotated bibliography, a supplemental paper or presentation, or a comparable project endorsed by the instructor. Then students enroll in a third upper-division course appropriate to their honors thesis topic and write the thesis (5,000 to 7,000 words) as part of the course, for an additional 1 s.h.

Option 2: Students research and write an honors thesis of 10,000 to 15,000 words under the direction of an art history faculty member, earning 3 s.h.

Students work with an art history faculty member as their thesis advisor. They must have the thesis advisor's approval before beginning work on their thesis project. The thesis should conform to the Graduate College format for theses; see the Manual of Rules and Regulations of the Graduate College in the Graduate College section of the Catalog.

Minor in Art

A minor in art requires 15 s.h. in art courses with a g.p.a. of 2.00 or higher; 12 of the 15 s.h. must be taken at The University of Iowa. Students must complete O1B:001 Elements of Art, or the equivalent, and 12 s.h. of studio art courses. Studio courses must include one introductory-level course and one advanced-level course in two different studio areas. One art history course may be included in the 15 s.h. of course work in lieu of an advanced-level studio class. In selecting courses, students should pay close attention to the stated prerequisites for individual courses. Graphic design, papermaking, calligraphy, and bookbinding courses, any course with an O1E or O1P prefix, and O1A:004 Design Fundamentals may not be used to satisfy the requirements for a minor.

Course work applied toward a minor in art may not be used to satisfy the requirements for a major in art or in art history.

Minor in Art History

A minor in art history requires 15 s.h. of courses in art history, with a g.p.a. of at least 2.00. Twelve of the 15 s.h. must be taken in advanced-level courses at The University of Iowa (courses numbered O1H:020 and above). Students planning a minor in art history are required to take at least one of these survey-level courses: O1H:002, O1H:003, O1H:005, O1H:006, or O1H:016. Course work applied toward a minor in art history may not be used to satisfy the requirements for a major in art or art history.

Graduate Programs

Master of Arts in Art

The Master of Arts in art is offered with or without thesis and with majors in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, and sculpture.

The M.A. in art requires a minimum of 38 s.h. of graduate credit, including at least 12 s.h. in a major studio area, 6 s.h. in a minor studio area from one of the M.A. majors that offer at least 21 s.h. in studio courses; 3 s.h. in the history and theory of art, excluding readings and directed studies; a drawing course taken at The University of Iowa; and 6 s.h. of courses outside art and art history.

M.A. students must hold a B.A. or B.F.A. in art equivalent to that offered at The University of Iowa. Undergraduate deficiencies, if any, may be made up concurrently with graduate study but are in addition to graduate requirements.

All M.A. students undergo a division-wide review for M.A. candidacy by faculty during the third semester in residence. They also must submit a written artist's statement.

M.A. students choose the thesis or nonthesis option in consultation with their area advisor. They may earn 1 s.h. for writing a technical or substantial thesis by registering for 01A:302, with approval of the thesis supervisor. Thesis credit earned in an M.A. program is not applicable toward M.F.A. requirements.

Master of Fine Arts in Art

The Master of Fine Arts in art is offered with thesis and with majors in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, or sculpture. M.A. students advance to the M.F.A. program by invitation following completion of the M.A.

The M.F.A. in art requires a minimum of 60 s.h. of graduate credit, including at least 18 s.h. in a major studio subject, at least 9 s.h. in a minor studio field selected from the fields listed above, 6 s.h. in art history and theory of art, 6 s.h. in courses originating outside the school, and a drawing course at The University of Iowa (if not already taken).

M.F.A. students must hold an M.A. in art equivalent to that offered at The University of Iowa. Transfer credits are decided by faculty review.

All students must undergo an M.F.A. committee review. They also must complete a written thesis and possibly a studio thesis.

M.F.A. students may earn 1 s.h. for writing a technical or substantial thesis by registering for 01A:304, with approval of the thesis supervisor. Thesis credit earned in an M.A. program is not applicable toward M.F.A. requirements.

Master of Arts in Art Education

The Master of Arts in art education requires 38 s.h. of graduate credit, including 18 s.h. of studio and art history in a ratio of two to one (either 12 s.h. of graduate credit in studio and 6 s.h. in art history, or 6 s.h. in studio and 12 s.h.

in art history), 8 s.h. in graduate seminars in art education, and 12 s.h. to be specified after the student begins the program. The degree also requires a written thesis based on research in art education, creative scholarship, or art history.

M.A. students must hold a B.A. or B.F.A. in art equivalent to that offered at The University of Iowa. They also must hold teaching licensure/certification in art.

Art education majors may elect to take art history courses on a satisfactory-unsatisfactory basis.

Master of Arts in Art History

The Master of Arts in Art History is undergoing revision. See Art and Art History (College of Liberal Arts and Sciences) in the online Catalog (<http://www.registrar.uiowa.edu/registrar/catalog>) for the most up-to-date information.

Students pursuing an M.A. in art history are expected to acquire a broad knowledge of art history as an academic and humanistic discipline, to become familiar with major periods and monuments of world art, and to gain proficiency in scholarship. The M.A. program in art history provides students with training in research methods appropriate to subsequent specialization at the Ph.D. level. Because the M.A. culminates in a substantial thesis in the candidate's chosen area of focus, evidence of competence in scholarly research and writing is required for graduation. Graduates with an M.A. generally continue for the Ph.D. or enter college teaching or museum work.

To earn an M.A. in the history of art, students must complete a minimum of 30 s.h. of graduate-level course work with a g.p.a. of at least 3.50. Only one semester of academic probation is allowed. All M.A. candidates, including transfer students, must take at least 24 s.h. in residence at The University of Iowa.

M.A. in art history students must earn a grade of B or higher in semester-long courses (100-level) in five of the following 10 distribution fields: African (including Oceanic), Asian, ancient, medieval, Renaissance, Baroque, 18th- and 19th-century European, American (including Pre-Columbian, Native American, and African American), modern/contemporary, and architecture. These courses must be taken after the B.A. is granted. However, a student who earned a grade of B or higher in an intermediate-level course in the same field during his or her undergraduate career may apply credit for a graduate seminar toward a distribution field requirement.

REQUIRED COURSES

All graduate students must take 01H:210 Art History Colloquium each semester they register for 9 s.h. or more. Students who register for fewer than 9 s.h. are strongly encouraged to attend. In addition, M.A. in art history students must complete the following course work.

01H:200 History and Methods	3 s.h.
Two art history seminars (with different instructors in different fields)	6 s.h.
Additional art history or studio courses, or courses outside the School of Art and Art History	6 s.h.

History and Methods (01H:200) must be taken during the first fall semester of the student's residency. Incoming students who already have taken a comparable graduate-level course at another university may petition the art history graduate advisor to waive this requirement.

Courses outside the curriculum of the School of Art and Art History's art history division do not carry art history credit. Cross-referenced courses not taught by art history faculty members do not carry art history credit.

Directed Studies

Directed Studies (01H:300) is designed for graduate students who already have taken an advanced course or courses in a specific art history area. It provides students with an opportunity to work one-to-one with a professor on specific research interests developed in lecture courses or seminars, or on topics that eventually may be the subject of a thesis or dissertation. Directed Studies cannot be substituted for a lecture course already offered in the program. Normally, students have taken at least one course with a professor before taking Directed Studies with that professor. To take Directed Studies, students must discuss the course with the professor and have his or her approval. Directed Studies may be taken only once in any semester. Students may earn 1-3 s.h. for a single registration in the course but may not count more than 3 s.h. toward M.A. requirements.

Students taking Directed Studies for 1-2 s.h. normally meet with the directing professor every other week and complete readings and short written assignments. Those taking the course for 3 s.h. normally meet once a week and complete extensive readings, annotated bibliographies, and a substantial paper on a specific topic.

FOREIGN LANGUAGES

Within the first 20 s.h. of graduate study, students must demonstrate the ability to read art

history writings in an appropriate second foreign language. This requirement, which is in addition to the foreign language requirement for admission to the M.A. program, generally is fulfilled either by the satisfactory completion of the second semester of a graduate-level reading-for-research language course or the completion, with a grade of B or higher, of the fourth semester of an undergraduate language sequence. Language requirements are fulfilled with German and French.

Credit earned in language courses taken to fulfill the language requirement does not count toward the 30 s.h. required for the degree.

M.A. THESIS

Before graduation, M.A. candidates complete a written thesis (01H:302 M.A. Written Thesis) for 3 s.h. of credit. This credit can be applied toward the degree but cannot be substituted for other required courses.

The M.A. committee consists of the student's faculty mentor and two additional tenured or tenure-track members of the art history faculty.

FINAL EXAMINATION

The final examination constitutes an oral defense of the written M.A. thesis. The final examination meeting with the M.A. committee normally takes place toward the end of the student's last semester of course work.

Doctor of Philosophy in Art History

The Doctor of Philosophy in Art History is undergoing revision. See Art and Art History (College of Liberal Arts and Sciences) in the online Catalog (<http://www.registrar.uiowa.edu/registrar/catalog>) for the most up-to-date information.

Graduates with a Ph.D. have gained breadth in the discipline of art history and expertise in a specialized area of research. They are expected to contribute to the field of art history through original research that responds to issues critical to their field of concentration. Graduates with a Ph.D. generally anticipate careers in college or university teaching, in the museum profession, or in arts-related nonprofit organizations.

To earn a Ph.D. in art history, students must complete a minimum of 72 s.h. of graduate-level course work with a g.p.a. of at least 3.50; a maximum of 38 s.h. of work taken for the M.A. may be counted toward this requirement.

Students are allowed only one semester of academic probation.

To establish academic residency, candidates must be enrolled as full-time students at The University of Iowa for two semesters (at least 9 s.h. each) beyond the first 24 s.h. of graduate-level course work or three semesters (at least 6 s.h. each) with a one-quarter-time assistantship.

Ph.D. students major in one of the following 10 fields: African, Asian, ancient, medieval, Renaissance, Baroque, 18th- and 19th-century European, American, modern/contemporary, and architecture. Candidates also minor in two fields. The first minor must be in an art history field that is not contiguous with the major field. The second minor may be in any art history field or relevant discipline outside the art history division.

REQUIRED COURSES

Ph.D. in art history students must complete the following course work.

Three art history seminars (different instructors in different fields)	9 s.h.
Additional art history courses	15-27 s.h.
Courses outside the School of Art and Art History	0-12 s.h.

Up to 6 s.h. of credit for dissertation research may be applied toward the 72 s.h. required for the degree. Courses outside the curriculum of the School of Art and Art History's art history division do not carry art history credit.

Directed Studies

Normally, a maximum of 6 s.h. earned in 01H:300 Directed Studies may be applied toward the semester-hour requirement for the Ph.D., although doctoral students may petition the art history faculty for permission to apply up to 9 s.h.

PH.D. COMMITTEE

The Ph.D. committee consists of the student's faculty mentor, who is responsible for the major field, two members responsible for the two minor fields, and at least two additional members. Of these five, four must be tenured or tenure-track faculty members from the art history division. One must be from outside the division and must be on the faculty of the Graduate College. When appropriate, committees may include additional members.

COMPREHENSIVE EXAMINATION

Upon completion of course requirements, the Ph.D. candidate takes three written comprehensive examinations. The major exam

consists of six questions and lasts six hours; the two minor exams each consist of three questions and last three hours. The exams normally are taken on two consecutive days.

The scope of the comprehensive exams is determined in consultation with the candidate's degree committee supervisor and the committee members responsible for the two minor fields.

ORAL COMPREHENSIVE EXAMINATION

Within approximately one month of completing the three written exams, the candidate meets with his or her degree committee for the oral comprehensive examination, which concentrates on questions that arise from the written comprehensive exams.

DISSERTATION PROPOSAL

As soon as possible after completing the comprehensive examinations, the candidate submits a dissertation proposal to his or her degree committee supervisor and subsequently to the degree committee. The committee meets as a group with the candidate to discuss the dissertation proposal and to offer comments and suggestions. (The proposal must be submitted to the committee at least two weeks before the approval meeting.) The proposal includes a 1-2 page abstract, a 10-15 page précis (including a review of the state of the field), and a bibliography.

After the proposal has been approved by the committee, the candidate circulates an abstract to the entire art history faculty. He or she must give a public presentation on the dissertation topic no later than the end of the semester following the degree committee's approval. The presentation is scheduled with the head of art history.

FINAL EXAMINATION

The completion of a written dissertation, which constitutes an original scholarly contribution to the field, and the successful completion of the final examination (the oral defense) of this dissertation fulfill the Ph.D. requirements.

Doctor of Philosophy in Art Education

The Doctor of Philosophy in art education gives college teachers and researchers in art education and art supervisors in state departments of education and school systems an opportunity to continue their inquiry and creative work in art history and in studio art.

The program is administered by the College of Education, in cooperation with the School of Art and Art History. Students must apply for admission to the College of Education.

The Ph.D. in art education requires a minimum of 60 s.h. of graduate credit beyond the M.A. The curriculum must be planned with the advisor and must include at least 15 s.h. in the School of Art and Art History, 15 s.h. in art education graduate seminars, 15 s.h. in a related area (e.g., aesthetics, anthropology, higher education, psychology, sociology), and 15 s.h. in thesis and tool courses (07E:306 Introduction to Research in Art Education).

Students must take both oral and written comprehensive examinations. The written examination consists of an in-depth research problem to be completed within 14 days, after which an oral examination on the project is held. The research problem is assigned by the examining committee, and the written portion of the examination is not intended to relate directly to the student's dissertation proposal.

Students also must complete a written dissertation for at least 12 s.h. of credit and are expected to prepare a dissertation proposal and defend it before the dissertation committee. An oral examination on the dissertation is the Ph.D. final examination.

Admission

Applicants to graduate programs in art and art history must meet the admission requirements of the School of Art and Art History and of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Completed applications for the master's or doctoral program in art history and requests for financial aid must be received by January 15 for fall admission.

Completed applications for the master's program in all areas of studio art and requests for financial aid must be received by February 1 for fall admission. Complete application materials should be sent to the graduate secretary, School of Art and Art History.

The Office of Graduate Admissions notifies all applicants by mail of admission decisions. Acceptance notification cannot be given over the phone by either the admissions office or the School of Art and Art History.

Applicants whose first language is not English and who do not have a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score as follows on the Test of English as a Foreign Language (TOEFL): at least 550 (paper-based) or at least 213 (computer-based) for admission to the studio program; and at least 600 (paper-based) or at least 250 (computer-based) for admission to the art history program.

All applicants must submit the following to the Office of Graduate Admissions:

- a completed application for admission (one area of interest must be specified on the application form);

- Graduate Record Exam (GRE) General Test scores, and TOEFL scores (if applicable);
- the required application fee; and

- an official copy of all undergraduate transcripts and/or graduate work completed by the date of application.

Art history applicants must include Graduate Record Examination (GRE) General Test scores (verbal, quantitative, and analytical) with their application for admission, in accordance with the appropriate application deadlines. Studio or art education applicants who do not submit GRE General Test scores at the time of application must do so by their first semester in residence. In addition, applicants must meet the graduate application requirements for the particular programs for which they seek admission, as follows.

M.A. and M.F.A. in Art

Admission procedures for graduate studio programs include a review of applications and all of the applicant's supporting material by a committee composed of area faculty members. Complete application materials for graduate degrees in studio art must be submitted to the School of Art and Art History by February 1.

Applicants must submit the following to the graduate secretary at the School of Art and Art History: a one-page statement of purpose, official transcripts for all undergraduate and graduate work completed by the date of application, three letters of recommendation assessing potential as a graduate student, application for graduate awards (if desired), and application for graduate scholarships and fellowships (if desired). They also must submit one of the following portfolios. (Portfolios are returned by mail only if return postage is supplied by the applicant.)

Ceramics, design, intermedia and video art, metalsmithing and jewelry, or painting:

8 slides and/or photos of work in the major area and 2 slides or photos of work in a second studio area; CDs may be submitted for ceramics, CDs or DVDs for intermedia

Drawing: 8 slides or photos of drawings, including figure drawings, and 2 slides or photos of work in a second studio area

Photography: a selection of 20-25 slides or prints in the major field of work and 2-3 slides or photos of work in a second studio area

Printmaking: a selection of 6-20 original prints and at least 6 original drawings in a returnable carton or mailing tube, and 8-10 slides or photos of prints

Sculpture: a selection of 20 slides or a CD with at least 10 sculptures or installations (multiview) and a slide of at least two drawings; for kinetic sculptures, a DVD

Each slide must be enclosed in a slide sheet and labeled with the name, title, portfolio medium, size, and approximate date of work; the top should be indicated. An inventory list with the same information should be included. Extreme care is taken in handling all portfolios, but the school cannot be responsible for reimbursement in the event of loss or damage.

M.A. in Art History

The Master of Arts in Art History is undergoing revision. See Art and Art History (College of Liberal Arts and Sciences) in the online Catalog (<http://www.registrar.uiowa.edu/registrar/catalog>) for the most up-to-date information.

Applicants to the M.A. program in art history must have earned a bachelor's degree. Proficiency in at least one foreign language (French or German), shown by completion of two years (or the equivalent) of undergraduate language course work with a grade of B or higher, is required for admission.

Although exceptions may be made when other components of the application are strong, applicants should have a combined verbal and quantitative score of at least 1200 and an analytical writing score of at least 5 on the Graduate Record Exam (GRE) General Test; and an undergraduate g.p.a. of at least 3.25.

In addition to the admissions materials required by the Graduate College, the School of Art and Art History requires that applicants submit a research paper (preferably from an art history course) or undergraduate thesis that

demonstrates the applicant's potential to undertake research in art history; a 1,000-word autobiographical essay that states the applicant's purpose in pursuing graduate studies and describes his or her intellectual development, academic interests, and career goals, and names the faculty member under whose guidance the applicant hopes to work, and tells how that faculty member's area of expertise (or the art history program) is especially suited to the applicant's interests or goals; three letters of recommendation that assess the applicant's potential for graduate study; and transcripts from all colleges and universities attended. The materials should be submitted by January 15 to the School of Art and Art History's graduate secretary.

Ph.D. in Art History

The Doctor of Philosophy in Art History is undergoing revision. See Art and Art History (College of Liberal Arts and Sciences) in the online Catalog (<http://www.registrar.uiowa.edu/registrar/catalog>) for the most up-to-date information.

Applicants for admission to the Ph.D. program in art history must have earned an M.A. in art history or a related graduate degree. Proficiency in at least two foreign languages (French and German), shown by completion of the second semester of a graduate-level reading-for-research language course or completion of the fourth semester of an undergraduate language sequence with a grade of B or higher, is required for admission.

Although exceptions may be made when other components of the application are strong, applicants should have a combined verbal and quantitative score of at least 1200 and an analytic writing score of at least 5 on the Graduate Record Exam (GRE) General Test; and a graduate g.p.a. of at least 3.50.

Students who have completed their M.A. at The University of Iowa and who wish to apply for entrance into the Ph.D. program must make a formal application to the program. Applications are evaluated in the context of the entire applicant pool.

In addition to the admissions materials required by the Graduate College, the School of Art and Art History requires that applicants submit a thesis or other major research paper, an autobiographical essay of 1,000 words that states the applicant's purpose in pursuing graduate studies and describes his or her intellectual development, academic interests, and career

goals, and names the faculty member under whose guidance the applicant hopes to work, and tells how that faculty member's area of expertise (or the art history program) is especially suited to the applicant's interests or goals; three letters of recommendation, including one from the applicant's M.A. thesis supervisor assessing the applicant's potential for doctoral study; and transcripts from all colleges and universities attended. The materials should be submitted to the School of Art and Art History's graduate secretary.

Completed applications for the master's or doctoral program and requests for financial aid must be submitted to the School of Art and Art History graduate secretary by January 15.

M.A. and Ph.D. in Art Education

Applicants must submit to the School of Art and Art History's graduate secretary a one-page paper that states their purpose and three letters of recommendation that assess their potential for graduate study.

Applicants to the M.A. program in art education must submit a term paper or other example of ability to write in the field and a selection of slides or photographs of their creative work in two studio areas.

For admission to the Ph.D. in art education, applicants must meet the doctoral student admission requirements of the Graduate College and must have an M.A. in art education from The University of Iowa or an equivalent degree from an accredited college or university. Students who have course work deficiencies must register for pertinent courses. Candidates must have completed one year of successful teaching experience in an elementary or secondary school to be eligible for the doctoral degree.

Application to the Ph.D. program must be accompanied by a representative portfolio of the candidate's work, consisting of 12 colored slide reproductions of art work and two examples of written work, which may consist of previously written papers or new work. The portfolio should be submitted to the Art Education Office. Complete application materials for graduate admission in art education must be on file in the College of Education by February 1 for fall admission.

Financial Support

Fellowships, teaching assistantships, research assistantships, and tuition scholarships are awarded to graduate students on the basis of artistic and/or scholarly record.

In the studio programs, financial aid to new students is possible, but most assistantships and scholarships are awarded to graduate students who have been in residence for at least a year. This gives faculty members an opportunity to observe their performance and potential.

Presidential Graduate Fellowships

These fellowships are awarded by the Graduate College on the basis of a University-wide competition among incoming Ph.D. students. Each fellowship is a five-year package, including two years on fellowship and three years on teaching or research assistantships. They include stipends plus full tuition scholarships. The school nominates incoming students for Presidential Graduate Fellowships on the basis of the autobiographical essay, Graduate Record Examination scores, grade-point average, and letters of recommendation.

Dean's Graduate Fellowships

These four-year fellowships are awarded by the Graduate College on the basis of a University-wide competition among graduate students. Criteria for the fellowships are similar to those for the Presidential Graduate Fellowship but are designed to support incoming students who are underrepresented in graduate education.

Teaching and Research Assistantships

Assistantships are awarded to graduate students on the basis of academic record, Graduate Record Examination (GRE) General Test scores, promise as scholars or artists, and demonstrated ability to do the job. Quality of performance in one's graduate program at Iowa is generally the major criterion for awarding teaching assistantships. The number of hours of work required depends on the amount of the award.

Scholarships and Fellowships

The School of Art and Art History offers a variety of scholarships and fellowships made possible by contributions from alumni who wish to support promising artists and scholars. These awards are made on the same basis as teaching and research assistantships.

Information and application materials for graduate scholarships and fellowships are included in the admissions package. They also are available from the School of Art and Art History director's secretary.

Renewal or reappointment for fellowships and assistantships depends on adequate progress toward the degree (graduate students must accumulate at least 18 s.h. of graduate credit each calendar year and maintain a grade-point average above the required minimum) and satisfactory performance of assistantship duties.

Decisions on assistantships and financial aid generally are made during the latter part of the spring semester for the following academic year. Applications and all relevant materials should be on file by February 1.

Student Organizations

The undergraduate Art History Club and the graduate Art History Society sponsor activities for students. The Faculty/Graduate Student Art History Colloquium meets five times each semester to focus on professional development and issues of broad interest in art.

Special Resources

Reference Collections

The art library contains 100,000 volumes, an outstanding periodical collection, and an extensive microfilm and microfiche archive.

The school's Office of Visual Materials contains 300,000 slides, 30,000 photographs, a videotape library, and a rapidly growing database that currently contains more than 70,000 images.

Museum of Art

The University of Iowa Museum of Art has a significant permanent collection that includes major holdings of 20th century and contemporary art, African and Pre-Columbian art, English and American silver, European and American prints, drawings and photographs, and Etruscan, Iranian, and contemporary American ceramics. As well as serving as a resource for research in a wide variety of art history areas, the museum offers a program of exhibitions, lectures, and recitals.

Interdisciplinary Resources

Colloquia, visiting artists and lecturer programs, and graduate workshops bring visitors to the school and provide open forums for discussion of issues in art and scholarship.

Among the school's major assets is the Project for the Advanced Study of Art and Life in Africa (PASALA), an interdisciplinary program that brings together faculty with international reputations in art history and anthropology to offer courses and independent study of art and expressive culture in West, Central, East, and South Africa. The result is a program of unusual breadth and depth of expertise. PASALA is among the most active of such programs in the country, organizing international symposia that discuss significant topical issues and publishing the proceedings in regular issues of *Iowa Studies in African Art*. Each year the project hosts distinguished international fellows from a range of disciplines who work with students and faculty on original research projects. In addition, PASALA offers scholarships and support for research in Africa and dissertation preparation to outstanding students. A major resource for PASALA is the Stanley Collection of African Art in The University of Iowa Museum of Art.

Art history participates in a collegewide program called Crossing Borders, which offers major financial support to designated graduate student fellows whose dissertation topics involve multiple foreign language areas. Fellows take team-taught seminars in a range of disciplines, with focus on interactions across cultural, regional, or national divides. They help plan an annual convocation, at which they and invited lecturers present their research.

The school also maintains an affiliation with the University's Department of American Studies, providing students with opportunities to study not only the history of American art but a variety of interdisciplinary programs in American history, literature, and politics.

Facilities

The school houses a printshop containing intaglio, lithographic, and monotype equipment and facilities for hot-stamping foil; facilities for welding and fabrication of steel sculpture; excellent drawing studios in the main building as well as individual studios for painting and drawing, and a B.F.A. painting studio space; a well-equipped darkroom and a digital photography laboratory; extensive kiln facilities, including provision for construction of various types of temporary and specialized kilns; a large shop for metalworking and industrial design; electroforming equipment; a papermaking mill; a silkscreen and offset print shop; a computer laboratory for graphic design; video equipment; and a schoolwide computer lab.

The sculpture area maintains a full range of welding facilities and specializes in heliarch, MIG, TIG, and oxyacetylene equipment. There are facilities for metal forming, such as a large wide-mouth gas forge, metal rollers, and shears. The area also maintains a bronze casting facility that includes furnaces and burn-out kilns for investment, ceramic shell, and bonded sand.

Courses

Art History, Primarily for Undergraduates

- 01H:001 Art and Visual Culture** 3 s.h.
Art in its cultural contexts. GE: fine arts or humanities.
- 01H:002 Arts of Africa** 3 s.h.
Arts, artists, and cultures of Africa; sculpture, paintings, pottery, textiles, architecture, human adornment. GE: fine arts or humanities.
- 01H:003 Art of Pre-Columbian America, Native America, and Oceania** 3 s.h.
Arts of the indigenous Americas and Oceania. GE: cultural diversity or fine arts or humanities.
- 01H:004 Masterpieces: Art and Cultural Paradigms** 3 s.h.
Architecture, painting, sculpture in cultural context. GE: fine arts or humanities.
- 01H:005 Western Art and Culture before 1400** 3 s.h.
Art, its creators, culture of prehistoric, ancient, medieval periods. GE: fine arts or foreign civilization and culture or historical perspectives.
- 01H:006 Western Art and Culture after 1400** 3 s.h.
Art, artists, culture from Renaissance to present. GE: fine arts or foreign civilization and culture or historical perspectives.
- 01H:010 Tutorial for Majors: Art History as a Discipline** 3 s.h.
Questions and methods art historians use to explore art; aspects of the profession. Prerequisite: art history major or consent of instructor.
- 01H:016 Asian Art and Culture** 3 s.h.
Art, artists, cultures, and histories of India, China, Southeast Asia, Japan. GE: fine arts or foreign civilization and culture or historical perspectives. Same as 039:016.
- 01H:021 Introduction to the Art of West Africa** 3 s.h.
- 01H:022 Introduction to the Art of Central Africa** 3 s.h.
- 01H:026 Introduction to Ancient Art** 3 s.h.
Art, architecture of Mediterranean civilizations from ca. 3000 B.C. Greece to Hadrianic Rome. Prerequisite: 01H:005 or consent of instructor. Same as 20E:026.
- 01H:029 First-Year Seminar** 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.
- 01H:031 Introduction to the Art of China** 3 s.h.
Visual arts of China and their history; emphasis on understanding in context of Chinese civilization, history. Same as 039:028.
- 01H:033 Introduction to the Art of Japan** 3 s.h.
Visual arts of Japan and their history; emphasis on understanding in context of Japanese civilization, history. Same as 39J:033.
- 01H:040 Introduction to Medieval Art** 3 s.h.
Art, architecture in Europe from 300 to 1500 A.D.
- 01H:047 Introduction to Renaissance Art** 3 s.h.
Art, architecture in Europe from early Renaissance to 1600.
- 01H:053 Introduction to Baroque Visual Culture** 3 s.h.
Art, architecture in Europe from 1600 to 1700.
- 01H:062 Introduction to Nineteenth Century Art** 3 s.h.
Major European artists, works, movements, aesthetic theories from late 18th century to 1900; works in their aesthetic, cultural, intellectual, political contexts; boundaries, definitions of movements such as Neo-Classicism, Romanticism, Realism, Impressionism, Post-Impressionism, Symbolism.
- 01H:066 Introduction to American Art** 3 s.h.
Architecture, painting, photography, sculpture from colonial times to present. GE: fine arts or humanities.
- 01H:073 Introduction to Modern/Contemporary Art** 3 s.h.
Painting, sculpture, photography, and architecture 1900 to present; focus on Europe and America; developments in other parts of the world.
- 01H:084 Introduction to European Architecture** 3 s.h.
Overview of European monuments, Neolithic period to present; aesthetic and structural principles, major styles, architects.
- 01H:085 Introduction to American Architecture** 3 s.h.
Survey of American public, domestic, and industrial architecture, Native American contact period to present.
- 01H:099 Undergraduate Seminar in the History of Art** 3 s.h.
Characteristic problems, methodological issues, critical thinking and writing. Prerequisite: art history major or consent of instructor.

Art History for Undergraduate and Graduate Students

An introductory course in the appropriate art history area or consent of instructor is prerequisite for courses numbered above 100. Courses designated "Themes in Art History" consider topics of current interest in the field, organized thematically rather than chronologically.

- 01H:104 American Indian Art** 3 s.h.
Sculpture, painting, architecture, crafts, arts of personal adornment of native peoples of North America. GE: cultural diversity.
- 01H:105 Art of Pre-Columbian America** 3 s.h.
Art, architecture of Mexico, Peru before Cortéz.
- 01H:106 African Kings** 3 s.h.
African art created to reflect the political and military power of African rulers; in-depth study.
- 01H:107 Art of West Africa** 3 s.h.
How art is used to solve problems and mark important passages in life.

- 01H:110 Egyptian Art** 3 s.h.
Sculpture, painting, architecture, and luxury arts from Pyramid Age to Death of Cleopatra. Prerequisite: 01H:005 or consent of instructor. Same as 032:104.
- 01H:111 Art and Independence in West Africa** 3 s.h.
Art by West African artists just before, during, and just after the process of decolonization in several West African countries. Prerequisite: 01H:073 or 01H:112 or consent of instructor.
- 01H:112 Art and Independence in South Africa** 3 s.h.
Artists in South Africa and diaspora since 1970. Prerequisite: 01H:073 or 01H:113 or consent of instructor.
- 01H:113 Contemporary African Art** 3 s.h.
African art from the 1950s to the present. Prerequisite: 01H:073 or consent of instructor.
- 01H:114 Gender in African Art** 3 s.h.
Examination of the role gender plays in shaping African art history; contemporary female African artists in African and diaspora. Prerequisite: 01H:113 or consent of instructor.
- 01H:119 Chinese Art and Culture** 3 s.h.
Archaeological discoveries, sculpture, painting, architecture, calligraphy, other arts of Greater China area in historical and cultural contexts of past 5,000 years. Prerequisite: 01H:006 or 01H:031 or consent of instructor. Same as 039:159.
- 01H:120 Chinese Painting I** 3 s.h.
Early Chinese painting from fourth century B.C.E. through 14th century C.E.; figural style, religious art, emergence of landscape, other nonreligious subjects, interconnectedness of painting and calligraphy as fine arts. Prerequisite: 01H:006 or 01H:031 or consent of instructor. Same as 039:120.
- 01H:121 Chinese Painting II** 3 s.h.
Chinese painting 14th through 20th centuries; roots and backgrounds in earlier periods; late non-Chinese influences; Chinese painting on the international scene. Prerequisite: 01H:006 or 01H:031 or consent of instructor. Same as 039:121.
- 01H:122 Japanese Art and Culture** 3 s.h.
Arts of Japan in their historical, religious, cultural contexts; what is specifically Japanese about Japanese arts and culture; non-Japanese influences, contributions. Prerequisite: 01H:006 or 01H:033 or consent of instructor. Same as 39J:156.
- 01H:123 Japanese Painting** 3 s.h.
Japanese painting in its historical, cultural contexts; focus on developments of successive eras—religious art; narrative, other literary connections; Zen; decorative traditions; popular arts; Japan and the modern world. Prerequisite: 01H:006 or 01H:033 or consent of instructor. Same as 39J:123.
- 01H:124 Themes in Asian Art History** 3 s.h.
Prerequisite: 01H:016 or 039:016 or equivalent or consent of instructor. Same as 039:131.
- 01H:126 Early Greek Art** 3 s.h.
Art and archaeology of the Greek Bronze Age cultures from ca. 3000 B.C.E. to the end of Late Archaic Greece, ca. 500 B.C.E. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 20E:123.
- 01H:127 Classical Greek Art** 3 s.h.
Art, sacred architecture from early Classical through late fourth century B.C.E.; Athens in the Golden Age. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 20E:124.
- 01H:128 Greek Vase Painting** 3 s.h.
Greek ceramics as documents of religious beliefs, mythology, aspects of daily life ca. 1000-300 B.C.E. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 20E:125.
- 01H:129 Hellenistic Art** 3 s.h.
Sculpture, painting, architecture, luxury arts in ancient lands conquered by Alexander the Great. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 20E:126.
- 01H:132 Early Roman Art** 3 s.h.
Art and architecture of Roman Italy and provinces from late Caesar Republic through reign of Hadrian, 80 B.C.E.-138 C.E. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 20E:128.
- 01H:133 Later Roman Art** 3 s.h.
Art and architecture of late imperial Rome and the provinces, from the Antonines through Constantine, C.E. 138-337. Prerequisite: 01H:005 or 01H:026. Same as 20E:130.
- 01H:134 Art and Culture in Ancient Pompeii** 3 s.h.
Art and architecture, as documents of ancient society and religion in towns destroyed by Mount Vesuvius in C.E. 79. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 20E:129.
- 01H:136 Early Medieval Art** 3 s.h.
Survey of European art from 300-1000 A.D. Prerequisite: 01H:005 or 01H:040 or consent of instructor.
- 01H:137 Romanesque and Gothic Art** 3 s.h.
Art and architecture in western Europe 1000-1500. Prerequisite: 01H:005 or 01H:040 or consent of instructor.
- 01H:138 Gothic Architecture** 3 s.h.
Gothic architecture and its history, from varied perspectives (e.g., formal structural, symbolic, geometric, socioeconomic). Prerequisite: 01H:005 or 01H:040 or consent of instructor.
- 01H:139 The Sculptural Origins of Michelangelo** 3 s.h.
Sources 13th-15th centuries for the work of Michelangelo. Prerequisite: 01H:005 or 01H:006 or consent of instructor.
- 01H:140 The World of Giotto and Dante** 3 s.h.
Painting, sculpture, and architecture 1250-1400. Prerequisite: 01H:005 or 01H:006 or consent of instructor.
- 01H:141 Masaccio to Leonardo da Vinci** 3 s.h.
Painting, sculpture, and architecture 1400-1525. Prerequisite: 01H:005 or 01H:006 or consent of instructor.
- 01H:142 Leonardo, Raphael, and Their Contemporaries** 3 s.h.
The arts in Italy 1485-1550. Prerequisite: 01H:005 or 01H:006 or consent of instructor.
- 01H:144 Classical Architecture: Theory/Practice** 3 s.h.
Architectural design in the Italian Renaissance, Brunelleschi to Borromini. Prerequisite: 01H:005 or 01H:006 or consent of instructor.
- 01H:145 Buildings and Society in Europe 1500-1800** 3 s.h.
Architecture from a sociological perspective.
- 01H:150 Seventeenth-Century Dutch and Flemish Painting** 3 s.h.
Painting in the age of Rubens, Rembrandt, Vermeer; rise of landscape, still life, genre. Prerequisite: 01H:006 or consent of instructor.
- 01H:151 Inside Baroque: History and Methods of 17th-Century European Painting** 3 s.h.
Study of Baroque painting techniques combined with studio practice; team-taught. Prerequisite: consent of instructor. Same as 01K:151.
- 01H:152 Rembrandt** 3 s.h.
Works, life, and legend of the 17th-century Dutch master painter. Prerequisite: 01H:006 or consent of instructor.
- 01H:155 The Romantic Revolution** 3 s.h.
Transformations in European art and culture 1750-1850, an age of artistic, political, cultural, intellectual crisis and revolutions; major artists, including David, Ingres, Gericault, Delacroix, Goya, Freidrich, Constable, Turner.
- 01H:157 Paris and the Art of Urban Life** 3 s.h.
City of Paris examined in varied historical, artistic, cultural contexts; interdisciplinary. Same as 009:130, 033:130.

01H:158 Realism, Impressionism, Postimpressionism 3 s.h.

Naturalism, Realism, the Impressionist landscape, painting of modern life, new trends in subjectivity and exoticism mid- to late-19th-century European art and culture; Courbet, Manet, Degas, Monet, Renoir, Seurat, Cezanne, Van Gogh, Gauguin, Ensor, Munch.

01H:159 Manet to Matisse 3 s.h.

Development of modernism and the avant-garde in late 19th- and early 20th-century Paris; intersection of innovation and tradition, literature and art; role of theory and criticism in works of Manet, Degas, Seurat, Cezanne, Gauguin, Rodin, Matisse, and Picasso.

01H:162 National Images: American Art to 1865 3 s.h.

Painting, sculpture, and architecture from colonial times to Civil War. Prerequisite: 01H:006 or 01H:066 or consent of instructor.

01H:163 The American Renaissance and the Gilded Age 3 s.h.

Architecture, painting, sculpture 1865-1913. Prerequisite: 01H:006 or 01H:066 or 01H:162 or consent of instructor.

01H:165 American Western Art 3 s.h.

Painting and sculpture of the western United States, primarily from Euro-American perspective. Prerequisite: 01H:006 or 01H:066 or consent of instructor.

01H:166 Chicago Architecture: Big Shoulders City 3 s.h.

Chicago architecture from bungalows to skyscrapers, in context of urban plan, neighborhoods, parks, and mythology. Prerequisite: 01H:006 or 01H:066 or 01H:084 or consent of instructor.

01H:167 African American Art and Architecture 3 s.h.

Visual and material culture of African Americans, including painting, sculpture, decorative arts, and film, examined from aesthetic and ideological perspectives.

01H:170 Modernism and Early Twentieth-Century American Art 3 s.h.

American responses to European Modernism in painting, sculpture, architecture, and photography. Prerequisite: 01H:006 or 01H:066 or consent of instructor.

01H:171 Modern Art 3 s.h.

European and American art 1900-1940. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:172 Late Modern Art 3 s.h.

American and European art 1940-1970. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:173 Contemporary Art 3 s.h.

European and American art 1970 to present. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:176 Dada and Surrealism 3 s.h.

Survey of Dada and Surrealism; focus on painting and sculpture; related developments in photography, other media. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:178 Pop Art 3 s.h.

Survey of Pop Art in America, Britain, Europe; focus on developments in painting and sculpture 1950s to early 1960s; continuing influence of Pop Art. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:179 Minimalism 3 s.h.

Survey of Minimalism; focus on developments in painting and sculpture during 1960s; continuing influence. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:182 Art, Law, and Ethics 3 s.h.

How law and ethics apply to individuals and institutions concerned with the visual arts. Same as 024:161, 033:175, 091:192.

01H:183 History of Prints 3 s.h.

Printmaking as important art form, influential carrier of styles and iconography from area to area; focus on Europe; history of prints from prehistoric times to present.

01H:184 History of Photography 3 s.h.

Survey of photography 1839 to present. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:185 Modern Architecture 3 s.h.

Impact of new technology, artistic theory, and social practices on modern European and American architecture, 1850 to present. Prerequisite: 01H:006 or 01H:073 or 01H:084 or consent of instructor.

01H:190 Honors Research in Art History arr.

Research and preparation of thesis. Prerequisites: honors standing and consent of instructor.

01H:194 Readings in Art History arr.

01H:199 Topics in Art History 3 s.h.

Varied topics.

Art History, Primarily for Graduate Students

01H:200 History and Methods 3 s.h.

Critical thinking and research; readings in historical development of the discipline, from Renaissance to present; methodological paradigms and trends.

01H:210 Art History Colloquium 1 s.h.

Current topics and research in art history. Repeatable. Prerequisite: art history graduate standing.

01H:230 Crossing Borders Seminar: Introductory 3-4 s.h.

Repeatable. Same as 008:230, 013:264, 016:293, 030:241, 035:272, 044:285, 048:230, 113:230.

01H:247 Crossing Borders Seminar 2-3 s.h.

Repeatable. Same as 008:231, 013:262, 016:247, 030:242, 035:273, 044:286, 048:247, 113:247, 129:231.

01H:300 Directed Studies arr.

01H:302 M.A. Written Thesis arr.

01H:310 Seminar Problems in African Art 2-3 s.h.

Repeatable.

01H:316 Seminar Problems in Asian Art 2-3 s.h.

Repeatable. Same as 039:255.

01H:326 Seminar Problems in Ancient Art 3 s.h.

Repeatable. Same as 20E:210.

01H:330 Crossing Borders Proseminar 1 s.h.

Same as 013:260, 016:244, 030:243, 035:271, 044:287, 048:244, 113:248.

01H:340 Seminar: Problems in Medieval Art 3 s.h.

Major issues, methodologies. Repeatable.

01H:345 Seminar: Problems in Renaissance Art 3 s.h.

Special problems, issues. Repeatable.

01H:353 Seminar: Problems in Baroque Art 3 s.h.

Repeatable.

01H:359 Seminar: Problems in Nineteenth-Century Art 3 s.h.

Repeatable.

01H:360 Seminar: Nineteenth-Century French Art, Literature, and Culture 1-3 s.h.
Intersection of art and literature of 19th-century France in context of aesthetic, cultural, social, political transformations. Repeatable. Same as 009:241.

01H:362 Seminar: Modern/Contemporary Art 3 s.h.
Major issues, methodologies. Repeatable. Prerequisite: consent of instructor.

01H:366 Seminar: Problems in American Art 3 s.h.
Repeatable.

01H:385 Seminar: Problems in Architectural History 3 s.h.
Repeatable.

01H:400 Ph.D. Readings arr.
Repeatable.

01H:402 Ph.D. Thesis arr.
Repeatable.

Studio Art for Undergraduate and Graduate Students

Courses numbered through 099 are primarily for undergraduates and are not repeatable for credit except where indicated. Some courses numbered 100-199 are repeatable. Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all studio courses for art majors.

Fundamentals

01A:003 Basic Drawing 3 s.h.
Two-dimensional visual language, media; space, form; color. Prerequisite: art major.

01A:004 Design Fundamentals 3 s.h.
Two- and three-dimensional concepts and their relations; working with basic drawing instruments; problems in visual arts; artists' philosophies and techniques. Prerequisite: art major or consent of instructor.

01A:302 M.A. Written Thesis 1 s.h.
Prerequisite: consent of thesis supervisor.

01A:304 M.F.A. Written Thesis 1 s.h.
Prerequisite: consent of thesis supervisor.

Elements

01B:001 Elements of Art 3 s.h.
Drawing, composition; selected reading. GE: fine arts. Prerequisite: closed to art majors.

01B:101 Individual Instruction in Elements of Art arr.
Individual instruction in elements of art for advanced students. Prerequisite: consent of instructor.

Ceramics

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all ceramics courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01C:060 Ceramics I 3 s.h.
Basic handbuilding methods of forming, firing, glazing clay. GE: fine arts. Prerequisites: 01A:003 and 01A:004 for majors, 01B:001 for nonmajors.

01C:061 Ceramics II 3 s.h.
Basic wheel-throwing techniques; clay, glaze formulation and preparation in kiln firing. Prerequisite: 01C:060 or equivalent.

01C:170 Ceramics III 3 s.h.
Advanced throwing techniques; larger scale, more professional goals; projects may be more sculptural or one of a kind. Offered fall semesters. Prerequisites: 01C:060, 01C:061, and consent of instructor.

01C:171 Ceramics IV 3 s.h.
Advanced individual projects. Offered spring semesters. Prerequisites: 01C:170 and consent of instructor.

01C:172 Ceramic Materials and Effects 3 s.h.
Empirical, practical methods of glaze and body formulation; effects of various types of kilns and firing atmospheres on glaze materials, clay bodies; digital imaging used for testing and documenting results. Offered fall semesters of even years. Prerequisites: 01C:170 or equivalent, and consent of instructor.

01C:174 Kiln Construction 3 s.h.
Kiln theory, design, construction methods; may include participation in kiln construction. Offered fall semesters of odd years. Prerequisites: 01C:170 or equivalent, and consent of instructor.

01C:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in ceramics for advanced students. Prerequisite: consent of instructor.

01C:270 Graduate Individual Instruction in Ceramics arr.
Repeatable. Prerequisites: knowledge of clay and glaze computation, ability to fire kilns; and consent of instructor.

01C:275 Ceramics Workshop arr.
Advanced graduate studio; critique of student work; visiting artists, field trips. Repeatable. Prerequisites: 01C:171 or equivalent, and consent of instructor.

Design

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all design courses for art majors; 01B:001 Elements of Art is the prerequisite for nonmajors.

01D:021 Problems in Design I: Form and Structure 3 s.h.
Materials, their formal and structural possibilities. Offered fall semesters. Prerequisites: 01A:003 and 01A:004 for majors; 01B:001 for nonmajors.

01D:022 Problems in Design II: Form and Function 3 s.h.
How objects are designed and structured; modeling, graphic skills necessary for basic project development. Offered spring semesters. Prerequisite: 01D:021.

01D:023 Basic Drafting 3 s.h.
How to prepare drawings for interior design projects; skills and techniques for translating 3-D design concepts to paper; drafting tools; conventions of notation and line weights and drafting in different scales; basic lettering; orthographic projections (e.g., floor plans, ceiling plans, elevations). Prerequisites: 01A:003 and 01A:004.

01D:025 Introduction to Portfolio Design 3 s.h.
Preparation of presentation boards and portfolio production for print and job application for 3-D design students. Prerequisite: 01D:021.

01D:028 Graphic Design I 3 s.h.
Basic principles, techniques, and applications of graphic design, typography, composition, visual perception; creative, problem-solving aspects of graphic design. Prerequisites: 01A:003, 01A:004, and two art history courses.

01D:064 Introduction to Computer-Aided Design for 3-D Design 3 s.h.

Basic principles of 2-D and 3-D computer-aided drafting; use of AutoCAD software to draw plans, elevations, and sections for objects and interior spaces. Prerequisites: 01A:003 and 01A:004.

01D:082 Introductory Computer Graphic Design 3 s.h.

Macintosh computer as creative tool for graphic design; composition, manipulation, organization of type and image; projects, demonstrations, discussions. Prerequisites: 01A:004 and 01D:028.

01D:083 Introduction to Typography 3 s.h.

Introduction to fundamentals of typography and typesetting; historical overview of typography; projects, readings, presentations. Prerequisite: 01D:028.

01D:108 Introduction to Computer Modeling for 3-D Design 3 s.h.

Basic knowledge and practical technical skills using 3DS Max Studio software; experience creating and manipulating basic forms and working with texture, background, light, and camera viewpoints; basic animation. Prerequisites: 01D:021 and 01D:064.

01D:125 Typography 3 s.h.

Principles and history; designing with type; functional, aesthetic dimensions of typography. Prerequisites: 01D:133 and consent of instructor.

01D:128 Computer Graphic Design 3 s.h.

Composition, manipulation, organization of image and type using Macintosh computer platform as a creative tool for graphic design; nature, uses, limitations of digital technology. Prerequisites: 01D:028 and 01D:082, or consent of instructor.

01D:133 Graphic Design II 3 s.h.

In-depth study and exploration of graphic design as creative and problem-solving tool of visual communication; translation of ideas and concepts into comprehensible visual language. Prerequisites: 01D:028 and consent of instructor.

01D:135 Graphic Design Workshop I 3 s.h.

Continuation of 01D:133; graphic design knowledge and skills applied to complex design problems such as visual identity, packaging, information design. Prerequisite: 01D:125.

01D:137 Environmental Design I 3 s.h.

Human interaction with the interior and exterior environment. Offered fall semesters of odd years. Prerequisites: 01D:021 and 01D:022, or equivalents; and consent of instructor. Same as 049:158.

01D:141 Interior Design I 3 s.h.

Relationship of interior space to its architecture, environment, human element; color, materials, furnishings, lighting; projects. Offered spring semesters. Prerequisites: 01D:021, 01D:022, and consent of instructor.

01D:142 Color for Interior Design 3 s.h.

Use of color for interior spaces; principles of color theory reviewed and applied to 3-D environments; color as a compositional element and psychological tool. Prerequisites: 01D:021, 01D:022, and 01D:141.

01D:144 Interior Design II 3 s.h.

Continuation of 01D:141. Offered fall semesters of even years. Prerequisites: 01D:064 and 01D:141.

01D:175 Advanced Typography 3 s.h.

Continuation of 01D:125; advanced typographic problems. Prerequisite: 01D:125.

01D:190 Undergraduate Individual Instruction 1-3 s.h.

Individual instruction in design for advanced students. Prerequisite: consent of instructor.

01D:235 Graphic Design Workshop II arr.

Complex problems in graphic design; planning, development, organization of integrated design programs. Repeatable. Prerequisites: 01D:133, 01D:135, and consent of instructor.

01D:238 Environmental Design II 3 s.h.

Continuation of 01D:137; design of graphic elements in natural and built environments. Repeatable. Prerequisites: 01D:137 and consent of instructor.

01D:240 Individual Instruction in Design arr.

Repeatable.

01D:249 Advanced Problems in Design 3 s.h.

Special issues and topics in design. Repeatable. Prerequisite: consent of instructor.

Drawing

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all drawing courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

*All B.F.A. students in drawing and painting must take 01F:106. Offered fall semesters.

01F:007 Life Drawing I 3 s.h.

Observational drawing of form in its spatial contexts; drawing in varied media; figural as well as nonfigural content. Prerequisites: 01A:003 and 01A:004; and 01B:001 for nonmajors.

01F:105 Concepts in Drawing 3 s.h.

Drawing from topics at the intermediate level; observation, theory, media, form, content; emphasizes personal direction. Prerequisite: 01F:007. Same as 049:157.

***01F:106 Undergraduate Seminar in Drawing and Painting** 3 s.h.

Contemporary issues, practical and professional skills, interdisciplinary concerns, education and career goals. Offered fall semesters. Prerequisite: 01F:105.

01F:109 Advanced Concepts in Drawing 3 s.h.

Drawing from topics at the advanced level. Repeatable. Prerequisite: 01F:105.

01F:190 Undergraduate Individual Instruction 1-3 s.h.

Individual instruction in drawing for advanced students. Prerequisite: consent of instructor.

01F:199 Special Topics in Drawing and Painting 3 s.h.

Advanced issues in drawing and painting. Prerequisite: 01F:105.

01F:201 Graduate Drawing 3 s.h.

Compositional and conceptual drawing as related to the student's major interest; varied media. Repeatable. Prerequisites: 6 s.h. of 01F:105 or equivalent, and consent of instructor.

01F:205 Individual Instruction in Drawing arr.

Repeatable.

Metalsmithing and Jewelry

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all metalsmithing and jewelry courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01G:084 Introduction to Jewelry and Metal Arts 3 s.h.

Basic metalworking techniques, including sheet metal fabrication, hammer forming, hydraulic die forming, soldering, riveting,

repousse, etching, roll printing, anodizing, stone setting, patination; creation of jewelry, functional, and nonfunctional objects using metals, other materials. Prerequisites: 01A:003 and 01A:004 for majors, 01B:001 for nonmajors.

01G:185 Intermediate Jewelry and Metal Arts 3 s.h.
Continuation of 01G:084; electroforming, electro-applique, casting, forging fold forming, inlay, stone setting, mold making; creation of conceptual and/or functional objects, jewelry, and prototype pieces for production art work using metals, other materials. Prerequisite: 01G:084.

01G:186 Advanced Jewelry and Metal Arts 3 s.h.
Enameling, laser print transfer/resist, lathe usage, gold plating, kumboo; production of pieces using 3-D computer modeling, prototyping, other CNC industrial technologies, photo etching dropout processes; historical and current trends in crafts. Prerequisite: 01G:084.

01G:187 Mixed Media Workshop 3 s.h.
Free exploration of all media and materials, including found objects; creation of conceptual and/or functional mixed media objects, jewelry, sculptures, installation pieces; pioneering use of new materials, development of new techniques, creation of diverse innovative art works. Prerequisite: 01G:084. Recommended: 01G:185 and 01G:186.

01G:188 Metals Graduate Workshop 3 s.h.
Independent studio work; personal aesthetics, conceptual and technical skills developed and refined; creation of work without boundaries of media; portfolios, exhibitions, professional goals. Prerequisites: 01G:185, 01G:186, and 01G:187; or equivalents.

01G:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in metalsmithing and jewelry for advanced students. Prerequisite: consent of instructor.

01G:240 Individual Instruction in Metalsmithing and Jewelry arr.

Intermedia, Video Art

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all intermedia and video art courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01J:090 Intermedia I 3 s.h.
Interdisciplinary focus; emphasis on conceptual, installation, video, time-based media, performance art. Prerequisites: 01A:003 and 01A:004 for majors; 01B:001 for nonmajors.

01J:091 Intermedia II 3 s.h.
Interdisciplinary investigation of materials and concepts in relation to time-based media, performance, video, installation; individual and collaborative projects. Prerequisite: 01J:090.

01J:105 Time-Based Media/Video I 3 s.h.
Studio experimentation, individual projects. Prerequisites: 01J:090 or equivalent, and consent of instructor.

01J:106 Time-Based Media/Video II 3 s.h.
Continuation of 01J:105. Prerequisites: 01J:105 and consent of instructor.

01J:110 Intermedia Workshop 3 s.h.
Visual practice/visual theory; projects, critiques, visiting artists and scholars. Prerequisite: consent of instructor.

01J:115 What is Storytelling For? 3 s.h.
Same as 033:115.

01J:140 Artists in the Community—Intermedia 3-4 s.h.
Student participation in internships at Iowa City/Coralville nonprofit organizations; interdisciplinary seminar. Prerequisite: consent of instructor.

01J:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in intermedia for advanced students. Prerequisite: consent of instructor.

01J:201 Individual Instruction in Intermedia and Video Art arr.
Repeatable.

Painting

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all painting courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01K:009 Painting I 3 s.h.
Emphasis on observational painting, theory and development of pictorial ideas and skills. Prerequisite: 01F:007.

01K:010 Painting II 3 s.h.
Materials, techniques, beginning of a personal painting language through observation and imagination. Prerequisites: 01K:009 and consent of instructor.

01K:025 Life Painting 3-4 s.h.
Emphasis on the figure and/or still life, and discussion. Prerequisites: 01K:010 and consent of instructor.

01K:046 Intermediate Painting 3 s.h.
Continued discussion of personal direction in painting developed through contemporary issues. Prerequisites: 01K:009 and 01K:010, or equivalents; and consent of instructor.

01K:049 Advanced Painting 3 s.h.
Individual projects as they aid the realization of a personal vision. Prerequisite: 01K:046 or equivalent, and consent of instructor.

01K:151 Inside Baroque: History and Methods of 17th-Century European Painting 3 s.h.
Study of Baroque painting techniques combined with studio practice; team-taught. Same as 01H:151.

01K:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in painting for advanced students. Prerequisite: consent of instructor.

01K:199 Special Topics in Painting and Drawing 3 s.h.
Advanced issues in painting, drawing. Prerequisite: 01K:010.

01K:206 Graduate Painting: Topics 3 s.h.
Individual painting projects in desired medium; topics vary. Prerequisite: consent of instructor. Corequisite: 01K:208.

01K:207 Graduate Drawing and Painting Workshop 3 s.h.
Group and individual criticism, team-taught. Prerequisite: consent of instructor. Corequisite: 01K:208.

01K:208 Graduate Drawing and Painting Forum 1-3 s.h.
Problems and issues of contemporary artists. Prerequisite: consent of instructor.

01K:215 Individual Instruction in Painting arr.
Repeatable. Prerequisite: consent of instructor.

Photography

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all photography courses for art majors; 01B:001 is prerequisite for nonmajors.

01L:034 Beginning Photography 3 s.h.
Camera, light meter, darkroom; history, theory of photography. Prerequisites: 01A:003 and 01A:004 for majors; 01B:001 for nonmajors.

01L:040 Introduction to Digital Imaging 3 s.h.
Working knowledge of digital image-making techniques, including image capture, image building/editing, printing/output options, work with Photoshop on Macintosh computers.

01L:101 Intermediate Photography 3 s.h.
Photographic materials, development of personal vision. Prerequisite: 01L:034 or equivalent.

01L:105 Advanced Photography 3 s.h.
Individual projects; development of personal vision. Prerequisite: 01L:101.

01L:125 Color Photography 3 s.h.
Basic color printing procedures. Prerequisite: 01L:101.

01L:129 Materials and Techniques 3 s.h.
Concepts and techniques, from reading contemporary topics to understanding and applying nontraditional photographic processes and digital imaging. Prerequisites: 01L:101 and consent of instructor.

01L:134 Silkscreen 3 s.h.
Photographic, nonphotographic stencil techniques for silkscreen printing. Prerequisites: 01A:003 and 01A:004. Recommended: 01L:034.

01L:135 Offset Productions Workshop 3 s.h.
Graphic arts techniques for producing postcards, broadsides, and visual books via high-speed offset press. Prerequisites: 01L:101 or equivalent, and consent of instructor. Same as 108:135.

01L:140 Digital Imaging 3 s.h.
Varied image editing programs, with focus on Photoshop, Adobe Illustrator, and the web.

01L:165 4 x 5 Camera and Lighting 3 s.h.
Use of a 4 x 5 camera to correct perspective, depth of field; large format printing, negative processes. Prerequisite: 01L:101.

01L:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in photography for advanced students. Prerequisite: consent of instructor.

01L:231 Individual Instruction in Photography arr.
Repeatable. Prerequisite: consent of instructor.

01L:236 Graduate Photography Workshop arr.
Projects; group critiques; readings. Prerequisite: consent of instructor.

Printmaking

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all printmaking courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01M:021 Undergraduate Intaglio I 3 s.h.
Concepts, techniques; Renaissance and contemporary ideas, methods; emphasis on metal plate printing, including etching, drypoint, engraving, softground, aquatint. Prerequisites: 01A:003 and 01A:004 for majors; 01B:001 for nonmajors.

01M:022 Undergraduate Intaglio II 3 s.h.
Individual instruction, with emphasis on development of personal visual language; woodcut, metal plate, color prints. Prerequisite: 01M:021.

01M:024 Undergraduate Relief I 3 s.h.
Relief printmaking techniques. Prerequisites: 01A:003 and 01A:004 for majors, 01B:001 for nonmajors.

01M:025 Undergraduate Relief II 3 s.h.
Continuation of 01M:024. Prerequisite: 01M:024.

01M:031 Undergraduate Lithography 3 s.h.
Fundamental techniques, characteristics of lithography; basic direct drawing, processing, printing of stone and plate images in black and white. Prerequisites: 01F:007 or equivalent, and consent of instructor.

01M:041 Undergraduate Monotype 3 s.h.
Historical, technical, aesthetic aspects of unique nonmatrix printed images as an approach to printmaking. Offered fall semesters. Prerequisites: 01A:003, 01A:004, and 01F:007.

01M:042 Undergraduate Monoprint 3 s.h.
Concepts and techniques in using traditional and alternative printmaking media to produce unique, matrix-generated prints. Offered spring semesters. Prerequisite: 01M:022 or equivalent.

01M:122 Advanced Intaglio and Relief 3 s.h.
Concepts and techniques of intaglio/relief; etching, engraving, drypoint, softground, aquatint, woodcut, linocut, color printing; emphasis on advanced methods, personal vision. Prerequisite: 01M:022 or equivalent.

01M:131 Lithography 3 s.h.
Technical, aesthetic characteristics; basic direct drawing, processing, printing of stone and plate images in black and white. Prerequisites: 01F:007 or equivalent, and consent of instructor.

01M:132 Advanced Lithography 3 s.h.
Technical, aesthetic aspects; emphasis on color printing, indirect image-forming and photo-mechanical processes. Prerequisites: 01M:131 or equivalent, and consent of instructor.

01M:141 Monotype 3 s.h.
Historical, technical, aesthetic aspects of unique non-matrix, printed images. Offered fall semesters. Prerequisites: 01F:007 or equivalent, and consent of instructor.

01M:142 Monoprint 3 s.h.
Concepts, techniques in use of traditional and alternative printmaking media to produce unique, matrix-generated prints. Offered spring semesters. Prerequisites: 01M:022 or equivalent, and consent of instructor.

01M:151 Foil Imaging I 3 s.h.
Participation in development of a new art form involving creation of original prints and other works of art using hot stamped foil and Iowa Foil Printer. Prerequisite: consent of instructor.

01M:152 Foil Imaging II 3 s.h.
Advanced aesthetic and technical research for creation of original prints and other works of fine art using hot stamped foil and other printmaking techniques; individual instruction. Prerequisites: 01M:151 or equivalent, and consent of instructor.

01M:160 Special Workshop in Printmaking 2-3 s.h.
Issues, themes, or studio practice. Prerequisite: consent of instructor.

01M:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in printmaking for advanced students. Prerequisite: consent of instructor.

01M:222 Graduate Intaglio and Relief 3 s.h.
Concepts, techniques; etching, engraving, drypoint, softground, aquatint, color printing, editioning, relief; emphasis on developing personal vision. Repeatable. Prerequisite: consent of instructor.

01M:232 Graduate Lithography Workshop 3 s.h.
Contemporary issues in lithography and focused development of independent studio practice; special research projects. Repeatable. Prerequisites: 01M:132 and consent of instructor.

01M:250 Individual Instruction in Printmaking arr.
Repeatable.

Sculpture

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all sculpture courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01N:015 Undergraduate Sculpture I 3 s.h.

Basic sculptural concepts, processes, investigation of materials such as plaster, clay, wood; emphasis on developing formal language, acquiring basic skills; spatial, conceptual, technical issues. GE: fine arts. Prerequisites: 01A:003 and 01A:004 for majors; 01B:001 for nonmajors.

01N:016 Undergraduate Sculpture II 3 s.h.

Continuation of 01N:015; form, materials, processes, woodcarving, welding, concrete carving and direct application; expanding concept development; contemporary sculptural formats, collaborative process. Prerequisite: 01N:015.

01N:019 Sculpture Workshop 3 s.h.

Prerequisites: 01N:015, 01N:016, and consent of instructor.

01N:140 Topics in Sculpture 3 s.h.

Projects, reading; specialized conceptual forms and issues in contemporary sculpture, such as public art, installation. Prerequisites: 01N:015, 01N:016, and consent of instructor.

01N:150 Figure Modeling 3 s.h.

Exploration of the human form in clay of the live model on a wire armature, portrait modeling and relief human anatomy. Prerequisites: 01A:003, 01A:004, and 01N:015.

01N:160 Mold Making 3 s.h.

All aspects of mold making—plaster, rubber, silicone; technical preparation for 01N:165. Prerequisites: 01N:015, 01N:016, and consent of instructor.

01N:165 Casting in Hot Metal and Metal Forming 3 s.h.

Foundry work, wax working, mold making, and processes. Prerequisites: 01A:003, 01A:004, 01N:015, 01N:016, and 01N:160.

01N:190 Undergraduate Individual Instruction 1-3 s.h.

Individual instruction in sculpture for advanced students. Prerequisite: consent of instructor.

01N:260 Individual Instruction in Sculpture arr.

Repeatable.

01N:264 Graduate Sculpture Workshop 3 s.h.

Critique seminar with readings for graduate sculptors and nonsculpture graduate students. Repeatable. Prerequisite: consent of instructor.

Interdepartmental Courses

01P:029 First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

01P:134 Scene Design I 3 s.h.

Introduction to design process; research, rendering, model building. Same as 049:134.

01P:160 Introduction to Letterpress Printing 3 s.h.

Same as 108:160.

01P:161 Handprinted Book: Design and Production 3 s.h.

Same as 008:187, 108:161.

01P:163 Digital to Letterpress Book Design 3 s.h.

Same as 108:163.

01P:164 Digital Design for Artists' Books 3 s.h.

Same as 108:164.

01P:165 Innovative Letterpress 3 s.h.

Same as 108:165.

01P:190 Honors in Studio Art 0-3 s.h.

Research, preparation, and exhibition of an honors project in studio art. Prerequisite: consent of instructor.

01P:299 Graduate Independent Study arr.

Individual instruction by a faculty member.

Papermaking

01X:110 Papermaking 3 s.h.

History, fundamental techniques of Western, Eastern hand papermaking; projects in traditional sheet forming, basic paper chemistry, paper coloring. Offered fall semesters. Prerequisite: consent of instructor. Same as 108:110.

01X:120 Advanced Papermaking 3 s.h.

Traditional Eastern, Western sheet forming techniques, history, aesthetics; emphasis on fiber selection and preparation. Offered spring semesters. Prerequisite: consent of instructor. Same as 108:111.

01X:130 Paperworks 3 s.h.

Same as 108:130.

01X:210 Individual Instruction in Papermaking/Paperworks arr.

Repeatable. Prerequisites: 01X:120 and consent of instructor.

Bookbinding

01Y:150 Bookbinding I: Materials and Techniques 3 s.h.

Same as 108:150.

01Y:151 Bookbinding II 3 s.h.

Hands-on production of case-bound structures; basic tools and terminology. Same as 108:151.

01Y:152 Bookbinding III 3 s.h.

Sewing, covering, shaping techniques. Prerequisites: 01Y:150 or 01Y:151 or 108:150 or 108:151, and consent of instructor. Same as 108:152.

01Y:153 Studies in Bookbinding 3 s.h.

Topics related to hand bookbinding. Same as 108:153.

01Y:154 Artists' Books 3 s.h.

Innovative binding structures, emphasis on nontraditional techniques. Same as 108:154.

01Y:156 Boxes and Enclosures 3 s.h.

Same as 108:156.

01Y:157 Moveable/Sculptural Books 3 s.h.

Same as 108:157.

01Y:158 Pop-up Book Structures 3 s.h.

Same as 108:158.

Calligraphy

01Z:140 Calligraphy: Gothic Hands 3 s.h.

Introduction to the basic tool (broad-edged nib) disciplines and usage of calligraphy, using the Fraktur hand (a style of Gothic) as model; emphasis on proper practice methods. Same as 108:140.

01Z:141 Calligraphy: Expressive Forms 3 s.h.

Adaptation of historical Western-style letterforms to contemporary format; brush, broad-edge pen. Prerequisite: 01Z:140 or equivalent. Same as 108:141.

01Z:142 History of Western Letterforms	3 s.h.
Same as 108:142.	
01Z:143 Calligraphy: Foundational Hands	3 s.h.
Fundamental calligraphic skills using Roman Majuscule, Humanistic Minuscule and Italic Basic layout and color theory, incorporated into letter practice. Same as 108:143.	
01Z:144 Calligraphy: Italic and Script Hands	3 s.h.
Same as 108:144.	
01Z:146 Studies in Letter Arts	3 s.h.
Same as 108:146.	

Art Education for Undergraduate and Graduate Students

01E:143 Methods: Art Workshops	3 s.h.
Same as 07E:143.	
01E:190 Undergraduate Individual Instruction	1-3 s.h.
Individual instruction in art education. Prerequisites: 01A:003, 01A:004, and consent of instructor.	
01E:195 Methods and Material: Art for the Classroom Teacher	2 s.h.
Techniques, processes in art for teachers; studio projects. Same as 07E:122.	
01E:196 Art Learning	3 s.h.
Overview; child, adolescent art; relationships with art, education; survey of literature; community art teaching experiences.	
01E:198 Art Education Studio	3 s.h.
Art training related to processes of elementary, secondary school art teaching; studio methods applied to teaching children, adolescents. Prerequisite: 01E:196. Corequisite: 07S:090 for Teacher Education Program.	
01E:215 Completing Stories	3 s.h.
Storytelling with interactive media; strategies for conveying story performance, case studies, and visual conceptualization; portfolio, case study, or story inquiry project. Repeatable.	
01E:290 Individual Instruction in Art Education	arr.
01E:367 Seminar: Current Issues in Art Education	2-3 s.h.
Same as 07S:367.	
01E:406 Research in Art Education	arr.
Individual work; preparation of thesis, doctoral prospectus. Repeatable. Same as 07E:406, 07S:406.	

Asian Languages and Literature

Chair: Philip Lutgendorf

Professor: W. South Coblin

Associate professors: Yukiko Abe Hatasa, Chuanren Ke, Robert W. Leutner, Philip Lutgendorf, Maureen Robertson (Asian Languages and Literature/Cinema and Comparative Literature), Frederick Smith (Religious Studies/Asian Languages and Literature)

Assistant professors: Adrienne Hurley, Helen Shen, Ikuko Yuasa

Lecturer: Satoru Ishikawa

Undergraduate degree: B.A. in Asian Languages and Literature

Undergraduate nondegree program: Minor in Asian Languages

Graduate degree: M.A. in Asian Civilizations

Web site: <http://www.uiowa.edu/~asian>

Undergraduate Programs

The Department of Asian Languages and Literature offers a Bachelor of Arts in Asian languages and literature, which is intended for students who want to concentrate on one of the language and literature programs offered by the department. Students interested in Asian studies may add a second major by pursuing a Bachelor of Arts in international studies with an emphasis in Asian studies.

The major in Asian languages and literature offers students the opportunity to develop advanced skills in an Asian language while they study the people, literatures, and cultures of Asia. Many students find that they can combine an Asian languages and literature major conveniently with a major in international studies, history, political science, art history, religion, sociology, journalism, business, anthropology, or other disciplines.

Graduates have found careers in education, government, communications, business, and other fields in the United States and abroad. The program also provides excellent background for advanced study in a variety of fields in the humanities and social sciences and for professional schools, such as law and business.

The department encourages its undergraduate majors to participate in study abroad programs in Asia and has entered into exchange agreements with several universities and institutes there. Every effort is made to facilitate transfer of credit for students studying abroad.

Bachelor of Arts

The Bachelor of Arts in Asian languages and literature requires 30-40 s.h. in the major, depending on the track. Transfer work is accepted to satisfy some requirements of the major, but at least half of the semester hours of advanced work required for the major must be earned at The University of Iowa.

STUDENTS OF CHINESE

Students must successfully complete 039:105-039:106 Second-Year Chinese: First-Second Semester (10 s.h.) at The University of Iowa with a grade of C or higher, or the equivalent, before they may enroll in the following course work.

039:108 Classical Chinese: First Semester	3 s.h.
039:115-039:116 Third-Year Chinese: First-Second Semester	6 s.h.
039:128-039:129 Fourth-Year Chinese: First-Second Semester	6 s.h.
039:141 Chinese Literature: Poetry	3 s.h.

One of these:

039:142 Chinese Literature: Prose	3 s.h.
039:180 Modern Chinese Writers	3 s.h.

One of these advanced language courses (3 s.h.):

039:165 Fifth-Year Chinese: First Semester	3 s.h.
039:166 Fifth-Year Chinese: Second Semester	3 s.h.
039:171 Readings in Chinese Literature	3 s.h.
039:215 Individual Chinese for Advanced Students	arr.

Students also must complete two of the following, to support the study of literature and culture. Content may vary by semester or course section; only courses that pertain to Chinese culture or to the methodology of literary or cultural studies can be counted toward this requirement.

01H:120-01H:121 Chinese Painting I-II	6 s.h.
01H:124 Themes in Asian Art History	3 s.h.
008:129 Topics in Criticism and Theory	3 s.h.
008:161 Transnational and Post-Colonial Writing by Women	3 s.h.
008:270 Introduction to Cultural Studies	3 s.h.
16W:198 China Since 1927	3 s.h.
030:148 Government and Politics of China	3 s.h.

032:170 Topics in Asian Religions	3 s.h.
034:154 Society and Politics in East Asia	3 s.h.
039:015 Introduction to Chinese Culture	3 s.h.
039:016 Asian Art and Culture	3 s.h.
039:240 Seminar in Chinese Fiction	3 s.h.
048:079 Undergraduate Translation Workshop	3 s.h.
048:155 Narrative Modes	3 s.h.
048:172 Narrative and the Cinema	3 s.h.
048:194 Introduction to Feminist Criticism	3 s.h.

STUDENTS OF HINDI

039:126-039:127 Second-Year Hindi: First-Second Semester	8 s.h.
*039:184-039:185 Third-Year Hindi: First-Second Semester	6 s.h.
039:136 Indian Literature	3 s.h.
Additional advanced courses (100-level) in South Asian studies, including 1-3 s.h. of independent study	13 s.h.

A list of advanced courses is available from the department.

*Students may substitute 6 s.h. of 100-level courses in South Asian studies, with the approval of their major advisor.

STUDENTS OF JAPANESE

39J:101-39J:102 Second-Year Japanese: First-Second Semester	10 s.h.
39J:105-39J:106 Third-Year Japanese: Conversation I-II	6 s.h.
39J:107-39J:108 Third-Year Japanese: Reading and Writing I-II	6 s.h.
Advanced courses in Japanese literature taught by faculty members in the department (e.g. 39J:141, 39J:142, 39J:143)	6 s.h.
Advanced courses in Japanese language or linguistics taught by faculty members in the department	6 s.h.

Lists of advanced courses are available from the department.

STUDENTS OF SANSKRIT

039:112-039:113 Second-Year Sanskrit: First-Second Semester	6 s.h.
*039:186-039:187 Third-Year Sanskrit: First-Second Semester	6 s.h.
039:136 Indian Literature	3 s.h.
039:163 Indian Religious Texts	3 s.h.
Additional advanced courses (100-level) in South Asian studies, including 1-3 s.h. of independent study	12 s.h.

A list of advanced courses is available from the department.

*Students may substitute 6 s.h. of advanced courses (100-level) in South Asian studies, with the approval of their major advisor.

Students of Sanskrit and Hindi are urged to fulfill the General Education Program requirement in historical perspectives (3 s.h.) by completing 016:007 Civilizations of Asia: South Asia.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the third semester begins: for students in Chinese and Japanese tracks, language work begun (students in the Hindi and Sanskrit tracks may begin language work in their sophomore year) and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least first-year language competency and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least second-year language competency and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least third-year, first-semester language competency and one additional course in the major (two additional courses in the Japanese track)

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Students who maintain a cumulative University of Iowa g.p.a. of at least 3.33 are encouraged to enroll in the University Honors Program. With consent of the department chair and a faculty sponsor (an Asian specialist from any department), students register for 039:191 Honors Tutorial and 039:195 Senior Honors Thesis. To receive a B.A. with honors, students must complete an acceptable thesis based on original research.

Minor

A minor in Asian languages requires a minimum of 14-15 s.h. with a g.p.a. of at least 2.00. At least 12 s.h. must be taken at The University of Iowa in courses numbered 100 or above. Students may earn a minor in Asian languages with emphasis in Chinese, Hindi, Japanese, or Sanskrit.

Students with a Hindi emphasis are permitted to complete the advanced course requirement with 11 s.h., and the minor with a total of 14 s.h. The courses 039:123 and 039:124 do not count as advanced-level courses for the minor.

Students with a Japanese emphasis must choose one of the advanced courses from literature, culture, or linguistics courses. A list of approved courses for the minor is available in the department.

Students with a Sanskrit emphasis must complete at least 12 s.h. of advanced-level courses chosen from 039:111, 039:112, 039:113, 039:186, 039:187, and 039:216. Students may not count 039:110 as an advanced-level course for the minor.

Certificate in International Business

Students of Chinese, Japanese, and Hindi may participate in a program leading to a Certificate in International Business, offered jointly by the Henry B. Tippie College of Business and the College of Liberal Arts and Sciences. The wide range of electives permits undergraduate students to tailor the program to their individual interests and to complement majors in the Tippie College of Business and the College of Liberal Arts and Sciences.

Teaching Licensure in Chinese and Japanese

Chinese and Japanese majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major, or the equivalent, plus designated pedagogy and linguistics courses in the Department of Asian Languages and Literature. In addition, students must be admitted to the College of Education's foreign language Teacher Education Program. Several courses in the College of Education are required, as is one semester of student teaching, taken in the senior year. Contact the College of Education's Department of Teaching and Learning for more information.

Students who plan to use a Chinese or Japanese minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements.

Language for Nonmajors

The department offers several opportunities for students who wish to study the languages of Asia and South Asia. Language study is available in Chinese, Hindi, Japanese, Korean, and Sanskrit.

Students who have had experience with Japanese should take the Japanese Foreign Language Placement Test, offered during summer orientation programs and at other times during the year by Evaluation and Examination Service. The test helps determine the level at which a student should begin Japanese language study at The University of Iowa. Students with backgrounds in Chinese, Hindi, Korean, or Sanskrit may receive individual evaluations from the department.

Foreign Language and General Education

Students may complete the foreign language component of the General Education Program with Chinese, Hindi, Japanese, Sanskrit, and Korean sequences offered by the department.

The Chinese sequence 039:008, 039:009, 039:105, and 039:106 completes the foreign language component of the General Education Program and is most appropriate for students who have had no Chinese. Students who know some Chinese as a family member, from high school, or from other study may wish to take 039:010 and 039:011 (neither course is approved for General Education in foreign language) followed by 039:105 and 039:106. Additional course work is available, including classical Chinese and business Chinese.

The Hindi sequence 039:123, 039:124, 039:126, and 039:127 completes the foreign language component of the General Education Program. Additional courses are available for students who want to learn more.

The Japanese sequence 39J:010, 39J:012, 39J:101, and 39J:102 is most appropriate for students who have not studied Japanese. Those with some prior study should take 39J:011, 39J:012, 39J:101, and 39J:102 to complete the foreign language component of the General Education Program. Additional course work is available, including classical Japanese.

The Korean sequence 039:040, 039:041, 039:042, and 039:043 leads to elementary/intermediate proficiency in Korean. Students who complete 039:043 Second-Year Korean: Second Semester may request recognition of their proficiency and complete the foreign language component of the General Education Program by contacting the Department of Asian Languages and Literature.

The Sanskrit sequence 039:110, 039:111, 039:112, and 039:113 completes the foreign language component of the General Education Program. Additional courses are available.

Graduate Program

The Department of Asian Languages and Literature offers a Master of Arts in Asian civilizations. The program prepares students for doctoral study in a variety of disciplines. It is also of interest to students with nonacademic career plans for whom graduate-level work in an Asian language and culture would be useful. Students in professional programs are encouraged to consider working concurrently toward a degree in Asian civilizations. Application materials are available from the department, as is specific information on program tracks (Hindi language and literature; Sanskrit language and literature; South Asian studies; Chinese literature and culture; Chinese linguistics; teaching Chinese as a foreign language; interdisciplinary Chinese studies; teaching Japanese as a foreign language; Japanese literature and culture; and interdisciplinary Japanese studies).

The Master of Arts in Asian Civilizations requires a minimum of 30 s.h. of approved graduate-level course work, including 24 s.h. taken in residence at The University of Iowa. By the end of the first semester in residence, students propose a plan of study developed in consultation with their advisor and in accordance with guidelines for specializations within the program.

All students must maintain a g.p.a. of 3.00 or higher. Detailed information on degree requirements is sent to all applicants.

By the end of the final semester in residence, students are expected to demonstrate, either by departmental examination or the successful completion of courses at the appropriate level, advanced competence in Chinese, Japanese, Hindi, or Sanskrit, defined generally as corresponding to the fourth-year level of language course work in Chinese or Japanese and the third-year level in Hindi and Sanskrit.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. The Department of Asian Languages and Literature requires a g.p.a. of at least 3.00 for regular admission and a g.p.a. of at least 2.75 for conditional admission.

Applicants must submit a statement of purpose, a research paper written in English, three letters of recommendation, and GRE General Test scores. Applicants whose first language is not English must score at least 590 (paper-based) or 243 (computer-based) on the Test of English as a foreign language (TOEFL).

Both international and U.S. graduate applications requesting financial support for the following academic year are due February 1. All other applications are accepted until April 15 for fall admission and October 1 for spring admission.

Financial Aid

Undergraduate and graduate students have access to the following financial aid and scholarship resources. Contact the Department of Asian Languages and Literature for application information.

Cheng/Liu Scholarship: Undergraduate and graduate students currently majoring in Chinese in the Department of Asian Languages and Literature at The University of Iowa may apply for the Cheng/Liu Scholarship. The \$1,000 award can be used for summer Chinese language study.

Fairall Scholarship: Undergraduate or graduate majors who have attended and/or graduated from Iowa elementary or secondary schools may be nominated by the department to receive a Fairall Scholarship. Preference is given to Japanese studies students. Applications are available late spring, with scholarships to be awarded the following fall semester.

Foreign Language and Area Studies

Fellowships: Only U.S. citizens are eligible. Graduate students combining work in Asian languages at an advanced level with interdisciplinary or professional programs may apply. The award is offered by International Programs for academic year and summer language study.

Graduate Assistantships: The department offers teaching assistantships for graduate

students in the program. All applicants to graduate study in the program receive information on applying for an assistantship. Assistantships are awarded each spring for the following academic year.

Graduate International Research:

Opportunities for funding research abroad include Stanley Fellowships for Graduate Student Research Abroad, CIREH Research Scholarships in International Health, Fulbright Grants, and Foreign Language Area Scholarships.

Summer Language Scholarships: Currently enrolled undergraduate and graduate students may compete for a Stanley-University of Iowa Foundation Support Organization Summer Language Scholarship, to be used for intensive summer language study in Chinese, Hindi, Japanese, or Sanskrit. Eight to ten awards of \$2,000-\$2,500 are made each summer. Applications are due March 1.

Undergraduate Study Abroad: Opportunities for undergraduates to study abroad include the Presidential Scholarships for Study Abroad and the Stanley Scholarships for International Research and Study.

Special Programs and Activities

Summer and Study Abroad Programs

The department strongly urges its students to seek opportunities for summer language study and study abroad to accelerate the language acquisition process. The University's memberships in the American Institute of Indian Studies and the China Cooperative Language and Study Programs consortium help facilitate students' access to quality international programs in India and China. The government of the Republic of China offers scholarships for two students to live and study in Taiwan each year.

The UI-Nanzan Exchange allows Iowa students to pay Iowa tuition, room, and board while attending the Center for Japanese Studies at Nanzan University in Nagoya, Japan. There also is a cooperative agreement with the Landour Language School in the Himalayan foothills of India. The South Asian Studies Program has launched a new study abroad program in Mysore and Bangalore, India, where students have the opportunity to study a variety of aspects of traditional and modern Indian civilization.

Many students participate in summer, semester-long, and year-long study abroad programs in India, China, and Japan offered through other U.S. universities. In many cases credit is transferable, and it is possible for a student to study abroad and still complete the Four-Year Graduation Plan. There are many resources available for funding research and study abroad. It also may be possible for students to apply University of Iowa financial aid to their study abroad programs.

Contact the Department of Asian Languages and Literature or the UI Office for Study Abroad for more information.

Internships

Students are encouraged to enrich their programs of study through internships designed to combine work experience in Asia or the United States with study or research projects. The University's Pomerantz Career Center keeps a list of internships.

Student Associations

Students have many opportunities to enrich their studies in Asian languages and literature while living in Iowa City. The University sponsors student associations for students from many Asian countries, including mainland China, Japan, Korea, India, Pakistan, and Taiwan. All University of Iowa students are welcome to join. Various international community groups sponsor cultural events and holiday celebrations throughout the year.

The International Crossroads Community, located in Hillcrest Residence Hall, includes Japanese House, a focal point for activities among resident and nonresident students and the Japanese Student Association. The house's activities include weekly dinners.

Library Facilities

Since 1960 the University of Iowa Libraries has routinely acquired most American titles in Asian studies and selected overseas scholarly publications in English and other Western languages. The Main Library's Asian collection includes approximately 80,000 volumes in Asian languages and about 140,000 Western-language volumes on Asian subjects. Since 1975, the University has been a member of the Library of Congress Foreign Currency Exchange Program for Indian books and periodicals. The library's nonprint media collection includes a growing

number of Asian feature films. A Chinese-Japanese-Korean computer terminal gives students and faculty access to the growing Research Libraries Information Network database in Asian languages.

Courses

Language for Undergraduates

Chinese

039:001 Conversational Chinese I 1 s.h.
Introduction to modern Chinese, with focus on communication "survival" skills for discussing oneself, family, daily activities, interests, personal preferences, food, shopping, travel, lodging; situational activities and performance.

039:002 Conversational Chinese II 1 s.h.
Continuation of 039:001, with focus on speaking and listening.

039:003 Beginning Chinese I 3 s.h.
Beginning Chinese; offered through UI Confucius Institute; first of a four-course sequence.

039:004 Beginning Chinese II 3 s.h.
Continuation of 039:003; offered through UI Confucius Institute; second of a four-course sequence. Prerequisite: 039:003.

039:008 First-Year Chinese: First Semester 5 s.h.
Sound system of Mandarin Chinese, basic sentence patterns; aural understanding, speaking, reading, writing. Offered fall semesters. GE: foreign language. Prerequisite: undergraduate standing.

039:009 First-Year Chinese: Second Semester 5 s.h.
Continuation of 039:008. Offered spring semesters. GE: foreign language. Prerequisites: 039:008 and undergraduate standing.

039:010 Beginning Chinese III 3 s.h.
Continuation of 039:004; offered through UI Confucius Institute; third of a four-course sequence. Prerequisite: 039:004.

039:011 Beginning Chinese IV 3 s.h.
Continuation of 039:010; offered through UI Confucius Institute; last of a four-course sequence. Prerequisite: 039:010.

039:105 Second-Year Chinese: First Semester 5 s.h.
Continuation of 039:009. Offered fall semesters. GE: foreign language. Prerequisites: 039:009 and undergraduate standing.

039:106 Second-Year Chinese: Second Semester 5 s.h.
Continuation of 039:105. Offered spring semesters. GE: foreign language. Prerequisites: 039:105 and undergraduate standing.

039:107 Intermediate Chinese I 3 s.h.
Intermediate Chinese. Prerequisites: grade of C or higher in 039:008-039:009 and one summer of Chinese study in China.

039:108 Classical Chinese: First Semester 3 s.h.
Late Zhou period; readings from *Zhanguoce*, *Mengzi*, *Zhuangzi*; focus on grammatical analysis, exact translation. Offered fall semesters. Prerequisite: 039:106.

039:109 Classical Chinese: Second Semester 3 s.h.
Continuation of 039:108. Offered spring semesters. Prerequisite: 039:108.

039:114 Intermediate Chinese II 3 s.h.
Intermediate Chinese. Prerequisite: grade of C or higher in 039:107.

039:115 Third-Year Chinese: First Semester 3 s.h.
Reading of advanced modern Chinese texts; speaking, writing. Offered fall semesters. Prerequisite: 039:106.

039:116 Third-Year Chinese: Second Semester 3 s.h.
Continuation of 039:115. Offered spring semesters. Prerequisite: 039:115.

039:128 Fourth-Year Chinese: First Semester 3 s.h.
Proficiency through oral and written discussions of modern texts. Offered fall semesters. Prerequisite: 039:116 or equivalent.

039:129 Fourth-Year Chinese: Second Semester 3 s.h.
Offered spring semesters. Prerequisite: 039:128.

039:165 Fifth-Year Chinese: First Semester 3 s.h.
Improvement of language skills in modern Chinese: listening, speaking, reading, writing; skill development in reading authentic texts related to topics of student interest. Prerequisite: 039:129.

039:166 Fifth-Year Chinese: Second Semester 3 s.h.
Continuation of 039:165. Prerequisite: 039:165.

039:171 Readings in Chinese Literature 3 s.h.
Readings for advanced modern Chinese learners to elevate reading and writing abilities; essays, fiction, poetry by contemporary Chinese writers. Taught in Chinese.

Hindi

039:123 First-Year Hindi: First Semester 5 s.h.
Reading, writing, speaking. Offered fall semesters of odd years. GE: foreign language. Prerequisite: undergraduate standing.

039:124 First-Year Hindi: Second Semester 5 s.h.
Continuation of 039:123. Offered spring semesters of even years. GE: foreign language. Prerequisites: 039:123 and undergraduate standing.

039:126 Second-Year Hindi: First Semester 4 s.h.
Conversation, reading of folktales and modern short stories. Offered fall semesters of even years. GE: foreign language. Prerequisites: 039:124 and undergraduate standing.

039:127 Second-Year Hindi: Second Semester 4 s.h.
Continuation of 039:126. Offered spring semesters of odd years. GE: foreign language. Prerequisites: 039:126 and undergraduate standing.

039:184 Third-Year Hindi: First Semester 3 s.h.
Advanced level Hindi texts; speaking, writing. Offered fall semesters. Prerequisite: 039:127.

039:185 Third-Year Hindi: Second Semester 3 s.h.
Continuation of 039:184. Offered spring semesters. Prerequisite: 039:184.

Japanese

39J:010 First-Year Japanese: First Semester 5 s.h.
Modern Japanese. Offered fall semesters. GE: foreign language. Prerequisite: undergraduate standing.

39J:011 Elementary Japanese: Review 3 s.h.
Review of material presented in 39J:010. GE: foreign language. Prerequisites: Japanese language study, and first-year or new transfer standing.

39J:012 First-Year Japanese: Second Semester 5 s.h.
Continuation of 39J:010 or 39J:011. Offered spring semesters. GE: foreign language. Prerequisites: 39J:010 and undergraduate standing.

39J:101 Second-Year Japanese: First Semester 5 s.h.
Continuation of 39J:012. Offered fall semesters. GE: foreign language. Prerequisites: 39J:012 and undergraduate standing.

39J:102 Second-Year Japanese: Second Semester 5 s.h.

Continuation of 39J:101. Offered spring semesters. GE: foreign language. Prerequisites: 39J:101 and undergraduate standing.

39J:105 Third-Year Japanese: Conversation I 3 s.h.

Modern Japanese; focus on speaking, listening. Offered fall semesters. Prerequisite: 39J:102. Recommended: concurrent registration in 39J:107.

39J:106 Third-Year Japanese: Conversation II 3 s.h.

Continuation of 39J:105. Offered spring semesters. Prerequisite: 39J:105. Recommended: concurrent registration in 39J:108.

39J:107 Third-Year Japanese: Reading and Writing I 3 s.h.

Modern Japanese; focus on reading, writing. Offered fall semesters. Prerequisite: 39J:102. Recommended: concurrent registration in 39J:105.

39J:108 Third-Year Japanese: Reading and Writing II 3 s.h.

Continuation of 39J:107. Offered spring semesters. Prerequisite: 39J:107. Recommended: concurrent registration in 39J:106.

39J:119 Classical Japanese: First Semester 3 s.h.

Grammar, readings in classical Japanese. Offered fall semesters. Prerequisites: 39J:106 and consent of instructor.

39J:121 Fourth-Year Japanese: First Semester 3 s.h.

Modern Japanese; emphasis on communication skills. Offered fall semesters. Prerequisites: 39J:106 and 39J:108.

39J:122 Fourth-Year Japanese: Second Semester 3 s.h.

Continuation of 39J:121. Offered spring semesters. Prerequisite: 39J:121.

39J:131 Fifth-Year Japanese: First Semester 3 s.h.

Improvement of Japanese for academic and professional purposes. Offered fall semesters. Prerequisite: 39J:121 or consent of instructor.

39J:132 Fifth-Year Japanese: Second Semester 3 s.h.

Continuation of 39J:131. Offered spring semesters.

Kannada

Kannada is a South Indian language spoken by more than 35 million people.

039:103 First-Year Kannada: First Semester 5 s.h.

Kannada script and basic grammar; writing, reading, and speaking in simple sentences using a core vocabulary; culture.

039:104 First-Year Kannada: Second Semester 5 s.h.

Continuation of 039:103. Offered spring semesters. Prerequisites: 039:103 and undergraduate standing.

039:150 Second-Year Kannada: First Semester 4 s.h.

Continuation of 039:104; complex sentence structures, models, negatives, tense and case system; translation. Prerequisite: 039:104.

039:151 Second-Year Kannada: Second Semester 4 s.h.

Continuation of 039:150; written and oral translation; Kannada culture. Prerequisite: 039:150.

Sanskrit

039:110 First-Year Sanskrit: First Semester 4 s.h.

Grammar, basic vocabulary; elementary readings. Offered fall semesters of even years. GE: foreign language. Prerequisite: undergraduate standing. Same as 20E:110.

039:111 First-Year Sanskrit: Second Semester 4 s.h.

Readings in epic and story literature. Offered spring semesters of odd years. GE: foreign language. Prerequisites: 039:110 and undergraduate standing. Same as 20E:111.

039:112 Second-Year Sanskrit: First Semester 3 s.h.

Readings in epic and puranic texts. Offered fall semesters of odd years. GE: foreign language. Prerequisites: 039:111 or consent of instructor, and undergraduate standing. Same as 20E:121.

039:113 Second-Year Sanskrit: Second Semester 3 s.h.

The *Bhagavadgita* and related religious/philosophical texts. Offered spring semesters of even years. GE: foreign language. Prerequisites: 039:112 or consent of instructor, and undergraduate standing. Same as 20E:122.

039:186 Third-Year Sanskrit: First Semester 3 s.h.

Readings in philosophical and literary Sanskrit. Offered fall semesters. Prerequisite: 039:113.

039:187 Third-Year Sanskrit: Second Semester 3 s.h.

Continuation of 039:186. Offered spring semesters. Prerequisite: 039:186.

Korean

039:040 First-Year Korean: First Semester 4 s.h.

Modern Korean; speaking, listening, reading, writing. Offered fall semesters.

039:041 First-Year Korean: Second Semester 4 s.h.

Continuation of 039:040. Offered spring semesters. Prerequisite: 039:040.

039:042 Second-Year Korean: First Semester 4 s.h.

Continuation of 039:041; conversation and readings in intermediate Korean language; Korean culture. Prerequisite: 039:041.

039:043 Second-Year Korean: Second Semester 4 s.h.

Continuation of 039:042. Prerequisite: 039:042.

Language for Graduate Students

Chinese

039:213 Advanced Classical Chinese 3 s.h.

Readings from *Zuozhuan*, *Guoyu*, other texts of early classical period. Prerequisite: 039:109.

039:220 Literary Chinese I 3 s.h.

Readings from literary and historical texts of Han and Wei-Jin periods. Prerequisite: 039:109 or consent of instructor.

For Undergraduates and Graduate Students

Literature

039:029 First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

039:075 Asian Religious Classics 3 s.h.

Same as 032:075.

039:102 The Cultural History of Karnataka 3 s.h.

Introduction to Karnataka, constituent state of India.

- 39J:130 Workshop in Japanese Literary Translation** 3 s.h.
Workshop in translation from Japanese to English, with emphasis on literary translation; issues in theory and practice of translation; special features of Japanese as a source language for translation. Prerequisite: 39J:012 or equivalent.
- 039:136 Indian Literature** 3 s.h.
Readings from medieval and modern periods in English translation. Same as 032:177.
- 039:140 The Literature of Daoism** 3 s.h.
Texts of philosophical, religious Daoism; Daoism in traditional Chinese political theory, literature, the arts, alchemy and medicine, sexual custom, combat. Taught in English. Same as 032:186.
- 039:141 Chinese Literature: Poetry** 3 s.h.
Readings in classical and modern Chinese poetry in English translation. Same as 048:141.
- 39J:141 Traditional Japanese Literature in Translation** 3 s.h.
From seventh century to early modern times. Same as 048:143.
- 039:142 Chinese Literature: Prose** 3 s.h.
Readings in Chinese prose, primarily fiction, from third century B.C. to 1900 A.D., in English translation.
- 39J:142 Modern Japanese Fiction in Translation** 3 s.h.
Nineteenth century to present. Same as 048:142.
- 39J:143 Topics in Japanese Literature in Translation** 3 s.h.
Topics vary.
- 39J:144 Major Authors in Modern Japanese Literature** 3 s.h.
Modern Japanese literary works in English translation.
- 39J:145 The Tale of Genji** 3 s.h.
Close reading in English of Murasaki Shikibu's *Tale of Genji*; tale's literary and social contexts, and later reception. Same as 048:144.
- 39J:146 Warriors Dreams** 3 s.h.
Images of the warrior in traditional Japanese literature, from poetry of the eighth century to romances of the 19th century; readings in English. Same as 048:147.
- 039:158 East-West Literary Relations** 3 s.h.
Topics in cross-cultural study based in Asian/Euro-American literary and film texts. Same as 048:158.
- 039:180 Modern Chinese Writers** 3 s.h.
Readings in modern and contemporary Chinese fiction; in English translation.
- 039:181 Translation Workshop** arr.
Introduction to literary translation; individual student projects in a workshop setting. Same as 048:181.
- 039:182 Asian-American Literature** 3 s.h.
Immigration history, ethnic identities, contemporary American culture as represented in literary texts and films by Asian-Americans. Same as 048:182.
- 039:192 East Meets West: A Cross-Cultural Course** 3 s.h.
Overview of cross-cultural perceptions in modern period based on films, literary and philosophical texts from East and West. Same as 048:192.
- 039:193 Asian Literature Today** 3 s.h.
Repeatable. Same as 048:193.
- 039:240 Seminar in Chinese Fiction** 3 s.h.
Novels, novelettes; 16th to 18th centuries (Ming and Qing periods). Prerequisite: ability to read original texts.

- 039:241 Seminar in Chinese Literature** arr.
Prerequisites: two years of modern Chinese and one year of classical Chinese, or equivalents. Same as 048:441.

- 39J:245 Seminar in Japanese Literature** 3 s.h.
Repeatable. Prerequisites: three years of Japanese and consent of instructor.

- 39J:251 Readings in Modern Japanese** 3 s.h.
Readings in modern Japanese. Repeatable. Prerequisite: consent of instructor.

Civilization

The following courses are taught in English.

- 039:006 Introduction to Buddhism** 3 s.h.
Same as 032:006.

- 039:007 Chinese Religions** 3 s.h.
Same as 032:010.

- 039:015 Introduction to Chinese Culture** 3 s.h.
Key aspects of traditional and modern Chinese culture as insights into the Chinese experience and worldview; development of the Chinese language and writing system, calligraphy and brush painting, cultural geography, urban life, martial arts, mainstream popular culture, music, cuisine.

- 039:016 Asian Art and Culture** 3 s.h.
GE: fine arts or foreign civilization and culture or historical perspectives. Same as 01H:016.

- 039:018 Asian Humanities: India** 3 s.h.
Introduction to four thousand years of South Asian civilization, through popular stories. GE: foreign civilization and culture or humanities. Same as 032:008.

- 039:019 Asian Humanities: China** 3 s.h.
Literary and philosophical texts of China in English translation. GE: foreign civilization and culture or humanities. Same as 032:009.

- 039:020 Asian Humanities: Japan** 3 s.h.
Introduction to premodern, modern, and contemporary Japanese images, myths, and literature in English translation. GE: foreign civilization and culture or humanities. Same as 032:007.

- 039:028 Introduction to the Art of China** 3 s.h.
Same as 01H:031.

- 39J:033 Introduction to the Art of Japan** 3 s.h.
Same as 01H:033.

- 039:055 Civilizations of Asia: China** 3 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 016:005.

- 039:056 Civilizations of Asia: Japan** 3-4 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 016:006.

- 039:057 Civilizations of Asia: South Asia** 3-4 s.h.
Pre-modern and modern topics in history, art, religion, philosophy, politics, and culture of India, nearby states. GE: foreign civilization and culture or historical perspectives. Same as 016:007.

- 039:064 Living Religions of the East** 3 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 032:004.

- 39J:109 Religion in Japan** 3 s.h.
Same as 032:116.

- 039:119 Popular Culture in South Asia** 3 s.h.
Same as 113:120.

039:120 Chinese Painting I Same as 01H:120.	3 s.h.	39J:175 Japan—U.S. Relations Same as 16W:175.	3 s.h.
039:121 Chinese Painting II Same as 01H:121.	3 s.h.	039:176 South Asia Social Science History Historical origins of key social science topics in South Asia: caste, population, gender dilemmas, the environment. Same as 16W:189.	3 s.h.
039:122 Language/Politics of Culture in South Asia Same as 113:129.	3 s.h.	39J:176 Japanese History in Cinema Same as 16W:176.	3 s.h.
39J:123 Japanese Painting Same as 01H:123.	3 s.h.	039:178 Government and Politics of the Far East GE: foreign civilization and culture. Same as 030:143.	3 s.h.
39J:125 Japanese Society and Culture GE: foreign civilization and culture. Same as 113:125.	3 s.h.	39J:187 Monks, Merchants, and Samurai Same as 032:187, 16W:177.	3 s.h.
39J:126 Japanese Ethos: Narrative and Performance Japanese social relationships, attitudes, and perceptions expressed through literature and film; dramatic changes resulting from rapid urban industrialization in recent decades. Same as 113:126.	3 s.h.	039:188 East Meets West: The Western Reception of Eastern Religion Introduction of religious ideas and forms from India, China, and Japan into Europe and America from earliest period to late 20th century, from Greeks to New Age. Same as 032:178.	3 s.h.
39J:129 Japan: Culture and Communication	3 s.h.	039:189 Topics in Chinese Cinema Contemporary films in Chinese language, chosen by region, history, director, or genre.	3 s.h.
039:131 Themes in Asian Art History Prerequisite: 039:016 or 01H:016 or equivalent or consent of instructor. Same as 01H:124.	3 s.h.	039:190 Chinese Culture in Era of Globalization Contemporary Chinese popular culture, including acting, film, drama, painting, music and literature, in the context of globalization; readings from theoretical works on globalization.	3 s.h.
039:132 Vietnam War in Historical Perspective Same as 16W:182.	3 s.h.	039:194 Asia News Seminar Same as 16W:199.	2-3 s.h.
039:134 Imperialism and Modern India GE: foreign civilization and culture. Same as 16W:194.	3 s.h.	039:196 China Since 1927 GE: foreign civilization and culture. Same as 16W:198.	3 s.h.
039:145 Topics in Asian Cinema Films from mainland China, Taiwan, South Asia. Same as 008:127, 048:106.	3 s.h.	039:197 Gender in Chinese Literature and Culture Gender issues as represented in literary and other cultural texts. Same as 131:197.	3 s.h.
039:154 Modern China 1600s to 1920s GE: foreign civilization and culture. Same as 16W:196.	3 s.h.	039:198 Topics in Asian Studies Topics vary.	arr.
39J:155 Contemporary Japanese Culture Cultural texts and practices in contemporary Japan: literature, film, television, manga.	3 s.h.	039:237 Seminar: East Asian Religion Emphasis on China and/or Japan. Same as 032:237.	3 s.h.
39J:156 Japanese Art and Culture Same as 01H:122.	3 s.h.	039:250 South Asian Research Seminar Faculty and student research. Repeatable.	arr.
039:159 Chinese Art and Culture Same as 01H:119.	3 s.h.	039:254 Seminar: Modern Chinese History Repeatable. Same as 016:291.	arr.
039:160 Goddesses in India Three thousand years of sacred literature and practice; important and characteristic feminine divine beings who inhabit the religious universe of South Asia. Same as 032:160.	3 s.h.	039:255 Seminar: Problems in Asian Art Repeatable. Same as 01H:316.	2-3 s.h.
039:161 Insurgency and Globalization of Discontent Political theories of revolutionary African American and Japanese intellectuals, artists, and activists; how the theories have influenced social justice movements. Same as 129:161.	3 s.h.	39J:257 Readings: Japanese History Repeatable. Same as 016:294.	arr.
039:163 Indian Religious Texts Religious, philosophical works of ancient and medieval India in English translation. Same as 032:171.	3 s.h.	039:258 Readings in Chinese History Repeatable. Same as 016:292.	arr.
039:170 Zen Buddhism Same as 032:188.	3 s.h.	039:265 Readings in Asian Religions Same as 032:265.	arr.
039:172 Comparative Ritual Same as 032:172.	3 s.h.	039:304 Special Topics in Asian Cinema Repeatable. Same as 048:304.	3 s.h.
39J:172 Japan—Age of the Samurai Same as 16W:172.	3 s.h.		
39J:173 Modern Japan Political, social, cultural history from mid-19th century. Same as 16W:173.	3 s.h.		
039:175 Topics in Asian History Same as 16W:178.	3 s.h.		

Linguistics and Pedagogy

39J:103 Language in Japanese Society Aspects of the Japanese language that reflect culture, social structures of Japan; communication styles and strategies, cross-cultural communication, language in media, metaphors.	3 s.h.
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- 39J:124 Introduction to Japanese Linguistics** 3 s.h.
Phonology, morphology, syntax, semantics, pragmatics; enhanced understanding of basic structural features of the Japanese language. Prerequisites: 39J:010, 39J:012, and 39J:101.
- 039:139 Chinese Historical Phonology** 3 s.h.
Phonology of Mandarin, other major Chinese dialect groups; reconstruction of the sound system of Middle and Old Chinese. Same as 103:139.
- 039:144 Introduction to Chinese Linguistics** 3 s.h.
Aspects of modern Chinese linguistics, such as Chinese phonology, syntax, pedagogical grammar, history of the language. Taught in English. Same as 103:144.
- 039:177 Second Language Classroom Learning** 3 s.h.
Same as 07E:183, 07S:183.
- 039:200 Second Language Acquisition Research/Theory I** 3 s.h.
Same as 009:237, 035:201, 39J:201, 164:201.
- 39J:200 Japanese Linguistics** 3 s.h.
Japanese language as linguistic system; basic linguistic terminology; sound systems, grammar, meanings, usages. Prerequisite: 39J:122 or consent of instructor.
- 039:201 Second Language Acquisition Research/Theory II** 3 s.h.
Same as 035:202, 164:202.
- 39J:201 Second Language Acquisition Research/Theory I** 3 s.h.
Same as 009:237, 035:201, 039:200, 164:201.
- 039:202 Teaching Chinese as a Foreign Language I: Theories and Research** 3 s.h.
Research, theory on acquisition of Chinese as a non-native language.
- 39J:202 Japanese as a Foreign Language: Practical Applications** 3 s.h.
Instructional methodology, curriculum, and material design; hands-on experience. Prerequisite: 39J:122 or consent of instructor.
- 039:203 Teaching Chinese as a Foreign Language II: Curriculum and Methodology** 3 s.h.
Multiple levels of major Chinese textbooks, curricular organizational schemes, language programs, communicative language instruction; development of supplementary materials for a University of Iowa Chinese course.
- 39J:203 Advanced Japanese Pedagogy** 3 s.h.
Instructional methods and management issues relevant to teaching Japanese language at advanced levels. Prerequisite: 39J:202. Same as 164:222.
- 039:204 Teaching Chinese as a Foreign Language III: Classroom Instruction and Practicum** 3 s.h.
Development, application of technological teaching/learning materials; emphasis on designing computer-based materials that increase learner interaction in contextualized cultural environments.
- 039:205 Analysis of L1 and L2 Data** 3 s.h.
Same as 164:205.
- 039:207 Sociolinguistics** 3 s.h.
Prerequisite: introductory linguistics course. Same as 164:207.
- 039:208 Teaching Chinese as a Foreign Language IV** 3 s.h.
Overview of the goals, concepts, principles, research, and issues in assessment and testing of Chinese as a foreign language.
- 039:209 Teaching Chinese as a Foreign Language V** 3 s.h.
For M.A. students planning to write a thesis or project, or graduate students seeking knowledge in designing qualitative or quantitative studies. Prerequisites: 07P:143, and 039:202 or equivalent.
- 039:210 Teaching Chinese as a Foreign Language VI: Pedagogical Project** 3 s.h.
Participation in Chinese as a Foreign Language material development projects under instructor's guidance.
- 039:223 Topics in Second Language Acquisition: Listening** 3 s.h.
Same as 164:223.
- 039:234 Principles of Teaching and Learning Foreign Languages** 3 s.h.
Prerequisite: consent of instructor. Same as 009:234, 013:221, 041:234.
- 039:239 Seminar in Chinese Linguistics: Historical Phonology** 3 s.h.
Topics in Chinese historical phonology. Repeatable. Prerequisite: 039:139.
- 39J:239 Special Topics in Japanese Linguistics** 3 s.h.
Topics in applied linguistics and language pedagogy related to Japanese language. Same as 164:228.
- 39J:258 Second Language Acquisition of Japanese** 3 s.h.
Theoretical foundation of Japanese as a second or foreign language; topics in second- or foreign-language acquisition of Japanese. Prerequisites: 07S:183, 39J:200, and 103:100. Same as 164:224.

Individual Study for Advanced Students

- 039:191 Honors Tutorial** arr.
- 039:195 Senior Honors Thesis** arr.
- 039:199 Asian Studies** arr.
- 039:215 Individual Chinese for Advanced Students** arr.
Research, translation projects. Repeatable. Prerequisites: 039:129 or equivalent, and consent of instructor.
- 39J:215 Individual Japanese for Advanced Students** arr.
Repeatable.
- 039:216 Individual Sanskrit for Advanced Students** arr.
Research, translation projects. Repeatable. Prerequisites: fourth-year proficiency and consent of instructor.
- 039:217 Individual Hindi for Advanced Students** arr.
Readings in medieval and modern Hindi. Repeatable. Prerequisite: consent of instructor.
- 039:291 M.A. Thesis** arr.
Offered fall semesters.
- 039:292 M.A. Thesis** arr.
Offered spring semesters.

Biological Sciences

Chair: Jack Lilien

Professors: Jeffrey L. Denburg, Jan Fassler, Joseph Frankel, Steven Green (Biological Sciences/Otolaryngology), Gary N. Gussin, Stephen D. Hendrix, Jack Lilien, Jim Jung-Ching Lin, Robert E. Malone, Linda Maxson, John R. Menninger, Jeffrey C. Murray (Pediatrics/Biological Sciences), Jonathan E. Poulton, Jeffrey T. Schabillon, Ming-Che Shih, David R. Soll (Carver/Emil Witschi Professor of the Biological Sciences), Barbara A. Stay, Wei-yeh Wang, Chun-Fang Wu

Professors emeriti: George Cain, Wayne R. Carlson, Robert W. Cruden, Joseph P. Hegmann, Richard G. Kessel, Jerry J. Kollros, Roger D. Milkman, Richard D. Sjolund, Eugene Spaziani, Norman E. Williams

Associate professors: Debashish Bhattacharya, Chi-Lien Cheng, Michael E. Dailey, Daniel Eberl (Biological Sciences/Otolaryngology), Diana G. Horton, Erin Irish, Alan Kay, Diane C. Slusarski

Associate professors emeriti: Robert W. Embree, Thomas E. Melchert

Assistant professors: Josep Cameron, Lilach Hadany, Douglas Houston, John Logsdon, Bryant F. McAllister, Christopher Stipp, Joshua Weiner

Undergraduate degrees: B.A., B.S. in Biology

Undergraduate nondegree program: Minor in Biology

Graduate degrees: M.S., Ph.D. in Biology

Web site: <http://www.biology.uiowa.edu>

Undergraduate Programs

Study in the Department of Biological Sciences prepares students for work in a wide variety of fields in educational institutions, government agencies, foundations, health care organizations, and businesses. Undergraduate programs prepare students for entry into research or service careers associated with private industry or government programs, and for primary and secondary teaching. They also prepare students for entry into advanced degree programs leading to careers in higher education and to independent research in a variety of biological fields, or for practice in health professions such as medicine, dentistry, pharmacy, nursing, veterinary medicine, medical technology, and physical therapy.

The B.S. and B.A. programs include a core curriculum consisting of the two-semester course 002:010-002:011 Principles of Biology I-II, 002:128 Fundamental Genetics, and 002:131 Evolution. Beyond the core, the B.S. and B.A. programs provide highly diverse content,

including a total of 18-19 courses (63-70 s.h.) in biology, chemistry, physics, and mathematics. All course work prepares students for advanced graduate and professional training in biology and related subjects.

The department offers 002:196 Honors Investigations and 002:199 Introduction to Research to acquaint undergraduate students with the nature of practicing scientists' work. Students associate with one of the department's research groups in experiments, discussion of current research, study of specialized topics, and attendance at research seminars. Admission to the University Honors Program is required for 002:196. All students who are accepted by a Department of Biological Sciences faculty sponsor may take 002:199.

Students interested in field biology, zoology, or botany may take varied courses in these subjects offered during the summer at Iowa Lakeside Laboratory, Lake Okoboji, Iowa.

Students who wish to count course work done at another institution toward requirements for a biology degree at Iowa should consult with their biological sciences advisor.

Bachelor of Science in Biology

The Bachelor of Science in biology requires a minimum of 63-70 s.h. (18 courses) in the major. It is divided into six tracks that emphasize the most dynamic and active areas in the biological sciences: cell and developmental biology, genetics and biotechnology, evolution, neurobiology, physiology and molecular biology of plants, and comprehensive biology. Students who pursue the B.S. must complete requirements in the chemistry-physics-mathematics foundation, the biology core, and one of the six tracks.

CHEMISTRY-PHYSICS-MATHEMATICS FOUNDATION

All of these:

004:011-004:012 Principles of Chemistry I-II 8 s.h.

004:121 Organic Chemistry I 3 s.h.

One of these sequences:

029:011-029:012 College Physics I-II 8 s.h.

029:081-029:082 Introductory Physics I-II 8 s.h.

One of these:

22M:016 Calculus for the Biological Sciences	4 s.h.
22M:025 Calculus I	4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus	4 s.h.

One of these:

22S:030 Statistical Methods and Computing	3 s.h.
22S:101 Biostatistics	3 s.h.

BIOLOGY CORE

002:010-002:011 Principles of Biology I-II	8 s.h.
002:128 Fundamental Genetics	4 s.h.
002:131 Evolution	4 s.h.

Tracks for the Bachelor of Science

Students pursuing the B.S. must select a single track. Each track includes seven courses.

Students who choose 002:196 Honors Investigations to fulfill a track requirement must complete a minimum of 6 s.h. in that course.

Honors Investigations may be used to fulfill a requirement only in a single category in each track. If it is used to fulfill the investigative laboratory requirement, it cannot also be used to fulfill the elective requirement; if it is used to fulfill the elective requirement, it cannot also be used to fulfill the investigative laboratory requirement.

CELL AND DEVELOPMENTAL BIOLOGY TRACK

The cell and developmental biology track provides educational background suitable for graduate study in molecular, cellular, and developmental biology and for entry-level positions in laboratories and companies engaged in cancer research and related endeavors. It also provides strong preparation for professional study in medicine and other health-related subjects.

Group 1 (Developmental Biology)

Both of these:

002:104 Introduction to Developmental Biology	3 s.h.
002:117 Plant Developmental Biology	3 s.h.

Group 2 (Biochemistry)

One of these:

002:123 Plant Biochemistry	3 s.h.
099:110 Biochemistry	3 s.h.
099:120 & 099:130 Biochemistry and Molecular Biology I-II	6 s.h.

Group 3 (Cellular Biology)

One of these:

002:114 Cell Biology	3 s.h.
002:155 Cell Physiology	4 s.h.

Group 4 (Investigative Laboratory)

One of these:

002:133 Cell Biology Lab	3 s.h.
002:135 Developmental Biology Lab	3 s.h.
002:196 Honors Investigations (in cell/developmental biology)	6 s.h.

Group 5 (Electives)

At least two courses, which may include any combination of courses not taken for Group 3 and/or 4 and/or courses from the following list:

002:138 Genetics and Biotechnology Lab	3 s.h.
002:150 Endocrinology	3 s.h.
002:168 Genes and Development	3 s.h.
002:171 Molecular Genetics	4 s.h.
002:180 Fundamental Neurobiology	4 s.h.
061:147 Survey of Immunology	4 s.h.
061:157 General Microbiology	5 s.h.

EVOLUTION TRACK

The evolution track provides educational background suitable for graduate study in evolutionary biology or related disciplines and for entry-level positions in laboratories utilizing population genetics or phylogenetic approaches (e.g., forensics, fisheries).

Group 1 (Evolution Core)

All of these:

002:134 Ecology	4 s.h.
002:160 Molecular Phylogenetics	3 s.h.
002:162 Population Genetics and Molecular Evolution	3 s.h.

Group 2 (Biochemistry)

One of these:

002:123 Plant Biochemistry	3 s.h.
099:110 Biochemistry	3 s.h.
099:120 and 099:130 Biochemistry and Molecular Biology I-II	6 s.h.

Group 3 (Investigative Lab)

One of these:

002:138 Genetics and Biotechnology Lab	3 s.h.
002:148 Field Ecology	4 s.h.
002:196 Honors Investigations (in evolution)	6 s.h.

Group 4 (Electives)

At least two courses, which may include any combination of courses not taken for Group 3 and/or courses from the following list:

002:100 Plant Diversity and Evolution	4 s.h.
002:103 Biogeography	3 s.h.
002:104 Introduction to Developmental Biology	3 s.h.
or	
002:117 Plant Developmental Biology	3 s.h.
002:107 Invertebrate Biology	4 s.h.
002:136 Conservation Biology	4 s.h.
002:140 Systematics	3 s.h.
002:143 Animal Behavior	4 s.h.
002:168 Genes and Development	3 s.h.
002:169 Introduction to Bioinformatics	4 s.h.
or	
002:170 Bioinformatics	3 s.h.
22C:016 Computer Science I	4 s.h.
22S:120 Probability and Statistics	4 s.h.
113:170 Primate Evolutionary Biology	3 s.h.

GENETICS AND BIOTECHNOLOGY TRACK

The genetics and biotechnology track provides educational background suitable for graduate study in molecular biology, biotechnology, genetic counseling, and other areas of genetics and for entry-level positions in genetic engineering and biotechnology companies. It also provides strong preparation for professional study in medicine and other health-related fields.

Group 1 (Genetics Core)

061:170 Microbial Genetics	3 s.h.
One of these:	
002:169 Introduction to Bioinformatics	4 s.h.
002:170 Bioinformatics	3 s.h.

One of these:

002:127 Eukaryotic Molecular Biology	3 s.h.
002:171 Molecular Genetics	4 s.h.

Group 2 (Biochemistry)

One of these:	
002:123 Plant Biochemistry	3 s.h.
099:110 Biochemistry	3 s.h.
099:120 & 099:130 Biochemistry and Molecular Biology I-II	6 s.h.

Group 3 (Investigative Laboratory)

One of these:	
002:138 Genetics and Biotechnology Lab	3 s.h.
002:196 Honors Investigations (in genetics/biotechnology)	6 s.h.

Group 4 (Electives)

At least two courses; may include 002:127 or 002:171 if not taken for Group 1; 099:130 if 099:120 and 099:130 are chosen from Group 2, and/or the course that has not been taken for Group 3, and/or courses from the following list:

002:104 Introduction to Developmental Biology	3 s.h.
or	
002:117 Plant Developmental Biology	3 s.h.
002:114 Cell Biology	3 s.h.
002:133 Cell Biology Lab	3 s.h.
002:162 Population Genetics and Molecular Evolution	3 s.h.
002:168 Genes and Development	3 s.h.
061:147 Survey of Immunology	4 s.h.

NEUROBIOLOGY TRACK

The neurobiology track provides educational background suitable for graduate study in neurobiology and neurophysiology and for entry-level positions in laboratories studying the therapeutic basis of neurological disorders and in pharmaceutical companies. It also provides strong preparation for professional study in medicine and other health-related disciplines.

Group 1 (Neurobiology Core)

All of these:	
002:143 Animal Behavior	4 s.h.
002:145 Biology of the Brain/Introduction to Neurobiology	4 s.h.
002:180 Fundamental Neurobiology	4 s.h.

Group 2 (Biochemistry)

One of these:	
099:110 Biochemistry	3 s.h.
099:120 & 099:130 Biochemistry and Molecular Biology I-II	6 s.h.

Group 3 (Investigative Laboratory)

One of these:	
002:133 Cell Biology Lab	3 s.h.
002:135 Developmental Biology Lab	3 s.h.
002:138 Genetics and Biotechnology Lab	3 s.h.
002:196 Honors Investigations (in neurobiology)	6 s.h.
031:177 Field Methods: Animal Behavior Research	3 s.h.

Group 4 (Electives)

At least two courses, which may include any combination of a course not taken for Group 3 and/or courses from the following list:

002:114 Cell Biology	3 s.h.
or	
002:155 Cell Physiology	4 s.h.

002:104 Introduction to Developmental Biology	3 s.h.
002:124 Animal Physiology	3 s.h.
002:150 Endocrinology	3 s.h.
002:181 Neurophysiology	3 s.h.

PHYSIOLOGY AND MOLECULAR BIOLOGY OF PLANTS TRACK

The physiology and molecular biology of plants track provides educational background suitable for graduate study in plant biotechnology, plant molecular and cellular biology, and agronomy, and for entry-level positions in companies engaged in plant breeding, biotechnology, and pharmaceuticals.

Group 1 (Plant Biology and Biochemistry Core)

All of these:

002:110 Plant Physiology	3 s.h.
002:117 Plant Developmental Biology	3 s.h.
002:123 Plant Biochemistry	3 s.h.
002:127 Eukaryotic Molecular Biology	3 s.h.

Group 2 (Investigative Laboratory)

One of these:

002:133 Cell Biology Lab	3 s.h.
002:138 Genetics and Biotechnology Lab	3 s.h.
002:196 Honors Investigations (in plant physiology/molecular biology)	6 s.h.

Group 3 (Electives)

At least two courses, which may include any combination of a course not taken for Group 2 and/or courses from the following list, and/or approved plant biology courses taught at Iowa Lakeside Laboratory (students consult their advisors):

002:114 Cell Biology	3 s.h.
or	
002:155 Cell Physiology	4 s.h.
002:100 Plant Diversity and Evolution	4 s.h.
002:113 Ecological Plant Anatomy	4 s.h.
002:171 Molecular Genetics	4 s.h.

COMPREHENSIVE BIOLOGY TRACK

The Comprehensive Biology track is designed for students who wish a balanced introduction to the major fields of biology. It provides educational background suitable for entry into graduate programs in the biological sciences, for science education, and for entry-level positions in research in laboratories in many fields of biology. It also provides broad-based preparation for professional study in medicine and other health-related careers.

Group 1 (Biochemistry)

One of these:

002:123 Plant Biochemistry	3 s.h.
099:110 Biochemistry	3 s.h.
099:120 & 099:130 Biochemistry and Molecular Biology I-II	6 s.h.

Group 2 (Molecular Biology)

At least one course, either 099:130 if 099:120 and 099:130 is chosen in group 1 or a course from the following list:

002:127 Eukaryotic Molecular Biology	3 s.h.
002:171 Molecular Genetics	4 s.h.

Group 3 (Cellular Biology)

At least one of these:

002:114 Cell Biology	3 s.h.
002:155 Cell Physiology	4 s.h.
002:180 Fundamental Neurobiology	4 s.h.

Group 4 (Developmental Biology)

At least one of these:

002:104 Introduction to Developmental Biology	3 s.h.
002:117 Plant Developmental Biology	3 s.h.

Group 5 (Organismal Physiology)

At least one of these:

002:110 Plant Physiology	3 s.h.
002:124 Animal Physiology	3 s.h.
002:150 Endocrinology	3 s.h.

Group 6 (Population Biology)

At least one of these:

002:100 Plant Diversity and Evolution	4 s.h.
002:134 Ecology	4 s.h.
002:140 Systematics	3 s.h.

Group 7 (Investigative Laboratory)

At least one of these:

002:133 Cell Biology Lab	3 s.h.
002:135 Developmental Biology Lab	3 s.h.
002:136 Conservation Biology	4 s.h.
002:138 Genetics and Biotechnology Lab	3 s.h.
002:148 Field Ecology	4 s.h.
002:196 Honors Investigations	6 s.h.
031:177 Field Methods: Animal Behavior Research	3 s.h.

Suggested First-Year Schedule

The following first-year schedule of science courses is recommended for students seeking either the B.S. or B.A. in biology.

First Semester Science Courses

004:011 Principles of Chemistry I	4 s.h.
Calculus or mathematics leading to calculus	3-4 s.h.

Second Semester Science Courses

004:012 Principles of Chemistry II	4 s.h.
002:010 Principles of Biology I	4 s.h.
Calculus (if not taken during the first semester)	4 s.h.

Bachelor of Arts in Biology

The Bachelor of Arts in biology requires a minimum of 66-70 s.h. (19 courses) in the major. It features a combination of directed breadth and student choice. Students who pursue the B.A. must complete a chemistry-physics-math foundation; a biology core identical to that required for the B.S.; one course in each of three breadth menus; one course with a laboratory; and three elective courses, which may include one course in the history or philosophy of science. The B.A. provides educational background suitable for admission into graduate programs in the biological sciences and for science education and entry-level positions in laboratory and field research. It also provides preparation for professional study in medicine and other health-related subjects.

CHEMISTRY-PHYSICS-MATHEMATICS FOUNDATION

All of these:

004:011-004:012 Principles of Chemistry I-II	8 s.h.
004:121 Organic Chemistry I	3 s.h.

One of these:

002:123 Plant Biochemistry	3 s.h.
004:122 Organic Chemistry II	3 s.h.
099:110 Biochemistry	3 s.h.

One of these sequences:

029:011-029:012 College Physics I-II	8 s.h.
029:081-029:082 Introductory Physics I-II	8 s.h.

One of these:

22M:016 Calculus for the Biological Sciences	4 s.h.
22M:025 Calculus I	4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus	4 s.h.

One of these:

22S:030 Statistical Methods and Computing	3 s.h.
22S:101 Biostatistics	3 s.h.

BIOLOGY CORE

002:010-002:011 Principles of Biology I-II	8 s.h.
002:128 Fundamental Genetics	4 s.h.
002:131 Evolution	4 s.h.

BREADTH MENUS

At least one course from each of the following three breadth menus:

Molecular and Cellular Biology

002:114 Cell Biology	3 s.h.
002:127 Eukaryotic Molecular Biology	3 s.h.
002:155 Cell Physiology	4 s.h.
002:171 Molecular Genetics	4 s.h.

Developmental Biology and Physiology

002:104 Introduction to Developmental Biology	3 s.h.
002:110 Plant Physiology	3 s.h.
002:117 Plant Developmental Biology	3 s.h.
002:124 Animal Physiology	3 s.h.
002:150 Endocrinology	3 s.h.
002:180 Fundamental Neurobiology	4 s.h.

Ecology and Evolutionary Biology

002:100 Plant Diversity and Evolution	4 s.h.
002:103 Biogeography	3 s.h.
002:134 Ecology	4 s.h.
002:140 Systematics	3 s.h.

COURSE WITH A LABORATORY

One of these (must not have been used as a breadth menu course):

002:100 Plant Diversity and Evolution	4 s.h.
002:107 Invertebrate Biology	4 s.h.
002:108 Vertebrate Zoology	4 s.h.
002:113 Ecological Plant Anatomy	4 s.h.
002:133 Cell Biology Laboratory	3 s.h.
002:135 Developmental Biology Lab	3 s.h.
002:136 Conservation Biology	4 s.h.
002:138 Genetics and Biotechnology Laboratory	3 s.h.
002:148 Field Ecology	4 s.h.
002:196 Honors Investigations	6 s.h.
012:121 Principles of Paleontology	3 s.h.
031:177 Field Methods: Animal Behavior Research	3 s.h.
061:157 General Microbiology	5 s.h.
099:140 Experimental Biochemistry	4 s.h.
Iowa Lakeside Laboratory courses (students consult their advisors)	4-5 s.h.

ELECTIVES

At least three courses, which may include any course chosen from a breadth menu or from the list of courses with a laboratory that has not been used to satisfy those requirements, any other 2-4 s.h. course numbered 100 or above offered by the Department of Biological Sciences (002:145 must be taken for 4 s.h.), any approved advanced biology course taught at the Iowa

Lakeside Laboratory (students consult their advisors), and/or any course(s) chosen from the following list:

012:122 Evolution of the Vertebrates	3 s.h.
027:155 Skeletal Muscle Biology	3 s.h.
061:147 Survey of Immunology	4 s.h.
113:170 Primate Evolutionary Biology	3 s.h.
113:188 Primate Behavior and Ecology	3 s.h.

One of the electives may be chosen from these:

016:136/152:136 History of Medicine in Western Society	3 s.h.
16E:139 Ancient and Medieval Science	3 s.h.
16W:137/152:137 History of Public Health	3 s.h.
16W:138/152:138 History of International Health	3 s.h.
026:104 Introduction to Philosophy of Science	3 s.h.
032:162 Genes and the Human Condition	3 s.h.

In addition, students who have passed 004:121, 004:122, and 099:110 may use 099:110 as a biology elective.

Introduction to Research (002:199, 3 s.h.) may be counted toward the elective requirement for the B.A.

Suggested First-Year Schedule

The following first-year schedule of science courses is recommended for students seeking either the B.S. or B.A. in biology.

First Semester Science Courses

004:011 Principles of Chemistry I	4 s.h.
Calculus or mathematics leading to calculus	3-4 s.h.

Second Semester Science Courses

004:012 Principles of Chemistry II	4 s.h.
002:010 Principles of Biology I	4 s.h.
Calculus (if not taken during the first semester)	4 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major, exclusive of courses in the chemistry-physics-mathematics foundation.)

B.S. in Biology

Before the third semester begins: math through calculus I, 004:011 and 004:012, 002:010, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:011, 004:121, 22S:030 or 22S:101, two other courses in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, 029:011 and 029:012 or equivalents, plus five or six more courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Biology

Before the third semester begins: math through calculus I, 004:011 and 004:012, 002:010, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, 002:011, 004:121, 22S:030 or 22S:101, three other courses in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, 029:011 and 029:012 or equivalents, plus five or six more courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Biology majors who are members of the University Honors Program may enroll in the Honors Program in Biology, which gives talented students membership in a small, active group of undergraduates with common interests. Honors

students gain an introduction to the pursuits of practicing scientists by associating with one of the department's research groups and participating in an independent research project guided by a faculty member (the research supervisor). Honors students write a thesis that should be based on an interesting biological problem, which is usually identified by the research supervisor. The thesis should clearly document that the student has acquired the necessary experimental skills to address specific questions and test specific hypotheses related to the research problem. Honors Seminar in Biology (002:198), or equivalent seminar, provides students with an ideal opportunity to improve their skills in seminar presentation and in writing scientific English. Throughout undergraduate residence, biology honors students may also take advantage of enrollment in honors sections of courses within the department and the college.

Membership in the University Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33. To graduate with honors in biology, students must complete the requirements for a B.S. or B.A. in biology with a g.p.a. of at least 3.33 in all course work in the biology major taken at The University of Iowa (including all biology courses and cognates in chemistry, physics, biochemistry, mathematics, and statistics). In addition, students must fulfill the following requirements: complete 2 s.h. in either 002:198 Honors Seminar in Biology or an advanced-level biology seminar course; complete a minimum of 6 s.h. (taken over two or more semesters) of 002:196 Honors Investigations; write a brief research proposal summarizing the background and goals of their proposed honors research; upon completion of their research, submit an acceptable honors thesis; and give a brief oral presentation of their research findings to other biology honors students.

Students pursuing the B.S. in biology may apply 6 s.h. of 002:196 Honors Investigations toward the investigative laboratory requirement in an appropriate track. Students pursuing the B.A. in biology may apply 6 s.h. of 002:196 Honors Investigations toward the elective laboratory course requirement and count the 2 s.h. earned in 002:198 Honors Seminar in Biology toward the elective requirement.

Biology majors interested in pursuing an honors degree should contact the biology honors advisor as early as possible, preferably in their sophomore or junior year, so that they may be matched with an appropriate lab.

Minor in Biology

Students majoring in other subjects may earn a minor in biology. The minor requires 15 s.h. of credit in biology with a g.p.a. of at least 2.00, and at least 12 s.h. must be in 100-level courses. All of the 100-level courses must be offered by the Department of Biological Sciences at The University of Iowa, or they must be approved 100-level courses offered at Iowa Lakeside Laboratory. Students must earn a g.p.a. of at least 2.00 in 100-level courses. Biological sciences courses taken on a pass/nonpass basis do not apply toward the biology minor. Biological sciences courses taken at other institutions, except Iowa Lakeside Laboratory, do not apply to the 100-level course requirement in the biology minor.

Graduate Programs

The Department of Biological Sciences offers the Master of Arts, Master of Science, and Doctor of Philosophy. The M.A. program emphasizes familiarity with contemporary literature in a subarea of biology and writing skills. The M.S. and Ph.D. programs emphasize original research and the skills essential for publishing and communicating research findings to the biology community. The department's graduate programs prepare students for careers in the academic research community, education, industry, and government.

Research programs in the department cover most areas of the biological sciences: cell biology, developmental biology, ecology, evolution, genetics, neurobiology, and plant biology. Doctoral students may earn the Ph.D. with specialization in one of four subtracks: cell and developmental biology, evolution, genetics, or neurobiology.

On admission, each new graduate student is assigned a temporary advisor, who guides the student through initial requirements and acts as his or her advocate.

Before registration, new graduate students meet with their temporary advisors to discuss their educational background and to formulate a study plan for the first year. Students may be advised to take specific course work to enhance their background in certain areas.

During the first year, students must make up undergraduate deficiencies in chemistry, genetics, mathematics, and physics. A student with a bachelor's degree outside the biological sciences may request modification of certain area

requirements; the Graduate Affairs Committee decides whether portions of the requirements may be waived. Students also take 002:128 Fundamental Genetics during the first year, unless excused from this requirement by the Graduate Affairs Committee. After the first year, students are advised by their research sponsor and dissertation committee.

Minimum entry requirements are:

- two semesters of organic chemistry or one semester of organic chemistry and one semester of biochemistry;

- one semester of calculus;

- two semesters of college physics; and

- 20 s.h. of course work in biology.

Master of Science in Biology

Although the department emphasizes the Doctor of Philosophy, Master of Science programs are available with and without thesis. All M.S. students must take a seminar with a substantial writing and oral presentation requirement.

M.S. With Thesis

The M.S. with thesis requires 30 s.h. of graduate credit and a thesis based on original research. No more than 9 s.h. earned in research can be applied toward the degree. The remaining semester hours are selected in consultation with the student's advisory committee and are tailored to the student's background and career goals. Students receive academic credit for courses they are required to take, except credit awarded for courses necessary to make up undergraduate deficiencies, which does not count toward the 30 s.h. requirement.

After the thesis is accepted by the supervisor and advisory committee, the candidate must pass an oral examination on the research described in the thesis and on related subjects.

M.S. Without Thesis

The M.S. in biology without thesis requires 34 s.h. of graduate credit and a library research report for which no more than 4 s.h. of credit may be granted. Credit may be earned in biology or cognate sciences; specific courses are determined in consultation with the student's thesis committee and are tailored to fit the student's background and career goals. No more than 8 s.h. earned in research can be applied toward the M.S. without thesis.

Credit earned in courses numbered 100 or above—except courses required to make up deficiencies—may be included in the 34 s.h. if approved by the advisory committee. On completion of the 34 s.h. and acceptance of the research report by the faculty sponsor, the student must pass a written examination covering the graduate program in biology, including the area of the research report.

Doctor of Philosophy in Biology

The department expects new Ph.D. students to do research in three laboratories on a rotating basis during their first academic year (August-May). Students consult with their temporary advisors and with prospective faculty research advisors before identifying their preferences for research rotations. They choose a permanent laboratory affiliation based on their rotations.

During the first year, students are required to enroll in the department's colloquium, which is based on a weekly Friday seminar series. In the second semester, the colloquium includes a discussion component based on the research described in the seminars. During the first two years, students also are required to enroll in at least two seminar courses that have a significant writing component and in two advanced lecture courses. In each subsequent year, students also must enroll in a seminar/writing course.

Additional formal course work and proficiency requirements for each Ph.D. student are determined by the dissertation committee on the basis of the student's background and current and prospective research interests. The dissertation committee also determines what portion of the formal course or proficiency requirements the student must complete before the comprehensive examination. In this examination, students must demonstrate knowledge of biology fundamentals and the analytic and synthetic skills necessary to become creative, independent scientists. Once they complete the course work and proficiency requirements and pass the comprehensive examination, students may be admitted to full candidacy for the Ph.D.

Students also must demonstrate teaching skills by assisting in instruction as teaching assistants for at least two semesters.

The program culminates in students' preparation of a dissertation based on original, independent research. Students must pass a final examination

that covers the thesis and its specialized field before the Ph.D. is awarded.

Financial Support

All graduate students making satisfactory progress toward the Ph.D. receive stipend and full tuition support from fellowships or teaching assistantships. Research assistantships also are available through individual research grants administered by faculty members or by the University. First-year Ph.D. students are supported by department fellowships during the research rotation period.

Admission

Application materials for the graduate program must be sent both to the University's Office of Admissions and to the Department of Biological Sciences graduate admissions committee. Complete instructions are listed on the application form; contact the Department of Biological Sciences or visit its web site.

Applicants should have official transcripts from each undergraduate and graduate institution they have attended sent to both the Office of Admissions and the Department of Biological Sciences. They also should arrange to have official scores from the Graduate Record Examination (GRE) General Test (verbal, quantitative, and analytical writing) sent to both offices. A valid B.S. or B.A. from an accredited institution is required.

International applicants whose first language is not English must score 570 (paper-based) or 230 (computer-based) or higher on the Test of English as a Foreign Language (TOEFL), and have their score sent to the Office of Admissions. International applicants who received their degrees (either bachelor's or master's) from a U.S. institution are exempt from this requirement. All international students whose first language is not English are required to take an English proficiency exam when they first enroll for classes.

Successful applicants for graduate admission usually have a g.p.a. of at least 3.00 and score above 1200 on the Graduate Record Examination (GRE) General Test (combined verbal and quantitative). These criteria are general guidelines for the admissions committee, which also considers letters of recommendation, research experience, and other appropriate criteria.

The department recommends that applicants also take the Graduate Record Examination advanced

biology test and submit their scores. Although most applicants have completed undergraduate programs in biology, the department also considers applicants with backgrounds in biophysics, botany, biochemistry, molecular biology, microbiology, and other related areas.

Applications should be submitted by February 1 and must include the GRE test scores. In order to meet the deadline, applicants must take the GRE in October or earlier. Late applications are considered as placement and funding permit.

Students applying for admission to the M.S. with thesis program in biology should have a bachelor's degree in one of the biological sciences. Students with bachelor's degrees in other areas may need to register as nondegree students (A9 or G9) and make up the equivalent of the department's bachelor's degree program prior to consideration for admission. Nondegree students must complete chemistry, physics, and calculus requirements in addition to the biology courses listed in the undergraduate program. Nondegree students should consult the department's graduate program administrator before applying for admission.

The M.S. degree without thesis is an exit degree. Students are not permitted to enter as graduate students with this degree objective.

For more information, visit the Department of Biological Sciences web site.

Facilities

The department is housed in three contiguous buildings, with modern facilities and equipment for state-of-the-art research. A new research and teaching building was completed in spring 2000, and extensive renovation of the preexisting facilities was completed in spring 2004.

Facilities include the Keck Dynamic Image Analysis Facility, which couples sophisticated state-of-the-art microscopy and computerized motion analysis to permit three-dimensional real-time analysis of cell movement *in vitro* and *in situ*. The Carver Center for Comparative Genomics houses the department's DNA sequencing, quantitative PCR, functional genomics/microarray facilities, and informatics facilities.

A well-staffed microscopy and imaging facility, including access to a newly established confocal microscope, is available for teaching and research.

Two large greenhouses are used in plant research and education.

The department houses animal-care facilities suitable for mice, rats, rabbits, *Xenopus laevis*, and zebra fish. These facilities are managed by the University's animal care unit, which is accredited by the Association for Assessment and Accreditation of Laboratory Animal Care. A central University facility provides assistance in the preparation of transgenic mice.

The department is also the home of the National Institute of Health-affiliated Developmental Studies Hybridoma Bank, which collects and distributes monoclonal antibodies that originate in laboratories all over the world. The collection now contains more than 600 monoclonal antibodies that are distributed to users internationally for a modest fee.

In addition to department facilities, campuswide facilities include a DNA oligonucleotide synthesis and enzyme lab, oligopeptide synthesis and sequencing equipment, and mass- and NMR spectroscopy facilities. A hybridoma facility is available for preparation of monoclonal antibodies. The Center for Biocatalysis and Bioprocessing is available for growing large amounts of microorganisms (e.g., 100 liters) for use in protein isolation.

Iowa Lakeside Laboratory

Advanced courses in biology at Iowa Lakeside Laboratory are accepted for elective credit in the biology major—for the B.A. and the physiology and molecular biology of plants track in the B.S.—and in the minor. The laboratory, located on West Lake Okoboji in northwestern Iowa, affords excellent conditions for summer study in field biology, limnology, phycology, aquatic ecology, pollination biology, and plant taxonomy. See Iowa Lakeside Laboratory (University College) in the Catalog.

Courses

Many courses include field and/or laboratory components.

For Precollege Students

002:004 Secondary Student Training Program 3-4 s.h.
Special projects. Prerequisite: secondary school enrollment.

Primarily for Undergraduates

002:001 Introduction to Botany 4 s.h.
Biology of plant life; emphasis on structure, function, reproduction, inheritance, diversity, evolution. GE: natural sciences.

002:002 Introductory Animal Biology 4 s.h.
Fundamental principles: cells and macromolecules, energy metabolism, organismic physiology, genetics, development, ecology, and evolution. GE: natural sciences. Recommended: 004:007.

002:010 Principles of Biology I 4 s.h.
Structure and function of cells; structure, function, reproduction of higher plants and vertebrate animals; first of two-semester course sequence. GE: natural sciences. Prerequisite: 004:011.

002:011 Principles of Biology II 4 s.h.
Continuation of 002:010; genetics, development, immunology, ecology, evolution. GE: natural sciences. Prerequisites: 002:010 and 004:011.

Elementary Topics of General Interest

These courses are not open to graduate students and do not provide credit toward a biology major.

002:021 Human Biology 4 s.h.
Molecular and cellular basis of human life; integration of humans and the biosphere through photosynthesis, respiration; structure, function of human tissues, organs, organ systems; reproduction, genetics, impact of molecular biology and genetic engineering; lecture, laboratory. GE: natural sciences. Prerequisite: nonscience major.

002:022 Ecology and Evolution 3 s.h.
Evolution and diversity of living things, their patterns on Earth, their organization in ecological systems; dynamics of evolutionary processes. GE: natural sciences.

002:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.

002:081 Human Genetics in the Twenty-First Century 3 s.h.
Heredity in human families, populations; genetic basis of normal, abnormal traits; chromosome behavior; molecular basis of genetics; sex determination. GE: natural sciences.

002:087 Spring Flora 3 s.h.
Recognition and identification of spring-flowering herbaceous plants, native woodland trees and shrubs, woody landscape plants; family characteristics, use of taxonomic key.

002:095 Plants and Human Affairs 2-3 s.h.
How plants are useful to people: food, clothing, shelter, medicines, psychoactive agents; plants' social, economic, ecological significance. GE: natural sciences.

For Undergraduate and Graduate Students

002:100 Plant Diversity and Evolution 4 s.h.
Major groups, including algae, bryophytes, ferns and fern allies, gymnosperms, primitive angiosperms; emphasis on evolutionary implications of structure, reproductive biology, ecological adaptations; extant representatives of each plant group, reference to paleobotanical evidence. Prerequisite: 002:001, or 002:010 and 002:011, or equivalents.

002:101 Teaching Internship in Biology 2 s.h.
Training in teaching the laboratory component of a large General Education biology course; weekly session with instructor, shadowing and assisting a graduate teaching assistant in a lab section, leading laboratory exercises. Prerequisites: grade of B or higher in 002:010 and 002:011, junior or senior standing, and consent of instructor.

- 002:103 Biogeography** 2-3 s.h.
 Patterns of plant and animal distribution and their interpretation; historical geography, including glaciation, plate tectonics; ecological geography, including physical factors such as climate, geology. Prerequisites: 002:001, or 002:010 and 002:011, or 044:003 or consent of instructor; and biology major. Same as 044:103.
- 002:104 Introduction to Developmental Biology** 3 s.h.
 Fundamental mechanisms in differentiation, organogenesis, morphogenesis; and pattern formation; mechanistic approach at molecular, cellular, tissue levels of organizations. Prerequisites: grade of C- or higher in 002:010, 002:011, 002:128, and 004:012.
- 002:107 Invertebrate Biology** 4 s.h.
 Major evolutionary trends; structural, physiological, behavioral adaptations; laboratory emphasis on living material. Prerequisites: 002:010 and 002:011, or equivalents.
- 002:108 Vertebrate Zoology** 4 s.h.
 Vertebrate diversity, success in relation to evolutionary history, and adaptive radiation of fish, amphibians, reptiles, birds, mammals; physiological, morphological, behavioral, life history adaptations; vertebrate zoogeography, systematics, patterns of reproduction, social systems. Prerequisites: 002:010 and 002:011, or consent of instructor.
- 002:110 Plant Physiology** 3-4 s.h.
 Nutrients, metabolism, growth and development of higher plants; emphasis on photosynthesis, hormone actions, photomorphogenesis. Prerequisites: 002:010 and 002:011, or consent of instructor.
- 002:113 Ecological Plant Anatomy** 4 s.h.
 Fundamental tissue systems of vascular plants, emphasis on seed plants; development, differentiation of each cell type, arrangement in primary and secondary plant body; focus on relationships between structure, function. Prerequisite: 002:001, or 002:010 and 002:011, or equivalents.
- 002:114 Cell Biology** 3 s.h.
 Structures of cells and organelles in relation to their functions at molecular, cellular levels; emphasis on higher eukaryotic cells. Prerequisites: 002:010 and 002:011, and 004:012 or equivalent.
- 002:117 Plant Developmental Biology** 3 s.h.
 Developmental processes throughout life cycle of vascular plants; current knowledge of mechanisms, control; emphasis on molecular, genetic approaches to development, including transposon tagging, transformation. Prerequisite: 002:128.
- 002:123 Plant Biochemistry** 3 s.h.
 Proteins, carbohydrates, lipids, nucleic acids, their chemical structures and participation in plant metabolism; emphasis on processes unique to plants, including photosynthesis, photorespiration, nitrogen fixation. Prerequisites: 002:010, 002:011, and 004:121; or consent of instructor.
- 002:124 Animal Physiology** 3 s.h.
 Principles of cellular and systems physiology; emphasis on experimental and quantitative aspects. Prerequisites: 002:010, 002:011, and 029:011 or 029:081 or consent of instructor. Corequisite: 029:012 or 029:082.
- 002:127 Eukaryotic Molecular Biology** 3 s.h.
 Structure of eukaryotic genes and genomes, regulation of gene expression at transcriptional and posttranscriptional levels, RNA splicing and procession, catalytic and micro RNAs, genomics and functional genomics. Prerequisite: 002:128.
- 002:128 Fundamental Genetics** 3-4 s.h.
 Nature, function of genetic material: classical, molecular, developmental aspects. Prerequisites: 002:010, 002:011, and 004:012. Pre- or corequisite: 004:121.
- 002:131 Evolution** 4 s.h.
 Nature, evidence, analysis, implications, molecular/genetic basis; historical record, phylogeny, speciation, adaptation, investigative methods. Prerequisites: grade of C- or higher in 002:128, and 22M:016 or 22M:025 or 22M:031 or 22S:030 or 22S:101. Recommended: a course in biochemistry.
- 002:133 Cell Biology Laboratory** 3 s.h.
 Conceptual understanding and technical skills in fluorescence microscopy and digital imaging, mammalian cell culture, tissue fractionation, centrifugation, electrophoresis, and expression of recombinant proteins. Prerequisites: 002:010 and 002:011. Corequisite: a 100-level course in biological sciences, biochemistry, or microbiology.
- 002:134 Ecology** 4 s.h.
 Adaptations of organisms to their physical and biological environments; organism-environment interactions; population biology; interactions between species; ecology of communities, ecosystems; human impact on ecosystems. Prerequisites: 002:010 and 002:011, and 22M:016 or 22M:025 or 22M:031. Same as 159:134.
- 002:135 Developmental Biology Lab** 3 s.h.
 Experimental manipulation of embryos to examine mechanisms of early development, including gametogenesis and fertilization, cleavage, gastrulation, pattern formation and organogenesis; in vivo imaging of development, methods to visualize gene expression and independent research; model organisms including sea urchin, fish, frog, chick, mouse. Prerequisites: 002:104 and consent of instructor.
- 002:136 Conservation Biology** 4 s.h.
 Definition and measurement of biodiversity, causes of biodiversity loss; conservation biology of populations, habitats, and ecosystems; practical application of conservation principles, value of biodiversity; field projects to develop skill in assessing and measuring important characteristics of natural areas, and in creating and presenting management plans. Prerequisites: 002:010, 002:011, and 002:134.
- 002:138 Genetics and Biotechnology Lab** 3 s.h.
 Expansion of genetic concepts introduced in 002:128; introduction to genetic/molecular techniques currently used in genetic analysis and biotechnology. Prerequisite: 002:128.
- 002:140 Systematics: Classifying Biodiversity** 2-3 s.h.
 Nature of species, isolating mechanisms, hybridization; problems of convergence, homology; plant mating systems; types of information used in making taxonomic decisions. Prerequisite: 002:001, or 002:010 and 002:011, or equivalents.
- 002:143 Animal Behavior** 4 s.h.
 Genetics, sensory physiology, migration, development of behavior, circadian rhythms, foraging strategies, aggression, sexual and parental behavior, group selection, social behavior. Prerequisites: 002:010 and 002:011. Recommended: advanced standing.
- 002:145 Biology of the Brain/Introduction to Neurobiology** 3-4 s.h.
 Molecular biology, genomics, neuropharmacology, and brain imaging applied to understanding the mind-brain relationship, relative contributions of environmental and genetic behavior determinants, and the nature of mental disorders. GE: natural sciences.
- 002:148 Field Ecology** 4 s.h.
 Correlation of vegetation, environmental factors; delineation of plant communities, populations; population dynamics, analysis of field data; methods for describing ecological phenomena in quantitative terms; statistics. Prerequisite: 002:134 or consent of instructor.
- 002:150 Endocrinology** 3 s.h.
 Glands of internal secretion; emphasis on vertebrate systems; actions of hormones in regulating growth and metabolism, organ to molecular levels. Prerequisites: 002:010 and 002:011, or equivalents. Recommended: organic chemistry.

002:155 Cell Physiology	4 s.h.	002:191 Topics in Molecular Genetics	1-2 s.h.
Functions common to all cells: metabolism and its control, cellular energetics, membranes and transport, excitation, signal transduction, synthesis of proteins in cells and organelles, expression of genetic information, cell cycle, movement, architecture; lecture, discussion. Prerequisites: 002:128, and 099:110 or 099:120, and 22M:016 or 22M:025 or 22M:031, and 029:011 or 029:081; or consent of instructor. Corequisite: 029:012 or 029:082.		Prerequisite: 002:128 or a basic genetics course or graduate standing.	
002:157 Plant Cell Biology	3 s.h.	002:192 Basic Biology of Human Disease	2 s.h.
		Basic problems of infectious disease; selected viral, bacterial, and fungal pathogens, with emphasis on fungal pathogenesis; DNA fingerprinting; epidemiological study of disease dynamics. Prerequisites: 002:128 and consent of instructor.	
002:160 Molecular Phylogenetics	3 s.h.	002:193 Cell Motility and the Cytoskeleton	1-3 s.h.
Theory underlying phylogenetic analysis with application of these methods to molecular data sets; analysis of multigene data, organellar, and nuclear genome sequences to reconstruct the history of cells. Prerequisite: grade of C- or higher in 002:128 or consent of instructor. Recommended: 002:131.		Prerequisites: 002:104 or equivalent or graduate standing, and consent of instructor.	
002:162 Population Genetics and Molecular Evolution	3 s.h.	002:194 Topics in Cell and Development	1-2 s.h.
Nucleotide sequences, genes, and mutation; rates and patterns of nucleotide substitution; selection at the molecular level and the neutral theory; population genetics theory; genome evolution. Prerequisite: grade of C- or higher in 002:128 or consent of instructor. Recommended: 002:131.		Prerequisite: consent of instructor.	
002:168 Genes and Development	3 s.h.	002:195 Topics in Neurobiology	1-2 s.h.
Mechanisms by which genes control development of multicellular animals; methodology of scientific research applied to developmental genetics. Prerequisites: 002:104 and 002:128 or equivalent or consent of instructor.		Topics vary. Prerequisite: 002:180 or consent of instructor.	
002:169 Introduction to Bioinformatics	4 s.h.	002:196 Honors Investigations	arr.
Basics of genetics and molecular biology; overview of bioinformatics and genome science, including genome projects, functional genomics, phylogenetics, proteomics, microarrays, DNA polymorphisms, data-mining algorithms; experimental methods, analytical approaches. Prerequisite: 002:128 or 099:120 or graduate standing or consent of instructor. Same as 051:121, 055:121.		Experimental and theoretical research, readings in biological sciences. Prerequisites: honors standing and consent of instructor.	
002:170 Bioinformatics	3 s.h.	002:197 Topics in Plant Molecular Biology	1-2 s.h.
Overview of bioinformatics and genomics; requires working knowledge of basic concepts in genetics and molecular biology. Prerequisite: grade of B+ or higher in 002:128 or consent of instructor. Same as 127:170.		Prerequisite: consent of instructor.	
002:171 Molecular Genetics	4 s.h.	002:198 Honors Seminar in Biology	2 s.h.
Mechanism, regulation of RNA, DNA, protein biosynthesis, with emphasis on methods of genetic analysis; application of modern recombinant DNA techniques to basic problems. Prerequisites: 002:128 or 099:120, and undergraduate or first-year graduate standing.		Prerequisite: honors standing.	
002:174 Computational Genomics	3 s.h.	002:199 Introduction to Research	3 s.h.
Same as 051:122, 055:122, 127:173.		Prerequisite: consent of instructor.	
002:176 Microarray Analysis and Statistical Bioinformatics	3 s.h.	002:200 Biology Colloquium	0, 2 s.h.
Same as 185:103.		Repeatable.	
002:180 Fundamental Neurobiology	4 s.h.	002:207 Graduate Research Techniques	1 s.h.
Neuronal function, plasticity, and development at the molecular and cellular levels. Prerequisites: 002:010, 002:011, and 002:145 or grade of B or higher in 002:114; or consent of instructor. Recommended: 029:012 and 099:110, or equivalents. Same as 132:180.		Prerequisite: consent of instructor.	
002:181 Neurophysiology	3-4 s.h.	002:215 Critical Readings in Biology	arr.
Physiological properties of nerve cells, nervous systems; axonal conduction, synaptic transmission, sensory transduction, integrative processes, higher functions. Prerequisites: 002:180, 22M:025 or equivalent, and 029:012; or consent of instructor. Same as 132:181.		Prerequisite: consent of instructor.	
002:190 Topics in Evolution and Ecology	2 s.h.	002:218 Microscopy for Biomedical Research	arr.
Prerequisite: 002:128 or consent of instructor.		Preparation and analysis of biomedical projects by light and electron microscopy. Prerequisites: biological science course and consent of instructor. Same as 060:218, 061:218.	
		002:220 Advanced Microscopy Biomedical Research	arr.
		Individually designed student research projects. Prerequisites: introductory microscopy course and consent of instructor. Same as 060:220, 061:220.	
		002:228 Advanced Readings in Genetics	1 s.h.
		Critical evaluation of classic genetics papers. Prerequisite: biological sciences graduate standing. Corequisite: 002:128.	
		002:234 Seminar: Writing in Natural Sciences	2 s.h.
		Writing and critiquing skills in the natural sciences. Prerequisite: consent of instructor.	
		002:246 Developmental Neurobiology	3 s.h.
		Same as 072:245, 132:246.	
		002:265 Neuroscience Seminar	0-1 s.h.
		Same as 031:265, 060:265, 072:265, 132:265.	
		002:270 Biosciences Seminar	1 s.h.
		Same as 072:342, 156:265.	
		002:301 Research: Biology	arr.
		Repeatable.	
		002:303 Independent Study in Biology	arr.
		Repeatable.	

Primarily for Graduate Students

Chemistry

Chair: David F. Wiemer

Professors: Mark A. Arnold (Edwin B. Green Chair in Laser-Chemistry), Donald J. Burton (Carver/Ralph L. Shriner Professor of Chemistry), James B. Gloer, Vicki H. Grassian (Chemistry/Chemical and Biochemical Engineering), Daniel M. Quinn, Gary W. Small, David F. Wiemer (Chemistry/Pharmacology)

Professors emeriti: Norman C. Baenziger, Edward B. Buchanan Jr., Robert E. Buckles, E. David Cater, Robert E. Coffman, Leodis Davis, John R. Doyle, H. Bruce Friedrich, Harold M. Goff, Vasu Nair (UI Foundation Distinguished Professor), Donald J. Pietrzyk, Dwight C. Tardy

Associate professors: Darrell P. Eyman, Sonya J. Franklin (Chemistry/Radiation Oncology), Gregory K. Friestad, Lei Geng, Edward G. Gillan, Amnon Kohen, Sarah C. Larsen, Johna Leddy, Leonard R. MacGillivray, Louis Messerle (Chemistry/Radiology), Norbert J. Pienta, F. Christopher Pigge, Mark A. Young

Assistant professors: Ned Bowden, Donald M. Cannon, Chris Cheatum, Amanda J. Haes, Claudio Margulis, Jan-Uwe Rohde, Jason Telford

Undergraduate degrees: B.A., B.S. in Chemistry

Undergraduate nondegree program: Minor in Chemistry

Graduate degrees: M.S., Ph.D. in Chemistry

Web site: <http://www.chem.uiowa.edu/>

Undergraduate Programs

Bachelor of Science

The Bachelor of Science in chemistry is certified by the American Chemical Society. Current and projected demand for B.S. graduates in chemistry is excellent in research and in control and process-development work. The B.S. program also provides all the prerequisites for graduate work in chemistry or biochemistry and in other biomedical areas with a molecular focus.

The B.S. in chemistry requires 66 s.h. in the major, including 46 s.h. in chemistry courses, with at least 9 s.h. earned in University of Iowa chemistry courses. The following courses are required.

Chemistry

One of these sequences:

004:011-004:012 Principles of Chemistry I-II 8 s.h.

004:018-004:019-004:020 Chemical Science I-II and Chemical Science Laboratory 8 s.h.

One of these sequences:

004:121-004:122 Organic Chemistry I-II 6 s.h.

004:123-004:124 Organic Chemistry I-II for Majors (preferred) 6 s.h.

One of these:

004:141 Organic Chemistry Laboratory 3 s.h.

004:142 Organic Chemistry Laboratory for Majors (preferred) 3 s.h.

All of these:

004:021 Basic Measurement 3 s.h.

004:111-004:112 Analytical Chemistry I-II 6 s.h.

004:125 Inorganic Chemistry 2 s.h.

004:131-004:132 Physical Chemistry I-II 6 s.h.

004:143 Analytical Measurements 3 s.h.

004:144 Physical Measurements 3 s.h.

004:153 Inorganic Chemistry Laboratory 3 s.h.

004:170 Advanced Inorganic Chemistry 3 s.h.

Integral Calculus

One of these sequences:

22M:025-22M:026 Calculus I-II 8 s.h.

22M:031-22M:032 Engineering Mathematics I-II: Single Variable and Multivariable Calculus 8 s.h.

Introductory Physics

One of these sequences:

029:011-029:012 College Physics I-II (accepted) 8 s.h.

029:081-029:082 Introductory Physics I-II (preferred) 8 s.h.

Students must earn a total of at least 6 s.h. in advanced science elective courses and in 004:162 Undergraduate Research. Advanced science electives may be chosen in chemistry, mathematics, computer science, astronomy, physics, engineering, environmental sciences, radiation biology, biochemistry, microbiology, pharmacology, pharmacy, biological sciences, geoscience, or physiology.

Bachelor of Arts

The B.A. program in chemistry provides a more general education, with a concentration in fundamental chemistry and a wider choice of electives than the B.S. program includes. Advanced courses in chemistry, biological sciences, mathematics, physics, or other scientific areas are recommended.

The B.A. requires 51 s.h. in the major, including 37 s.h. in chemistry courses, with at least 6 s.h. earned in University of Iowa chemistry courses.

B.A. graduates in chemistry may qualify to be high school teachers, provided they meet teacher licensure requirements. By choosing appropriate electives, students can meet entrance requirements for chemistry, biochemistry, medicine, dentistry, or other graduate or professional programs while satisfying the B.A. requirements in chemistry. B.A. graduates also pursue careers and education in business, law, and other areas.

The major course requirements for the B.A. are as follows.

Chemistry

One of these sequences:

004:011-004:012 Principles of Chemistry I-II 8 s.h.

004:018-004:019-004:020 Chemical Science I-II and Chemical Science Laboratory 8 s.h.

One of these sequences:

004:121-004:122 Organic Chemistry I-II 6 s.h.

004:123-004:124 Organic Chemistry I-II for Majors (preferred) 6 s.h.

One of these:

004:141 Organic Chemistry Laboratory 3 s.h.

004:142 Organic Chemistry Laboratory for Majors (preferred) 3 s.h.

One of these:

004:143 Analytical Measurements 3 s.h.

004:144 Physical Measurements 3 s.h.

004:153 Inorganic Chemistry Laboratory 3 s.h.

All of these:

004:021 Basic Measurement 3 s.h.

004:111-004:112 Analytical Chemistry I-II 6 s.h.

004:125 Inorganic Chemistry 2 s.h.

004:131-004:132 Physical Chemistry I-II 6 s.h.

Integral Calculus

One of these sequences:

22M:025-22M:026 Calculus I-II 8 s.h.

22M:031-22M:032 Engineering Mathematics I-II: Single Variable and Multivariable Calculus 8 s.h.

Introductory Physics

One of these sequences:

029:011-029:012 College Physics I-II (accepted) 8 s.h.

029:081-029:082 Introductory Physics I-II (preferred) 8 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

Before the third semester begins: math through calculus I, 004:011 and 004:012 or 004:018, 004:019, and 004:020 or equivalent course work, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, calculus II, organic chemistry I and II, physics I and II, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, four more courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, and one or two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Before the third semester begins: math through calculus I, 004:011 and 004:012 or 004:018, 004:019, and 004:020 or equivalent course work, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, calculus II, physics I and II, organic chemistry I and II, three other courses in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, six more courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, and three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

To graduate with honors in chemistry, a student must be a member of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students in chemistry must take 004:162 Undergraduate Research, complete a research project acceptable to his or her research advisor, and write an honors thesis based on that research. Students are encouraged, but not required, to present their research at local and regional meetings and to publish their results in professional journals.

Minor

The minimum requirements for a minor in chemistry are 15 s.h., including 3 s.h. in introductory-level courses and 12 s.h. taken at The University of Iowa in advanced chemistry courses numbered 100 and above; 004:011 and 004:012 Principles of Chemistry I-II, 004:018, 004:019, and 004:020 Chemical Science I-II and Chemical Science Laboratory, or their equivalents are prerequisites for advanced chemistry courses.

Teaching Licensure

Chemistry courses required for the B.S. or B.A. satisfy the major requirements for teaching in secondary schools. A minor in chemistry satisfies the requirements for a teaching emphasis in chemistry (see Science Education in the Catalog).

Special Opportunities for Undergraduates

The department offers undergraduates—majors and other students interested in chemistry—a number of programs and opportunities to enrich their classroom studies.

Undergraduate Chemistry Center

The Chemistry Center serves all students who take chemistry courses as well as the department's professors and teaching assistants. The center maintains waiting lists and offers other assistance with registration; returns examinations and homework assignments and maintains a file of lecture hand-outs; provides a library of chemistry textbooks; and maintains bulletin boards with information on all lower-level chemistry courses. Information about student organizations and departmental

scholarships and awards also is available at the Chemistry Center.

Student Organizations

Students may join the Undergraduate Chemical Society (UCS), a student affiliate of the American Chemical Society (ACS). Chapter activities include dinner meetings with guest speakers; a chemistry tutoring service for other students; participation in local and national meetings of the ACS; and participation in chemistry outreach programs. Students in UCS develop leadership, organization, and speaking skills valuable throughout their college experience and in their subsequent careers.

The department has a chapter of Alpha Chi Sigma, a co-ed chemistry fraternity. The Alpha Theta Chapter is open to students in chemistry, biochemistry, chemical engineering, and related fields. Alpha Chi Sigma sponsors many social and professional events throughout the year.

The department also supports the activities of Women in Science and Engineering (WISE), whose aim is to increase women's participation and advancement as students, faculty members, and professional staff; promote a supportive study and work environment for women; integrate women's ideas, strengths, and approaches into research, teaching, and service; and inform the public of educational and career opportunities for women in scientific and technical fields. WISE sponsors a living-learning community in Stanley Hall (University residence hall) for first-year women majoring in science or engineering, the Student-to-Student Support in Science mentoring program, a service learning program, and the WISE Discourse and Dining series.

Scholarships and Awards

A number of awards and scholarships are available to chemistry majors, including the American Institute of Chemists Award, the Undergraduate Award in Analytical Chemistry, the Chemistry Alumni Awards (one each for a sophomore, a junior, and a senior), the Merck Index Award, the Ken Sando Undergraduate Scholarship, and the CRC Freshman Award. Chemistry majors also may apply for Russell K. Simms and Shoemaker-Strickler Scholarships.

Graduate Programs

The department offers a Master of Science and a Doctor of Philosophy in chemistry.

Master of Science

The Master of Science is offered with or without thesis, in analytical, inorganic, organic, and physical chemistry and in chemical physics. M.S. students must demonstrate minimal proficiency in analytical, inorganic, organic, and physical chemistry by passing specific examinations or by enrolling in suitable core courses. This requirement must be completed by the end of the second year of enrollment. The M.S. requires at least 30 s.h. of graduate work. A g.p.a. of at least 2.75 is required for admission to the master's examination.

Doctor of Philosophy

Ph.D. study in the areas listed for the M.S. include minimal proficiency examinations, core courses as necessary, a minimum of 11 s.h. of advanced course work, and research.

Students who meet the course requirements with a cumulative g.p.a. of 3.00 or higher are admitted to the oral comprehensive examination upon presentation and preliminary approval of their written research proposal and research progress report; they must take the oral comprehensive examination no later than the end of their second year of enrollment.

Upon completing Ph.D. research, candidates prepare the dissertation. The final examination consists of an oral defense of the thesis, at which time the candidate presents at least one manuscript of the publishable portion of his or her thesis.

Interdisciplinary Programs

The Department of Chemistry cooperates in interdisciplinary programs in applied mathematical sciences and in chemical physics (see Graduate College in the Catalog). Students with undergraduate degrees in chemistry, physics, mathematics, or engineering are eligible.

Admission

Applicants for graduate admission should have a bachelor's degree in chemistry, preferably with a g.p.a. above 3.00. Most admitted graduate students receive financial support. For application information, contact the Department of Chemistry or visit its web site.

Facilities

The department is housed in the Chemistry Building, a five-story structure containing

2 auditoriums, 5 lecture rooms, 15 undergraduate laboratories, 43 graduate research laboratories, a computer laboratory, and a number of special-purpose instruction rooms. Research laboratories and offices of chemistry faculty members also are housed in the Iowa Advanced Technology Laboratories, one-half block from the Chemistry Building. Modern scientific equipment is available for research.

The department's excellent library facilities are available to all students. The library contains standard reference works and complete volumes of chemistry and chemical engineering journals and subscribes to a large number of current scientific journals. The library provides online access to electronic journals and chemistry databases.

Courses

Primarily for Undergraduates

Students planning to take more than one year of chemistry should take 004:011 and 004:012. Students who require only one year of chemistry with no laboratory component may take 004:007 and 004:008. The Chemistry Diagnostic Test determines whether students are better prepared to begin with 004:007-004:008 or 004:011-004:012.

004:004 Secondary Student Training Program 3-4 s.h.
Special projects. Prerequisite: secondary school enrollment.

004:005 Technology and Society 3 s.h.
Nonmathematical exploration of selected areas of technology; basic science background, current technological applications, implications for society; for nonscience majors. GE: natural sciences. Prerequisite: closed to students who have taken college chemistry courses.

004:006 Technology and Society Laboratory 1 s.h.
Laboratory for 004:005; demonstrations, student experiments. GE: natural sciences. Prerequisite: closed to students who have earned more than 3 s.h. in chemistry courses. Pre- or corequisite: 004:005.

004:007 General Chemistry I 3 s.h.
Atomic structure, chemical bonds, mole relations, stoichiometry, states of matter, acids and bases, reaction rates, electrochemistry, nuclear chemistry. GE: natural sciences. Prerequisite: elementary algebra.

004:008 General Chemistry II 3 s.h.
Organic chemistry and biochemistry. GE: natural sciences. Prerequisite: 004:007 or high school chemistry.

004:009 Supplemental Chemistry Lab 1 s.h.
Lab techniques, elementary synthesis, measurement, analysis, case-study lectures and experiments; safety glasses, appropriate dress, compliance with laboratory safety protocols required. Prerequisite: grade of C or higher in 004:018 or 004:019 or consent of instructor.

004:011 Principles of Chemistry I 4 s.h.
Chemical bonding and chemical reactions; atomic and molecular structure, chemical equations, stoichiometry, gases, liquids, thermodynamics of phase changes, solutions, equilibrium, acids,

bases, pH, elementary organic chemistry; the solid state, including modern materials; lecture, discussion, laboratory. GE: natural sciences. Prerequisite: 22M:002, or ACT math subscore of 24 and MPT II score of 20, or ACT math subscore of 24 and MPT III score of 10. Recommended: Chemistry Diagnostic Test score of 15.

004:012 Principles of Chemistry II 4 s.h.

Continuation of 004:011; colligative properties of solutions, chemical thermodynamics, electrochemistry, chemical kinetics, chemical bonding, aspects of industrial chemistry, nuclear chemistry; lecture, discussion, laboratory. GE: natural sciences. Prerequisite: 004:011.

004:016 Principles of Chemistry Lab 2 s.h.

Laboratory techniques for former sequence 004:013-004:014. GE: natural sciences. Prerequisites: grade of C or higher in 004:014, or 004:018 and 004:019.

004:018 Chemical Science I 3 s.h.

GE: natural sciences.

004:019 Chemical Science II 3 s.h.

GE: natural sciences.

004:020 Chemical Science Laboratory 2 s.h.

GE: natural sciences.

004:021 Basic Measurement 3 s.h.

Continuation of 004:012; techniques of data collection and processing, including titrimetric and instrumental techniques for data collection and computer techniques for data processing. Prerequisites: 004:012 or 004:020, and chemistry major.

004:029 First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

004:111 Analytical Chemistry I 3 s.h.

Modern theory and practice; emphasis on chemical equilibria (acid-base chemistry, solubility, complexation) and electroanalytical chemistry (potentiometry, voltammetry, coulometry). Pre- or corequisite: 004:131 or 004:132 or consent of instructor.

004:112 Analytical Chemistry II 3 s.h.

Continuation of 004:111; emphasis on instrumental methods, including atomic and molecular spectroscopy, mass spectrometry, chemical separations. Prerequisite: 004:111.

004:121 Organic Chemistry I 3 s.h.

Carbon-containing compounds; structure, stereochemistry, physical properties, reactivity, reaction mechanisms, synthesis; emphasis on alkanes, alkenes, alkynes, alcohols, alkyl halides, aromatics. Prerequisite: 004:012 or 004:019.

004:122 Organic Chemistry II 3 s.h.

Continuation of 004:121; use of spectroscopic techniques to determine chemical structures; chemistry of carbonyl compounds, amines, ethers, amino acids, carbohydrates, nucleosides. Prerequisite: 004:121.

004:123 Organic Chemistry I for Majors 3 s.h.

Carbon-containing compounds; structure, stereochemistry, physical properties, reactivity, reaction mechanisms, synthesis; emphasis on alkanes, alkenes, alkynes, alcohols, alkyl halides, aromatics. Prerequisites: 004:012 or 004:019; and chemistry, biochemistry, or chemical engineering major.

004:124 Organic Chemistry II for Majors 3 s.h.

Continuation of 004:123; use of spectroscopic techniques to determine chemical structures; chemistry of carbonyl compounds, amines, ethers, amino acids, carbohydrates, and nucleosides. Prerequisites: 004:121 or 004:123; and chemistry, biochemistry, or chemical engineering major.

004:125 Inorganic Chemistry 2 s.h.

Modern principles; emphasis on descriptive chemistry of the main group and transition elements, ionic and covalent chemical bonding theories, symmetry, inorganic stereochemistry. Prerequisite: 004:012 or 004:019. Corequisite: 004:122 or 004:124.

004:131 Physical Chemistry I 3 s.h.

Chemical thermodynamics and its application to chemical equilibrium, phase changes and chemical equilibria; ideal and real gases; kinetic theory; surface absorption and electrochemistry; thermodynamics. Prerequisites: 004:012 or 004:019, and 029:012 or 029:082, and 22M:026 or equivalent.

004:132 Physical Chemistry II 3 s.h.

Quantum mechanics and its application to atomic and molecular structure; determination of structure and bonding by various spectroscopic methods; chemical kinetics. Prerequisites: 004:012 or 004:019, and 029:012 or 029:082, and 22M:026 or equivalent.

004:135 Physical Chemistry Laboratory 2 s.h.

004:141 Organic Chemistry Laboratory 3 s.h.

Preparation, purification, identification, analysis of chemical compounds, principally organic compounds. Prerequisites: 004:011 and 004:012, or 004:016 or 004:020; and 004:121 or 004:123. Corequisite: 004:122 or 004:124.

004:142 Organic Chemistry Laboratory for Majors 3 s.h.

Preparation, purification, identification, analysis of chemical compounds, principally organic compounds. Open only to chemistry, biochemistry, and chemical engineering majors. Prerequisites: 004:011 and 004:012, or 004:016 or 004:020; and 004:121 or 004:123. Corequisite: 004:124.

004:143 Analytical Measurements 3 s.h.

Modern theory and practice of laboratory methods; emphasis on experimental techniques and data analysis in spectroscopy, chromatography, electrochemistry. Prerequisite: 004:111. Corequisite: 004:112.

004:144 Physical Measurements 3 s.h.

Experiments using instrumentation and computers to illustrate the principles and practice of modern chemistry. Prerequisites: 004:021, and 004:131 or 004:132; and chemistry major. Corequisite: 004:131 or 004:132.

004:153 Inorganic Chemistry Laboratory 3 s.h.

Preparation and characterization of a variety of inorganic, organometallic, and coordination compounds of the main group and transition elements; emphasis on synthetic techniques, methods for characterization of inorganic species. Prerequisites: 004:125, and 004:141 or 004:142; or consent of instructor.

004:162 Undergraduate Research 1-4 s.h.

Prerequisite: consent of advisor.

004:170 Advanced Inorganic Chemistry 3 s.h.

Modern principles, including crystal field/ligand field/molecular orbital theory, inorganic reaction mechanisms, coordination chemistry, bioinorganic chemistry, main group and transition metal organometallic chemistry, solid-state inorganic chemistry. Prerequisites: 004:125 and 004:132. Pre- or corequisite: 004:153.

004:171 Advanced Analytical Chemistry 3 s.h.

Emphasis on fundamental aspects of electrochemistry, atomic and molecular spectroscopy, chemical separations. Prerequisites: 004:112, 004:131, and 004:132.

004:172 Advanced Organic Chemistry 3 s.h.

Basic concepts from perspectives of structure, mechanism, synthesis, stereochemistry. Prerequisite: 004:122 or 004:124.

004:173 Atmospheric and Environmental Chemistry 3 s.h.

Fundamental chemical processes of importance in the atmosphere, soil, and water, with emphasis on kinetics and photochemistry of homogeneous and heterogeneous reactions, atmospheric structure and dynamics, global geochemical cycling, chemistry-climate relationships, environmental remediation strategies; experimental methods in field and laboratory studies. Pre- or corequisite: 004:131 or 004:132.

004:175 Introduction to Polymer Chemistry 1, 3 s.h.

Synthesis, structures, characterization, properties, and applications of polymers. Prerequisites: 004:122 and 004:125.

004:180 Introduction to Molecular Modeling 3 s.h.

Basic theories of molecular modeling and their hands-on applications to chemical research; potential energy surfaces; geometry optimization; molecular dynamics; molecular mechanics, semi-empirical and ab initio SCF theory; basis sets; electron correlation; density functional theory, electrostatic potentials. Pre- or corequisite: 004:132.

004:191 Graduate Chemistry Orientation 2 s.h.

Pedagogy, safety and research issues relevant to advanced chemistry careers. Prerequisite: senior standing.

Primarily for Graduate Students

004:201 Special Topics in Inorganic Chemistry 1-3 s.h.

Repeatable. Prerequisite: 004:170.

004:203 Organometallic Chemistry 3 s.h.

Emphasis on organometallic compounds of transition metal elements. Prerequisite: 004:170.

004:204 Physical Methods in Inorganic Chemistry 3 s.h.

Application of physical methods to problems; recent developments; emphasis on magnetic resonance spectroscopy. Prerequisite: 004:170.

004:205 Bioinorganic Chemistry 2-3 s.h.

The role of metal ions in biology from an inorganic chemical perspective; emphasis on structure and mechanism for transition metal-containing metallo-enzymes. Prerequisite: 004:170 or equivalent.

004:206 Solid-State and Materials Chemistry 3 s.h.

Introduction to the chemical concepts of solid-state chemistry; focus on synthesis and characterization of various inorganic materials; structure/property relationships, real-world examples. Prerequisite: 004:170 or equivalent.

004:207 Electrochemistry 3 s.h.

Fundamental aspects, including mass transport and electron transfer, electrochemical methodology (e.g., voltammetry and potentiometry), determination of homogeneous and heterogeneous reaction mechanisms. Prerequisites: 004:111, 004:112, and 004:171.

004:208 Spectroscopy 3 s.h.

Principles of atomic and molecular absorption and emission spectroscopy in ultraviolet, visible, and infrared regions of the spectrum, including fluorescence, phosphorescence, Raman spectroscopy; applications to analytical problems, with emphasis on modern instrumentation and methodology. Prerequisites: 004:111, 004:112, and 004:171.

004:209 Separations 3 s.h.

Separation science; emphasis on gas and liquid chromatography, including mobile and stationary phases, instrumentation, detection, applications and sheet method, supercritical fluid chromatography, capillary electrophoresis, solid phase extraction techniques. Prerequisites: 004:111, 004:112, and 004:171.

004:210 Chemical Sensors 1 s.h.

Theory, practical limitations, analytical utility based on immobilized reagents with electrochemical, thermal, optical transduction mechanisms. Prerequisites: 004:111 and 004:112, or 004:171.

004:211 Chemical Catalysis in Biology 3 s.h.

Modern enzymology; studies of enzymes using methods of physical, organic, analytical chemistry; fundamental guidelines of biological catalysis, recent findings from scientific literatures.

004:212 Mass Spectrometry 1 s.h.

Theory and practice of methods and instrumentation used in modern analytical mass spectrometry; emphasis on hardware components such as ionization sources, sample delivery mechanisms, mass analyzers, instrumental interfaces. Prerequisites: 004:111 and 004:112, or 004:171.

004:213 Special Topics in Analytical Chemistry arr.

Content varies. Repeatable.

004:214 Chemical Systems Modeling 2 s.h.

Basic processes and techniques; these methods applied to systems relevant to students' own research. Prerequisite: 004:111 or 004:112 or 004:171 or equivalent.

004:215 Fluorescence Spectroscopy and Imaging 3 s.h.

Structure, dynamics of biomolecules and their optical spectroscopy; ultrasensitive fluorescence spectroscopy, vibrational spectroscopy, optical activity and circular dichroism, time-resolved spectroscopy. Prerequisites: 004:111, 004:112, and 004:171.

004:217 Chemical Equilibrium and Solution Properties 1 s.h.

Protocol for solving equilibrium problems; characterizing systems with equilibrium methods; role of solvent and solution properties on equilibrium responses. Prerequisites: 004:111, 004:112, and 004:171.

004:219 Chemistry in Technology 1 s.h.

Applications of chemistry in technology; the patent and technology transfer process. Prerequisite: advanced undergraduate standing.

004:220 Electrochemistry of Polymer Films 1 s.h.

Use of electrochemical methods to characterize polymer and thin films; transport through polymer films and composites, electrochemistry of polymer films. Prerequisite: physical chemistry course.

004:221 Spectroscopic Methods in Organic Chemistry 3-4 s.h.

Methods and techniques of structure determination for organic compounds. Prerequisite: 004:172 or equivalent.

004:225 Organic Chemistry Special Topics 1, 3 s.h.

Prerequisite: 004:172 or equivalent.

004:228 Mechanisms of Organic Reactions 3 s.h.

Application of basic mechanistic concepts.

004:229 Advanced Organic Synthesis 3 s.h.

Preparation of complex organic compounds. Prerequisite: 004:172.

004:231 Statistical Thermodynamics I 3 s.h.

Fundamentals of classical thermodynamics and equilibria; ensembles; noninteracting systems; theory of phase transitions; Monte-Carlo methods; classical fluids; nonequilibrium systems. Prerequisite: 004:131.

004:233 Quantum and Computational Chemistry 3 s.h.

Fundamental principles of quantum chemistry; angular momentum; approximation methods; theory of atomic and molecular electronic structure; applications of computational quantum mechanics to chemical systems. Pre- or corequisite: 004:132. Recommended: 004:180.

004:234 Molecular Spectroscopy 3 s.h.

Quantum mechanical theory of molecular spectroscopy; time-dependent perturbation theory, selection rules, lineshapes; selected applications in microwave, vibrational (infrared and Raman), electronic, optical, and magnetic resonance spectroscopy. Prerequisite: 004:233.

004:235 Chemical Kinetics 3 s.h.

Potential energy surfaces, transition state theory, diffusion limited rates, linear free energy relationships, isotope effects, solvent effects, RRKM theory; connection between experiment and various theories in the gas and solution phases; emphasis on assignment of experimental error to derived quantities. Prerequisite: 004:132.

004:238 Surface Chemistry and Heterogeneous Processes 3 s.h.

Fundamental and applied aspects of surface chemical processes; theories of molecular adsorption/desorption and surface complexation; kinetics; surface analysis and instrumentation; applications of surface chemistry in heterogeneous catalysis, heterogeneous environmental/atmospheric processes, and materials chemistry. Repeatable. Prerequisite: 004:131 or consent of instructor.

004:242 Physical Chemistry Topics 1-3 s.h.

Advanced topics relevant to modern physical chemistry. Repeatable.

004:250 Chemometrics 3 s.h.

Mathematical, statistical, and signal processing methods for analytical chemistry; hypothesis testing, experimental design, model building, optimization, digital filtering. Prerequisite: 004:171.

004:260 Topics in Chemical Education 1-3 s.h.

Topics in chemical education research; in-depth analysis of issues in teaching or learning college chemistry.

004:275 Perspectives in Biocatalysis 1-3 s.h.

Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Repeatable. Prerequisite: graduate standing. Same as 046:275, 052:275, 053:275, 061:275, 099:275.

004:281 Seminar: Analytical Chemistry 0-1 s.h.

Repeatable. Prerequisite: consent of instructor.

004:282 Seminar: Chemical Education 0-1 s.h.

Presentation of research of literature data on topics of chemical education research.

004:283 Seminar: Inorganic Chemistry 0-1 s.h.

Repeatable. Prerequisite: consent of instructor.

004:285 Seminar: Organic Chemistry 0-1 s.h.

Repeatable. Prerequisite: consent of instructor.

004:286 Seminar: Physical and Environmental Chemistry 0-1 s.h.

Repeatable. Prerequisite: consent of instructor.

004:287 Research Frontiers in Chemistry 1 s.h.

Repeatable. Prerequisite: consent of instructor.

004:290 Research in Chemistry arr.

Thesis work for advanced degrees. Repeatable. Prerequisites: consent of department head and advisor.

004:291 Research Seminar 0-1 s.h.

Presentation and discussion of thesis research for advanced degrees. Repeatable.

Cinema and Comparative Literature

Chair: Steven Ungar

Professors: Rick Altman, Daniel Balderston (Spanish and Portuguese/Cinema and Comparative Literature), Cheryl Herr (English/Cinema and Comparative Literature), Rudolf E. Kuenzli (English/Cinema and Comparative Literature), Christopher Merrill (English/Cinema and Comparative Literature), Franklin Miller, Leighton Pierce, Lauren Rabinovitz (American Studies/Cinema and Comparative Literature), Steven Ungar (French and Italian/Cinema and Comparative Literature)

Associate professors: Corey Creekmur (English/Cinema and Comparative Literature), Sabine Götz, Kathleen Newman (Spanish and Portuguese/Cinema and Comparative Literature), Astrid Oesmann (German/Cinema and Comparative Literature), Maureen Robertson (Asian Languages and Literature/Cinema and Comparative Literature), Rosemarie Scullion (French and Italian/Women's Studies/Cinema and Comparative Literature), Russell Valentino (Russian/Cinema and Comparative Literature), David Wittenberg (English/Cinema and Comparative Literature)

Assistant professors: Paula Amad, Rosalind Galt, Louis Schwartz, Sasha Waters

Adjunct assistant professors: Sandra H. Barkan, Natasa Durovicova, Kathleen Edwards

Undergraduate degrees: B.A. in Cinema, B.A. in Comparative Literature

Undergraduate nondegree programs: Minor in Cinema, Minor in Comparative Literature

Graduate degrees: M.A., Ph.D. in Comparative Literature; M.F.A. in Translation; M.F.A. in Film and Video Production; M.A., Ph.D. in Film Studies

Web site: <http://www.uiowa.edu/~ccl>

The Department of Cinema and Comparative Literature presents film, literature, translation, and relations with the other arts as subjects of international and interdisciplinary study. It provides a basis for intensive work in literature, literary theory, critical methods, translation, film studies, and the production of film, video, and digital arts.

The department encourages study in comparative arts, with particular emphasis on cinema, where the program's resources are especially strong. Students and faculty members have easy access to the resources of the Translation Workshop and the Institute for Cinema and Culture.

The cinema and comparative literature faculty offers expertise in the languages and cultural study of the Americas, China, England, France, Germany, India, Ireland, Italy, Japan, Spain, and Sub-Saharan Africa. Specific expertise and

direction are available in translation and in film and audiovisual history, production, and theory.

In addition to its own faculty, the department calls on faculty members in other departments and programs, including American studies, women's studies, classics, Asian languages and literature, communication studies, English, French and Italian, German, history, Spanish and Portuguese, Russian, and theatre arts.

Undergraduate Program

The undergraduate majors in cinema and in comparative literature provide individualized programs in the interdisciplinary study of literature and the study and production of film and audiovisual arts. The program is designed to promote cultural awareness, to increase speaking and writing skills, and to develop capacities for systematic reasoning.

The Department of Cinema and Comparative Literature offers two undergraduate degrees: a Bachelor of Arts in cinema and a Bachelor of Arts in comparative literature. It also offers a minor in cinema and a minor in comparative literature.

Bachelor of Arts in Cinema

The Bachelor of Arts in cinema requires a minimum of 33 s.h. in the major, including 21 s.h. in University of Iowa course work. Students may apply no more than 6 s.h. of course work from another major, minor, or certificate to the B.A. in cinema. All B.A. students must complete the College of Liberal Arts and Sciences General Education Program.

The major in cinema is an individualized, interdisciplinary study of film and production of creative work in film, video, and interactive multimedia. It is designed to promote cultural and artistic awareness, to increase speaking and writing skills, and to develop capacities for systematic reasoning and effective production in cinema arts.

All students are expected to gain a perspective on both the study and the production of film, video, or digital media while becoming acquainted with the historical, critical, and theoretical issues of the area. In conjunction with an appropriate

overall curriculum, the major in cinema can offer effective preparation for continuing study or creative work in the humanities, arts, and cinema; provide a solid foundation for careers in film, video, television, and digital production; and lead to careers in arts administration, advertising, and business.

The B.A. in cinema requires the following course work.

048:001 Introduction to Film Analysis	3 s.h.
048:025 Introduction to Critical Reading and Viewing	3 s.h.
048:034 Modes of Film and Video Production	4 s.h.
048:095 Undergraduate Seminar	3 s.h.

One of these:

048:030 Introduction to Film Theory	3 s.h.
048:100 Introduction to Criticism and Theory	3 s.h.
048:120 Issues in Film Theory	3 s.h.

At least one film studies or film production course at the 100 level	3 s.h.
Additional cinema and comparative literature course work, including at least 9 s.h. of advanced film studies or film and video production courses numbered 048:050 or above	14 s.h.

Bachelor of Arts in Comparative Literature

The Bachelor of Arts in comparative literature requires a minimum of 33 s.h. in the major, including 21 s.h. in University of Iowa course work. Students may apply no more than 6 s.h. of course work from another major, minor, or certificate to the B.A. in comparative literature. All B.A. students must complete the College of Liberal Arts and Sciences General Education Program.

The major offers two tracks: language and literature, and literature and arts. Students work with faculty advisors close to their track to develop coherent, individualized programs of study that reflect their interests and developing skills.

Students share a common set of basic courses in the literatures of widely divergent cultures and historical periods, in translation, and in interaction among the arts. All students are expected to gain an international perspective on literature and the arts, and to become acquainted with interdisciplinary approaches to cultural study.

The successful pursuit of comparative literature requires study of at least one foreign cultural tradition, with appropriate emphasis on language, literature, and the arts in historical context. Familiarity with the literatures and cultures of other nations goes hand-in-hand with theoretical inquiry and reflection on basic issues, such as the nature and value of storytelling in literature and other arts—for instance, film, song, and painting. Translation between languages and among different arts represents another basic center of theory and practice. Individual courses of study may extend into other disciplines, including history, philosophy, linguistics, anthropology, law, and psychology.

In conjunction with an appropriate overall curriculum, the major in comparative literature can offer effective preparation for professional studies in fields such as law and business, or for employment in fields that value critical thinking and international understanding. It also offers excellent preparation for graduate work in the humanities.

The B.A. in comparative literature requires the following course work.

COMMON COURSES

All students take these, for a total of 18 s.h.

048:025 Introduction to Critical Reading and Viewing	3 s.h.
048:040-048:041 Major Texts in World Literature I-II	6 s.h.
048:095 Undergraduate Seminar	3 s.h.
048:100 Introduction to Criticism and Theory	3 s.h.
Comparative literature elective(s) numbered above 048:050	3 s.h.

Tracks

Students take a total of 15 s.h. of work in one track.

FOREIGN LANGUAGE AND LITERATURE TRACK

To complete this track, students take 9 s.h. of courses in one foreign literature, read in the original language. One course in composition and conversation may count toward the major. (Language courses taken to complete the General Education Program may not be included.)

Students take an additional 6 s.h. of course work in cinema and comparative literature or a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or in a second foreign literature.

LITERATURE AND ARTS TRACK

To complete this track, students take 12 s.h. of advanced work (100-level or above) in a single fine arts area. They may count one course in advanced performance, practice, or production toward the major, with consent of the director of undergraduate studies.

One additional 3 s.h. course must focus explicitly on arts and literature in comparative perspective.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A. in Cinema

Note: The major in cinema requires only one course in film, video, and digital production: 048:034 Modes of Film and Video Production. This is the only production course included in the assurances of the Four-Year Graduation Plan. More advanced courses in production may be used to complete the major, but admission to these courses is limited and depends on student achievement in prerequisite production courses.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major (including 048:001, and 048:025 or 048:034) and at least half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major (including 048:001, 048:025, and 048:034), and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Comparative Literature

Note: Because the major in comparative literature may require competency in a language in which the student will take advanced work,

the student may need to acquire this language competency through course work early in the plan. Such course work is not reflected in these checkpoints.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

To graduate with honors in cinema or comparative literature, students must be members of the University Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). They must identify an area that extends beyond regularly offered course work and must complete a project in consultation with one or two faculty members, including the major advisor. Contact the Department of Cinema and Comparative Literature for details.

Minor in Cinema

Students majoring in other disciplines may earn a minor in cinema by completing 15 s.h. of work at The University of Iowa in cinema courses with a g.p.a. of at least 2.00. Of these 15 s.h., at least 12 must be in courses numbered 048:050 and above. Students must choose courses with a primary emphasis in cinema. Contact the Department of Cinema and Comparative Literature for a list of approved courses.

Minor in Comparative Literature

Students majoring in other disciplines may earn a minor in comparative literature by completing 15 s.h. of work at The University of Iowa in comparative literature with a g.p.a. of at least

2.00. Of these 15 s.h., at least 12 must be in courses numbered 048:040 and above. Students must choose courses with a primary emphasis in comparative literature. Contact the Department of Cinema and Comparative Literature for a list of approved courses.

Graduate Programs

The department offers an M.A. in film studies and in comparative literature; an M.F.A. in film and video production and in translation; and a Ph.D. in film studies and in comparative literature.

Master of Arts in Film Studies

The Master of Arts in film studies requires 36 s.h. of graduate-level course work. The focus is on film in an international context, with required distributions of course work in U.S. cinema, European cinema, world cinemas, and film production, documentary film, animation, or experimental film.

Students meet formal degree requirements with course work and a written examination on two areas, which the student selects from one list focusing on film theory and another list focusing on film history. Exams are offered annually in January.

Master of Arts in Comparative Literature

The Master of Arts in comparative literature requires 36 s.h. of graduate-level course work. The focus is on literature in an international context, with concentration on two or more national literatures and on the theory and study of literature in general. In consultation with faculty advisors, students combine courses in comparative literature and allied departments to design a coherent program of study.

Students satisfy formal degree requirements with a written examination on reading lists that they and their advisors agree upon, or with a written thesis and an oral examination on the thesis and its relation to problems and issues in comparative literature. The M.A. also may be awarded upon successful completion of the comprehensive examination for the Ph.D.

Master of Fine Arts in Film and Video Production

The Master of Fine Arts in film and video production requires 54 s.h. of creative and

scholarly graduate-level course work aimed at producing a body of artistic work in film and/or video. A comprehensive exam on an aspect of film and/or video theory in January of the second year, an oral portfolio review, a thesis paper, and a creative thesis project complete the formal degree requirements.

Master of Fine Arts in Translation

The Master of Fine Arts in translation requires 48 s.h. of graduate credit, of which 24 s.h. must be earned at The University of Iowa. The program promotes a specialized form of writing, the study of languages and cultures, and the dissemination of international literatures through a curriculum that combines the creative, linguistic, and critical aspects of translation.

Students develop their skills, knowledge, and critical ability with courses in original-language literary texts, critical theory, and creative writing. Required participation in the Iowa Translation Workshop provides hands-on practice in translation every semester.

Course work includes study of foreign literature(s), creative writing (stylistics, etc.), and criticism. M.F.A. students may expect to take courses in foreign language departments, the creative writing program, and the English department, as well as in comparative literature.

M.F.A. students must complete a thesis—usually a book-length collection of poems or stories, or a short novel—translated out of the original language into English and accompanied by a critical introduction.

Admission to the program is granted on the basis of a submitted portfolio, including translations into English and original writing in English, or a paper on a literary topic, as well as supporting evidence of competence.

Doctor of Philosophy in Film Studies

The Doctor of Philosophy in film studies requires a minimum of 72 s.h. of graduate course work concentrated in film history and film theory. With the consultation and guidance of a faculty committee, students prepare for a qualifying examination in the first or second year, formulate and pursue a plan of study proposing areas to be mastered before the dissertation, present a predissertation exam on these areas, and write a dissertation in the area of advanced research.

Doctor of Philosophy in Comparative Literature

The Doctor of Philosophy in comparative literature requires a minimum of 72 s.h. of graduate credit. Students study at least three literatures, one in historical depth and two others in limited areas of specialization. Students are encouraged to include an interdisciplinary area of concentration. All students devote a portion of their programs to comparative study, bringing the several areas into focus. Specific areas and interrelations of areas are determined by the student in consultation with appropriate faculty members.

The Ph.D. dissertation should demonstrate the candidate's ability to write a substantial piece of scholarship or criticism. Translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may serve as an acceptable dissertation. The final oral exam centers on the dissertation and its background.

Admission

The study of literature across linguistic and geographical borders calls for training in languages. A thorough knowledge of at least one foreign language is required for admission to the M.A. program; knowledge of at least two foreign languages is a prerequisite for Ph.D. study.

For more information, see the procedural guide for graduate students in comparative literature, available from the department.

Institute for Cinema and Culture

The Institute for Cinema and Culture promotes international film culture on the University of Iowa campus by supplementing the curriculum of the Department of Cinema and Comparative Literature with regular film screenings and public events, often in collaboration with other departments and programs. The institute helps departments, faculty, and student groups present films and relevant speakers to an interdisciplinary audience. It is especially dedicated to providing Iowa students and faculty members the opportunity to view and study important films from nations and cultures otherwise underrepresented in course offerings and at local theaters.

Each semester the institute offers 048:112 Proseminar in Cinema and Culture, a course with public screenings devoted to a single

national cinema or a focused topic in world film. It also regularly sponsors a range of campus film festivals and hosts the Cinematheque series, which showcases rare and unusual films each semester.

Iowa Translation Workshop

The Iowa Translation Workshop (048:260) is offered every semester as a required course for M.F.A. students in translation. The workshop is closely coordinated with the International Writing Program, which brings 20 or more writers from other countries to Iowa City each fall semester for 10 weeks of activities on the University of Iowa campus. Students in the fall Iowa Translation Workshop may work closely with one or more writers in translating their works into English. Translators from outside the M.F.A. in translation program also may join the workshop, with the instructor's consent.

Courses

048:001 Introduction to Film Analysis 3 s.h.
Formal analysis of film; narrative cinema and approaches to narrative structure; authorship and genre issues, other major topics.

048:002 Survey of Film 3 s.h.
Film history, theory, criticism; issues of form, technologies, and cultural functions of cinema; screenings of narrative, documentary, experimental films from varied periods and nations. GE: humanities.

048:010 Contemporary Cinema 3 s.h.
Current cinema; key genres, movements, filmmakers, technological changes; recent cultural contexts, industrial and economic factors, changes in the film viewing experience.

048:011 Films and Screenplays 3 s.h.
Films and their origins in original screenplays or adaptations; the screenplay as a distinct form of creative writing. Same as 008:011.

048:012 Film and Society 3 s.h.
Relationships between cinema and society in historical and contemporary contexts; censorship, social issues, cinematic treatment of minorities and social groups.

048:020 U.S. Film 3 s.h.
American film industry; social and artistic perspectives.

048:021 European Film History 3 s.h.
Major works, movements, and recent developments in European cinema; German Expressionism, Soviet montage, Italian Neorealism, French New Wave; social, cultural, political contexts. GE: humanities.

048:022 World Film 3 s.h.
Filmmaking and film culture outside the United States; key works from Asia, Africa, the Middle East, Latin America; social, cultural, political contexts.

048:023 Documentary Film 3 s.h.
Key works and movements in international nonfiction film, from early cinema to present; formal, historical, philosophical issues in documentary practices.

- 048:025 Introduction to Critical Reading and Viewing** 3 s.h.
Critical approaches to literature and audiovisual media (film, video, interactive multimedia); selected texts, scholarly and critical responses to them. Prerequisite: completion of rhetoric requirement.
- 048:029 First-Year Seminar** 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.
- 048:030 Introduction to Film Theory** 3 s.h.
Classical film theory—formalist and realist theories, authorship, genre; contemporary film theory—semiotics, feminism, psychoanalysis, ideological criticism, postmodernism, queer theory.
- 048:034 Modes of Film and Video Production** 4 s.h.
Introduction to nonfiction, fiction, and experimental modes of film and video production; video exercises and nonlinear editing.
- 048:040 Major Texts in World Literature I** 3 s.h.
Reading, analysis of major literary texts from writing's origins to 1600 in the Mediterranean, Asia, Africa; interrelationship of literature, history. Offered fall semesters. GE: humanities. Same as 008:040.
- 048:041 Major Texts of World Literature II** 3 s.h.
Reading and analysis of major literary texts from Neoclassicism to 1900, in chronological sequence; emphasis on interrelationship of literature and history. Offered spring semesters. GE: humanities. Prerequisite: completion of rhetoric requirement. Same as 008:041.
- 048:051 Film Criticism** 3 s.h.
Evaluation and analysis of film, from journalistic reviews to academic scholarship; principles and theoretical positions.
- 048:052 Gender and Film** 3 s.h.
Representations of femininity, masculinity, sexual identity, how they relate to society, culture; examples from feminist, psychoanalytic, queer theory.
- 048:053 Introduction to Film Sound** 3 s.h.
Sound as an acoustic, technological, aesthetic, and historical issue; functions of voice, music, sound effects.
- 048:064 Film/Video Production: Alternative Forms** 3 s.h.
Hands-on workshops in Super-8 film, cameraless filmmaking, activist video, or similar content. Prerequisites: 048:034 and consent of instructor.
- 048:065 Film Production: Material of 16mm Film** 3 s.h.
Basic 16mm motion picture camera, editing, and sound techniques; individual and group exercises. Prerequisite: 048:034.
- 048:066 Video Production: Nonfiction** 3 s.h.
Single-camera shooting on location, with emphasis on editing; group exercises oriented to nonfiction forms. Prerequisite: 048:034.
- 048:067 Screenwriting: Long Form** 3 s.h.
Visualization, sequencing, dialog; preparation of treatment, screenplay for fiction film; script problems. Prerequisite: 048:034.
- 048:068 Video Production: Fiction** 3 s.h.
Development of fiction video making technique through group projects in the studio and on location, and nonlinear editing. Prerequisite: 048:034.
- 048:070 Styles and Genres** 3 s.h.
Major film types (musicals, science fiction, westerns, film noir) and their cultural significance.
- 048:071 Film Authors** 3 s.h.
A major director or comparison of directors; director's role in industrial and collaborative contexts, relations between biography and criticism, function of individual styles.
- 048:079 Undergraduate Translation Workshop** 3 s.h.
Translation exercises, discussion of translation works in progress; alternative strategies for translation projects. Prerequisite: working knowledge of a language other than English. Same as 08W:079.
- 048:081 Film and Literature** 3 s.h.
Relationships among films, novels, plays, adaptations; shared and distinct formal elements of cinematic and literary texts, their cultural functions. Same as 008:081.
- 048:091 Internship** arr.
Opportunity to apply skills; faculty supervision, on or off campus. Prerequisites: cinema and comparative literature major and consent of instructor.
- 048:095 Undergraduate Seminar** 3 s.h.
Focus on a significant text or critical problem. Prerequisites: junior or senior standing and cinema and comparative literature major, or consent of instructor.
- 048:098 Honors Tutorial** arr.
- 048:099 Individual Study** arr.
- 048:100 Introduction to Criticism and Theory** 3 s.h.
Critical approaches to the phenomenon of literature. Prerequisite: junior standing.
- 048:103 Topics in Contemporary Film** 3 s.h.
Specific issues or periods in contemporary film.
- 048:104 Topics in European Film** 3 s.h.
Specific issues or periods in European film.
- 048:105 French Cinema** 3 s.h.
Issues or periods in French cinema. GE: foreign civilization and culture. Same as 009:147.
- 048:106 Topics in Asian Cinema** 3 s.h.
Issues or topics in East or South Asian cinemas. Same as 008:127, 039:145.
- 048:107 Russian Literature in Translation 1860-1917** 3 s.h.
GE: humanities. Same as 041:102.
- 048:108 History of Documentary Film** 3 s.h.
A period, type, or concern of nonfiction filmmaking. Prerequisite: 048:001.
- 048:109 European Literature of the Nineteenth Century** 3 s.h.
International and national perspectives on literary movements, works, authors before 1900. Same as 008:131.
- 048:110 Comparative Arts** 3 s.h.
Cultural and aesthetic issues arising from side-by-side investigation of several art forms, including literature, cinema, painting, music, opera, architecture; periods, schools, styles, and their theories. Same as 033:110.
- 048:112 Proseminar in Cinema and Culture** 1-2 s.h.
A national cinema or topic in international film.
- 048:113 Film and Video Production: Drama** 3 s.h.
Individual and group dramatic video projects; location and studio shooting, nonlinear editing. Prerequisite: 048:065 or 048:066.
- 048:115 Literary Genres in European Literature II** 3 s.h.
Same as 008:126, 041:115.
- 048:118 Topics in World Cinemas** 3 s.h.
Issues in international film history and film theory.

- 048:119 Topics in Film Sound** 3 s.h.
Issues in history and theory of film sound.
- 048:120 Issues in Film Theory** 3 s.h.
Key theorists, approaches, topics in film theory.
- 048:121 Film and Video Production: Selected Topics** 3 s.h.
Student productions focusing on a particular genre, issue, or process; 16mm, video, or audio, such as experimental film or video, collaborative projects, nonfiction, narrative, and so forth. Prerequisite: 048:065 or 048:066.
- 048:123 Film and Video Production: Image Design** 3 s.h.
Strategies, techniques, and technologies used in moving image production; emphasis on generic lighting practices, composition; short projects using film, videotape. Prerequisite: 048:065 or 048:066.
- 048:124 Film Production: Advanced 16mm Film** 4 s.h.
Processes and approaches to the short film; student production of a seven-minute, sync-sound, mixed, and printed 16mm film. Prerequisites: 048:065, and 048:066 or 048:067.
- 048:125 Screenwriting: Short Form** 3 s.h.
Exercises and projects in writing, developing, and workshopping screenplays for short film or video; budgeting, location scouting, other preproduction activities. Prerequisite: 048:065 or 048:066.
- 048:126 Cult Films of the Last Soviet Generation** 3 s.h.
Favorite films of pre-Perestroika generations; the "period of stagnation" in post-Perestroika textbooks. Same as 041:126.
- 048:127 Topics in British and Irish Film** 3 s.h.
Issues in history and critical analysis of British and/or Irish cinemas. Same as 008:124.
- 048:128 Racial Narrative and American Performance** 3 s.h.
Same as 010:128, 129:128.
- 048:130 Digital Production: Animation** 3 s.h.
Intermediate 3-D modeling, motion graphics; student projects culminating in CDR or video presentation. Prerequisite: 048:034.
- 048:131 Film/Video/Audio Production: Sound Design** 3 s.h.
Concepts and techniques in sound design for film and video; exercises, projects in sound/image relationships using location recording equipment and digital audio workstation for editing, mixing. Prerequisite: 048:065 or 048:066.
- 048:132 Video Production: Advanced Video** 3 s.h.
Independent short video projects to enhance conceptualization, fiction and nonfiction storytelling skills, camera and editing techniques. Prerequisite: 048:066 or 048:068.
- 048:134 Theory and Practice of Film/Video Production** 1-3 s.h.
Focus on a type of film (documentary, animation, experimental) or an issue in film theory (sound, narrative structure, point of view); application of theoretical issues; individual productions. Prerequisite: consent of instructor.
- 048:135 Issues in Film and Video Production** 1-4 s.h.
Nonlinear editing techniques using Avid, Final Cut Pro, or Media 100 nonlinear editors; student projects in shooting and editing. Prerequisite: 048:066.
- 048:141 Chinese Literature: Poetry** 3 s.h.
Same as 039:141.
- 048:142 Modern Japanese Fiction in Translation** 3 s.h.
Same as 39J:142.
- 048:143 Traditional Japanese Literature in Translation** 3 s.h.
Same as 39J:141.
- 048:144 The Tale of Genji** 3 s.h.
Same as 39J:145.
- 048:145 Latin America Cinema** 3 s.h.
Political, historical, aesthetic, and cultural issues in key films from Latin American national cinemas. Recommended: knowledge of Spanish. Same as 035:145.
- 048:147 Warriors Dream** 3 s.h.
Same as 39J:146.
- 048:150 Media Production Workshop** 1-4 s.h.
Individual film, video, interactive, or screenwriting project; common problems, screenings of work in progress, criticism. Prerequisite: 048:124 or 048:132.
- 048:151 Literature and Anthropology** 3 s.h.
Same as 008:151, 113:109.
- 048:152 America in Other Words** 1-3 s.h.
Same as 181:152.
- 048:153 Latin American Studies Seminar** 3 s.h.
Interdisciplinary approach. Recommended: Spanish or Portuguese sufficient for background readings. Same as 035:176, 038:176, 113:132, 130:176.
- 048:154 Twentieth-Century Czech Authors** 3 s.h.
Same as 041:168.
- 048:155 Narrative Modes** 3 s.h.
History or theory of narration modes in media.
- 048:156 Invitation to Nabokov** 3 s.h.
Nabokov's works and his writings on Russian literature. Same as 008:156, 041:156.
- 048:158 East-West Literary Relations** 3 s.h.
Same as 039:158.
- 048:159 African Literature Today** 3 s.h.
Contemporary written and oral African literary texts, literary theories relevant to study of African literatures. Same as 008:159, 187:159.
- 048:164 Topics in Russian, East European, and Eurasian Studies** arr.
Same as 041:164.
- 048:166 Topics in Literature and Theory** 3 s.h.
- 048:167 Gender and Sexuality in French Cinema** 3 s.h.
Cultural and historical approach to representation of gender identity and sexual codes in French cinema from 1920s to present. Prerequisite: 009:111 or 048:001 or 048:002 or 131:010 or consent of instructor. Same as 009:148, 131:167.
- 048:168 Post-Colonial Literature in France** 3 s.h.
Same as 009:168.
- 048:171 Film Authors** 3 s.h.
A major director or comparison of directors; theoretical approaches to study of film authorship.
- 048:172 Narrative and the Cinema** 3 s.h.
Narrative theory applied to cinema; comparison to related works in other media. Same as 008:172.
- 048:173 Styles and Genres** 3 s.h.
Film types, their cultural significance.
- 048:174 Topics in Film and Popular Culture** 3 s.h.
Same as 008:171.
- 048:175 Topics in Film and Literature** 3 s.h.
Same as 008:175.

048:176 Modes of Translation Studies	3 s.h.	048:205 International Translation Workshop	1-3 s.h.
Surveys of the vast and growing number of approaches to translation studies; rhetorical, theoretical, practical, artistic, commercial, intermedial issues. Same as 160:176.		Same as 181:205.	
048:177 Literature and Art	3 s.h.	048:211 Comparative Stylistics	3 s.h.
Same as 008:177.		Same as 009:210.	
048:178 Topics in Latin American Cinema	3 s.h.	048:217 Introduction to Contemporary Literary Theory	3 s.h.
Same as 035:191.		How major theories construct literary text; structuralist, semiotic, psychoanalytic, Marxist, reader response, Derridian criticism. Same as 035:281.	
048:179 Literature and Society	3 s.h.	048:223 Romantic Literature	3 s.h.
Same as 008:179.		Same as 008:223.	
048:180 Literature and Translation	3 s.h.	048:230 Crossing Borders Seminar: Introductory	3-4 s.h.
Translation in the broadest sense; originality, authority, authorship, accuracy, ownership, audience; issues problematizing differences between medium and message. Same as 041:180, 160:180.		Same as 01H:230, 008:230, 013:264, 016:293, 030:241, 035:272, 044:285, 113:230.	
048:181 Translation Workshop	arr.	048:234 Readings in South Asian Literature	3 s.h.
Practical work in translation; coordinated with International Writing Program. Offered fall semesters. Prerequisite: at least one foreign language or consent of instructor. Same as 039:181.		Same as 008:234.	
048:182 Asian-American Literature	3 s.h.	048:239 Queer Theory	3 s.h.
Immigration history, ethnic identities, contemporary American culture as represented in literary texts and films by Asian Americans. Same as 039:182.		Same as 008:239, 035:239.	
048:186 Special Topics in Literature and History	3 s.h.	048:240 Topics in Culture and Politics	3 s.h.
Topics at the intersection of literature, society, history, and ethics; readings vary.		Comparatist and interdisciplinary approaches to current theoretical debates regarding culture and politics. Repeatable. Same as 035:240.	
048:190 Chicano Cinema	3 s.h.	048:244 Crossing Borders Proseminar	1 s.h.
Same as 035:190.		Same as 01H:330, 013:260, 016:244, 030:243, 035:271, 044:287, 113:248.	
048:191 Early Modern Culture	3 s.h.	048:247 Crossing Borders Seminar	2-3 s.h.
Same as 009:191.		Repeatable. Same as 01H:247, 008:231, 013:262, 016:247, 030:242, 035:273, 044:286, 113:247, 129:231.	
048:192 East Meets West: A Cross-Cultural Course	3 s.h.	048:250 Writing about Cinema	1-3 s.h.
Perceptions in the modern period based on analyses of films, literary and philosophical texts from East and West. Same as 039:192.		Directed research, writing, revision of graduate work in film studies.	
048:193 Asian Literature Today	3 s.h.	048:259 Issues in Translation	3 s.h.
Same as 039:193.		Contemporary and historical theories.	
048:194 Introduction to Feminist Criticism	3 s.h.	048:260 Translation Workshop	1-3 s.h.
Same as 008:194, 131:194.		Prerequisites: at least one foreign language and consent of instructor. Same as 08W:260, 181:260.	
048:195 Selected Authors	3 s.h.	048:262 History of Criticism: 1700-Present	3 s.h.
Writings by one or more authors; close readings, literary theory.		Theory of literature from neoclassicism to contemporary critical movements. Same as 008:262, 049:262.	
048:196 Cuban American Literature and Culture	3 s.h.	048:270 Seminar Issues in the History of Translation	3 s.h.
Experiences of Cuban exiles in the United States, emergence of a literature based on dispossession, marginality, memory of island past. GE: cultural diversity. Prerequisite: 08G:001 or equivalent. Same as 035:143.		Selected readings, current debate on translation's history and theory. Same as 08W:265.	
048:197 Techniques of Translation	3 s.h.	048:273 Advanced Film Theory	3 s.h.
Same as 009:197.		A major figure, issue, or approach in film theory.	
048:199 Individual Study	arr.	048:275 Advanced Film History	3 s.h.
Prerequisite: advanced B.A. candidates with international and comparative literary projects, or M.A. candidates in comparative literature.		A major period or topic in film history; issues in film historiography, research.	
048:200 Advanced Film/Video Production Workshop	1-4 s.h.	048:276 Narrative Modes	3 s.h.
Individual film, video, interactive, or screenwriting project; common problems, screenings of work in progress, criticism. Prerequisites: graduate standing, and 048:124 or 048:132.		History or theory of narration modes in varied media.	
048:204 Reading Across the Arts	3 s.h.	048:277 Studies in Sound and Image	3 s.h.
Contemporary arts and critical theory, with focus on how written texts interpret works in other media; varied approaches to art works and theory of reading.		Theoretical and historical approaches to film sound, technology, style.	
		048:284 Types of Modern Criticism	3 s.h.
		Selected topics in recent European and American criticism. Same as 008:284, 035:284.	
		048:291 Translation Internship	arr.

048:300 American Film and American Culture 3 s.h.

Key issues, periods, genres, or figures in American cinema; historical and cultural contexts. Repeatable. Same as 045:300.

048:304 Special Topics in Asian Cinema 3 s.h.

Key issues, movements, periods, or figures in East or South Asian cinema. Repeatable. Same as 039:304.

048:305 Special Topics in European Film 3 s.h.

Key issues, movements, periods, or figures in European film. Repeatable.

048:402 Seminar: Medieval Literature and Culture arr.

Repeatable. Same as 008:402.

048:407 Seminar: Renaissance Literature arr.

Same as 008:407.

048:409 Special Projects arr.

For doctoral candidates.

048:410 Thesis arr.

048:441 Seminar in Chinese Literature arr.

Same as 039:241.

048:455 Seminar Post-Colonial Studies arr.

Same as 008:455.

048:460 Seminar: Problems in Aesthetics and Literary Theory arr.

Same as 008:460.

048:461 Seminar: Problems in Critical Theory arr.

048:615 Seminar: Film Theory 3 s.h.

A major figure, issue, or approach in film theory. Repeatable.

048:616 Seminar: Film History 3 s.h.

A major period or topic in film history; issues in film historiography, research. Repeatable.

048:640 Colloquium in Film and Video Production 1-3 s.h.

Production and theory, with focus on varied theoretical issues; readings, projects. Prerequisite: consent of instructor.

Classics

Chair: John F. Finamore

Professors: Helena Dettmer, John F. Finamore, Carin M. Green

Professors emeriti: Erling B. Holtmark, Roger A. Hornsby, Donald F. Jackson

Adjunct professor: Peter Green

Associate professors: Mary J. Depew, Craig Gibson, Robert C. Ketterer, Glenn R. Storey

Assistant professors: Rosemary Moore, Jessica Wissmann

Adjunct assistant professor: Marcia Lindgren

Undergraduate degrees: B.A. in Ancient Civilization, Classical Languages

Undergraduate nondegree programs: Minors in Ancient Civilization, Classical Languages, Greek, Latin; Postbaccalaureate Certificate in Classics

Graduate degrees: M.A. in Classics, Greek, Latin; Ph.D. in Classics

Web site: <http://www.uiowa.edu/~classics>

Classics is the study of ancient languages, literatures, and cultures of the Mediterranean basin from approximately 2000 B.C.E. to 600 C.E. It embraces three civilizations—the Minoan-Mycenaean, Greek, and Roman; two languages—Greek and Latin; and a geographical area including Europe, North Africa, Egypt, and the Near East. The Department of Classics provides a basis for understanding and interpreting the contribution of the ancient world to life in the present and the future.

Undergraduate Programs

The department offers the Bachelor of Arts in ancient civilization and in classical languages (Greek and/or Latin). Both majors provide a solid foundation for graduate study in classics, European literature, law, history, art, philosophy, and religion. Graduates have become secondary school and university teachers, lawyers, doctors, librarians, museum curators, and bankers.

Bachelor of Arts in Classical Languages

The majors in classics, Greek, and Latin were discontinued effective fall 2005. Students who entered one of the discontinued majors before the first day of fall semester 2005 may choose to complete that major, but they must complete all

requirements and graduate by August 2009. Beginning the first day of fall semester 2005, students may declare a major in classical languages or in ancient civilization; they must complete the requirements described below.

The Bachelor of Arts in classical languages trains students to read the ancient Greek and/or Latin languages and acquaints them with the major works of Greek and/or Roman literature. Students learn about the history of ancient Greece of the eighth through the fourth centuries B.C.E., where most of the modern Western notions of political, artistic, and social life are rooted. They also develop an understanding of the Roman Republic and Empire, when Rome established its hegemony over the Mediterranean basin, laid the foundation of law for the Western World, and spread Greece's culture to the West.

The B.A. in classical languages requires a minimum of 36 s.h. in the major. Transfer credit is evaluated on an individual basis. The following course work is required.

Intermediate or advanced Greek and/or Latin courses (20G:011-20G:199, 20L:011-20L:199)	18 s.h.
Greek or Latin prose composition (20G:176 or 20L:171)	3 s.h.
Additional Department of Classics courses at any level, with no more than 9 s.h. in 20E courses	15 s.h.

The advanced undergraduate Greek courses 20G:120-20G:121 Archaic and Classical Periods I-II and 20G:122-20G:123 Classical and Hellenistic Periods I-II are offered every other year and may be repeated or taken in any sequence. They cover a broad range of prose and poetry in historical context.

The advanced undergraduate Latin courses 20L:120-20L:121 Latin Literature of the Republic I-II and 20L:122-20L:123 Latin Literature of the Empire I-II are offered every other year and may be repeated or taken in any sequence. They cover a range of Latin prose and poetry in historical context from the mid-Republic to the third century C.E.

To comply with the Board of Regents, State of Iowa policy on student outcomes assessment, the Department of Classics has established a method to assess the achievement level of B.A. students completing one of the department's majors.

Every student maintains a portfolio that details his or her progress in attaining the objectives of the major. The student submits the portfolio to the undergraduate advisor by midterm of the semester in which the student intends to graduate. Formal approval of the portfolio is required for graduation. Consult the undergraduate advisor for details.

Teacher Licensure in Latin

For information about Teacher Education Programs and licensure, contact the Office of Teacher Education and Student Services in the College of Education or see Education in the Catalog.

Bachelor of Arts in Ancient Civilization

The Bachelor of Arts in ancient civilization is sponsored by the Departments of Classics, History, and Religious Studies and the School of Art and Art History. It concentrates on the ancient civilization of the Mediterranean world, draws on courses offered by various University departments, and allows students to create individual programs. Although the major is not preparation for graduate study in classics, it provides a sound basis for preparing teachers at the secondary school and junior college levels. It also provides a sound liberal arts and sciences basis for preprofessional training in law, medicine, and other professions.

The B.A. in ancient civilization requires a minimum of 30 s.h. in the major. The following course work is required.

Ancient art	6 s.h.
Ancient history	6 s.h.
Ancient philosophy or religion	6 s.h.
Classics, may be 20E courses or Latin or Greek language courses	9 s.h.
Appropriate courses in art, history, philosophy, religion, or linguistics	3 s.h.

At least 15 of the 30 s.h. must be advanced (20E courses at the 100 level, and Latin and Greek language courses numbered 20G:011 and 20G:012, or 20L:011 and 20L:012, or above). Transfer credit is evaluated on an individual basis.

To comply with the Board of Regents, State of Iowa policy on student outcomes assessment, the Department of Classics has established a method to assess the achievement level of B.A. students completing one of the department's majors. Every student maintains a portfolio that details

his or her progress in attaining the objectives of the major. The student submits the portfolio to the undergraduate advisor by midterm of the semester in which the student intends to graduate. Formal approval of the portfolio is required for graduation. Consult the undergraduate advisor for details.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A. in Ancient Civilization

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Classical Languages: Greek and Latin

Before the third semester begins: Elementary Latin I-II or Elementary Greek I-II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: Second-Year Latin I-II and Elementary Greek I-II, or Second-Year Greek I-II and Elementary Latin I-II, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: sixth semester of Latin and fourth semester of Greek, or sixth semester of Greek and fourth semester of Latin, two more courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: one semester of composition in either Greek or Latin (may be completed during the eighth semester) and two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Classical Languages: Greek Only

Before the third semester begins: Elementary Greek I-II and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: Second-Year Greek I-II and at least one-half of the semester hours required for graduation

Before the seventh semester begins: three or four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Classical Languages: Latin Only

Before the third semester begins: Elementary Latin I-II and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: Second-Year Latin I-II and at least one-half of the semester hours required for graduation

Before the seventh semester begins: three or four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Membership in the University Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact

the University Honors Program for more information). Classics seniors who are members of the University Honors Program and who have attained a g.p.a. of at least 3.50 in their first three years of classics courses may graduate with honors in classical languages or ancient civilization by completing two courses in honors reading, one each semester of the senior year, for 3 s.h. of credit each. The readings and discussions are on an ancient author or a field in ancient history or literature chosen by students and the instructor. During the first semester, students present an essay every other week; at the end of the second semester, they present a long paper, which is read and judged for honors by two members of the department. Students who write an honors thesis in classical languages must be enrolled at the same time in the appropriate advanced language courses.

Minors

The department offers minors in Greek, Latin, classical languages, and ancient civilization. A minor in classical languages requires a minimum of 18 s.h. in classics courses; minors in Latin, Greek, and ancient civilization require a minimum of 15 s.h. in classics courses; at least 12 s.h. must be earned in advanced courses. All minors require a g.p.a. of at least 2.00.

Students may count one relevant advanced 20E course toward any classics minor. Only 3 s.h. of lower-level transfer course work may be counted toward a minor. Students earning a major in classical languages or ancient civilization, or a minor in classical languages, Greek, Latin, or ancient civilization may count toward the minor no more than 6 s.h. of course work used to satisfy requirements for another major, minor, or certificate, including majors and minors in the Department of Classics.

All upper-level course work must be in University of Iowa courses. For a list of relevant courses, contact the undergraduate advisor. Students who enter with high school Latin or Greek should consult the advisor for an appropriate course schedule.

CLASSICAL LANGUAGES

The minor in classical languages requires a minimum of 18 s.h. Students must complete the sequences 20G:011-20G:012 Second-Year Greek I-II and 20L:011-20L:012 Second-Year Latin I-II, and an additional 6 s.h. of upper-level Department of Classics courses. At least one course must be in Latin or Greek language.

Students earning a major in classical languages or ancient civilization or a minor in classical languages, Greek, Latin, or ancient civilization may count toward the minor no more than 6 s.h. of course work used to satisfy requirements for another major, minor, or certificate, including majors and minors in the Department of Classics.

GREEK

The minor in Greek requires a minimum of 15 s.h.; at least 12 s.h. must be earned in advanced courses. The sequence 20G:011-20G:012 Second-Year Greek I-II is considered advanced for the minor, as are all courses numbered 100 and above. A minor may be fulfilled by completion of the intermediate level plus two 100-level courses, one of which may be a relevant course in Greek history, culture, or literature offered by the Department of Classics and taught in English.

Students earning a major in classical languages or ancient civilization, or a minor in classical languages, Greek, Latin, or ancient civilization may count toward the minor no more than 6 s.h. of course work used to satisfy requirements for another major, minor, or certificate, including majors and minors in the Department of Classics.

LATIN

The minor in Latin requires a minimum of 15 s.h.; at least 12 s.h. must be earned in advanced courses. The sequence 20L:011-20L:012 Second-Year Latin I-II is considered advanced for the minor, as are all courses numbered 100 and above. A minor may be fulfilled by completion of the intermediate level plus two 100-level courses, one of which may be a relevant course in Roman history, culture, or literature offered by the Department of Classics and taught in English.

Students earning a major in classical languages or ancient civilization, or a minor in classical languages, Greek, Latin, or ancient civilization may count toward the minor no more than 6 s.h. of course work used to satisfy requirements for another major, minor, or certificate, including majors and minors in the Department of Classics.

ANCIENT CIVILIZATION

The minor in ancient civilization requires a minimum of 15 s.h.; at least 12 s.h. must be earned in advanced courses. All courses in Greek numbered 20G:011 or above and all courses in Latin numbered 20L:011 or above are considered advanced for the minor. Appropriate courses in art, religion, history, and philosophy, as approved by the undergraduate advisor, also may be counted toward a minor in ancient civilization.

Students earning a major in classical languages or ancient civilization, or a minor in classical languages, Greek, Latin, or ancient civilization may count toward the minor no more than 6 s.h. of course work used to satisfy requirements for another major, minor, or certificate, including majors and minors in the Department of Classics.

Postbaccalaureate Certificate in Classics

The Postbaccalaureate Certificate in Classics is designed for students who have a baccalaureate and wish further study in Greek and Latin in order to be competitive for admission to a graduate program in classics. Entry to most such programs requires study of both Latin and Greek, preferably three years in one language and two years in the other.

The certificate is designed to be completed in two semesters by students who enter with two years of Latin and one to two years of Greek, or vice versa. It requires 18 s.h. in Department of Classics courses numbered 100 or above (upper-level and graduate courses), including at least 12 s.h. in Greek and Latin language courses. The remaining 6 s.h. may be taken in approved advanced 20E courses. Transfer credit is not accepted toward the certificate. Students must maintain a g.p.a. of at least 3.00 to remain in good standing and complete the program.

A typical plan of study for a student who enters the program with two years of Latin and one year of Greek is as follows.

Fall semester:
 20G:011 Second-Year Greek I 3 s.h.
 20L:120 Latin Literature of the Republic I 3 s.h.
 20L:171 Elementary Latin Composition 3 s.h.

Spring semester:
 20G:012 Second-Year Greek II 3 s.h.
 20L:121 Latin Literature of the Republic II 3 s.h.
 Postbaccalaureate reading course 3 s.h.

A typical plan of study for a student who enters the program with two years of Latin and two years of Greek is as follows.

Fall semester:
 20G:120 Archaic and Classical Periods I 3 s.h.
 20L:120 Latin Literature of the Republic I 3 s.h.
 20L:171 Elementary Latin Composition 3 s.h.

Spring semester:
 20G:121 Archaic and Classical Periods II 3 s.h.
 20L:121 Latin Literature of the Republic II 3 s.h.
 Postbaccalaureate reading course 3 s.h.

Students who complete the program successfully receive a certificate from the College of Liberal Arts and Sciences and a letter from the Department of Classics.

Admission

Applicants must have a baccalaureate degree from an accredited college or university and a minimum of two years of language study (two years of Latin or two years of Greek, or one year of each). In unusual circumstances, students with less language preparation may be admitted.

Applicants who are not enrolled in a graduate or professional program may apply to The University of Iowa as nondegree students; they also must apply separately to the College of Liberal Arts and Sciences for admission to the classics postbaccalaureate certificate program. They must submit transcripts confirming preparation for certificate language study, a statement of purpose, and three letters of recommendation from faculty members at their baccalaureate institution.

Language for Nonmajors

Nonmajors who wish to study Greek or Latin and who have background in either language should take either the Greek Foreign Language Placement Test or the Latin Foreign Language Placement Test, offered during summer orientation programs and monthly by Evaluation and Examination Service. The tests help determine the level at which a student should begin Greek or Latin language study at The University of Iowa.

Students who want to complete the College of Liberal Arts and Sciences General Education Program foreign language component by studying Greek should take 20G:001-20G:002 Elementary Greek I-II and 20G:011-20G:012 Second-Year Greek I-II. Students who want to complete the component by studying Latin may choose 20L:001-20L:002 Elementary Latin I-II (20L:001 is prerequisite for 20L:002) and 20L:011-20L:012 Second-Year Latin I-II (20L:011 is prerequisite for 20L:012). Both courses must be taken to complete the General Education Program foreign language component.

Graduate Programs

The department offers the Master of Arts in classics, Greek, and Latin; and the Doctor of Philosophy in classics.

Applicants must meet the admission requirements of the Graduate College; see the

Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Master of Arts

The M.A. in classics, Greek, or Latin requires a minimum of 30 s.h. in courses numbered 101 and above. Students may count no more than 12 s.h. earned in courses numbered 101-199 toward the degree. Courses taken to compete the Postbaccalaureate Certificate in Classics may not be counted toward the degree.

Students must pass a sight examination in the language(s) studied and an examination on literature and history.

Doctor of Philosophy

The Ph.D. in classics requires a minimum of 72 s.h. of course work, including the courses listed below (27 s.h.). Students may count no more than 12 s.h. earned in courses numbered 101-199 toward the degree. Courses taken to complete the Postbaccalaureate Certificate in Classics may not be counted toward the degree.

Students also must take precomprehensive and comprehensive examinations and write a dissertation.

REQUIRED COURSES

20G:176 Greek Composition (or equivalent)	3 s.h.
20G:204 Archaic Greek Literature	3 s.h.
20G:205 Classical and Hellenistic Literature	3 s.h.
20L:204 Republican Literature	3 s.h.
20L:205 Imperial Literature	3 s.h.
20L:272 Advanced Latin Composition (or equivalent)	3 s.h.
Two graduate-level courses in cognate subjects such as anthropology, art history, linguistics, philosophy, or rhetoric	6 s.h.
Other interdisciplinary courses (with approval of the graduate advisor)	

The remaining course work is made up of Department of Classics and other courses.

PH.D. EXAMINATIONS

Ph.D. students must take precomprehensive exams in Latin sight reading and Greek sight reading and must attempt one sight reading exam by the end of their first year of graduate study.

Competence in reading both German and French must be demonstrated by the close of the second year of study.

Students must file a request for the comprehensive exam at least three weeks before the date of the exam. They must take the second-year exam at the end of their second year. The remaining exams may be taken in any sequence.

Sight exam in Latin: four hours, written

Sight exam in Greek: four hours, written

Second-year exam on literature and history: four hours, written

Latin literature based on reading list: three hours, written and one hour oral

Greek literature based on reading list: three hours, written and one hour oral

Greek and Roman history based on reading list: three hours, written

Special field or author (Greek): four hours, written

Special field or author (Latin): four hours, written

Facilities

The University's Main Library and the Art Library house extensive collections of classical texts and uninterrupted runs of classical periodicals from 1850 that facilitate research in the major areas of Greek and Roman civilization. The Department of Classics has a varied collection of slides on classical subjects and a small library. The department's classical museum contains a small collection of coins, vases, and facsimiles in bronze from Mycenae, Pompeii, and Herculaneum.

The University is a supporting institution of the American School of Classical Studies at Athens and the American Academy in Rome, thereby making those facilities available to its faculty and students. Students in residence are encouraged to participate in summer programs at both institutions.

The department offers students the opportunity to participate in an archaeological dig during the summer. Contact the Department of Classics in mid-February for details.

Courses

Classics in English for Undergraduates

All readings for these courses are in English except Sanskrit courses 20E:110, 20E:111, 20E:121, and 20E:122; no previous knowledge of Greek or Latin is necessary.

20E:009 Classics and Cinema 3 s.h.

Cinematic depictions of the classical world compared with scholarly views; selected films and primary ancient sources of the same period.

20E:014 Hero, God, Mortal: Literature of Greece 3 s.h.

Ancient Greek literature and culture as it responded to Homer; may include genre (e.g., epic to tragedy), religion, changing concept of hero, interaction with Mediterranean cultures, myth versus history. GE: foreign civilization and culture or humanities.

20E:015 Love and Glory: Literature of Rome 3 s.h.

Main themes and works of ancient Roman literature; works reflecting conflict of personal desire and public self in Rome. GE: foreign civilization and culture or humanities.

20E:026 Introduction to Ancient Art 3 s.h.

Art and architecture of Mediterranean civilization from Minoan times to the age of Constantine. Prerequisite: consent of instructor. Same as 01H:026.

20E:029 First-Year Seminar 2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

20E:030 Greek Civilization 3 s.h.

History, literature, art, architecture, religion, social life ca. 3000 B.C.E. to second century B.C.E. GE: historical perspectives.

20E:031 Roman Civilization 3 s.h.

History, literature, politics, religion, social structure from eighth century B.C.E. to second century C.E. GE: historical perspectives.

20E:050 Word Power: Building English Vocabulary 3 s.h.

Analysis of unfamiliar English words through knowledge of the history and meaning of word parts. Prerequisite: one semester of rhetoric. Same as 08N:050.

20E:071 The Middle East and Mediterranean

Alexander to Suleiman

3 s.h.
GE: foreign civilization and culture. Same as 016:045, 032:061.

20E:075 Ancient Sports and Leisure 3 s.h.

Sports, games, and hobbies in the ancient world, primarily Greece and Rome, 1500 B.C.E. to 500 C.E.; ancient Olympic games, Roman festival games; anthropology of sport.

20E:090 Education in Classical Antiquity 3 s.h.

Education in the Greek and Roman worlds from Homer into late antiquity.

Classics in English for Undergraduate and Graduate Students

All of these, except the Sanskrit courses, are taught in English.

20E:101 Ancient Egypt and the Ancient Near East 3 s.h.
Same as 16E:101.

20E:103 Medical and Technical Terminology 2 s.h.
Memorization of word stems and basic medical terms, practice on computer terminal; no formal classes.

20E:105 Women in the Ancient World 3 s.h.
Same as 16E:105.

20E:106 Warfare in Ancient Mediterranean Society 3 s.h.
Same as 16E:106.

20E:108 Greek Drama in Translation 3 s.h.
Tragedies of Aeschylus, Sophocles, and Euripides and comedies of Aristophanes in their dramatic, historical, and social contexts; ancient and modern production techniques, film adaptations and stage productions. GE: humanities. Same as 049:180.

20E:109 Women in Antiquity 3 s.h.
Attitudes toward women and the role of women in ancient Greek and Roman society; ancient authors, male and female, and modern critics. Same as 131:109.

20E:110 First-Year Sanskrit: First Semester 4 s.h.
GE: foreign language. Same as 039:110.

20E:111 First-Year Sanskrit: Second Semester 4 s.h.
GE: foreign language. Same as 039:111.

20E:112 Classical Mythology 3 s.h.
Ancient Greek and Roman myths, their interpretation by Western civilization; emphasis on flexibility of myth and its importance for art, literature, anthropological, psychological studies. GE: humanities. Same as 008:125.

20E:115 Greek Religion and Society 3 s.h.
From Bronze Age to the Hellenistic period, in context of Mediterranean culture; evidence such as choral hymn, inscribed prayers, magical curses inscribed on lead, architecture, sculpted offerings to the gods. GE: humanities. Same as 032:164.

20E:116 Roman Religion and Society 3 s.h.
Religious beliefs, practices and writings of Romans from eighth century B.C.E. to second century C.E. GE: humanities. Same as 032:118.

20E:117 Concepts of the City: Rome 3 s.h.
Physical and cultural development of the city of Rome from early republic to emperor Constantine and rise of Christianity in fourth century C.E.

20E:118 Greek Archaeology and Ethnohistory 3 s.h.
Archaeology and ethnology of the Greek World, from the end of the Bronze Age to the late Roman Empire; sociocultural processes that influence development and persistence of Greek civilization. Prerequisite: introductory archaeology course or consent of instructor. Same as 113:192.

20E:119 Roman Archaeology 3 s.h.
Archaeology, ethnology of Roman Civilization from Iron Age eighth-century occupation of Palatine Hill to end of Roman empire in the West, C.E. 476. Same as 113:194.

20E:120 Concepts of the City: Athens 3 s.h.
Athens from Bronze Age to present; city's role in development of political democracy and religion.

20E:121 Second-Year Sanskrit: First Semester 3 s.h.
GE: foreign language. Same as 039:112.

20E:122 Second-Year Sanskrit: Second Semester 3 s.h.
GE: foreign language. Same as 039:113.

20E:123 Early Greek Art 3 s.h.
Architecture, sculpture, painting, minor arts from Mycenaean to Hellenistic times. Same as 01H:126.

20E:124 Classical Greek Art 3 s.h.
Continuation of 20E:123. Same as 01H:127.

20E:125 Greek Vase Painting 3 s.h.
Geometric and figure vases from ancient Greece, Asia Minor, and Italy. Same as 01H:128.

20E:126 Hellenistic Art 3 s.h.
Art, religion, culture of the Greeks, Romans, Egyptians 330-30 B.C.E. Same as 01H:129.

20E:128 Early Roman Art 3 s.h.
Roman architecture, sculpture, painting, mosaics of republican, imperial, late antique periods. Same as 01H:132.

20E:129 Art and Culture in Ancient Pompeii 3 s.h.
Art and architecture as documents of ancient society and religion in cities destroyed by Vesuvius in C.E. 79. Same as 01H:134.

20E:130 Later Roman Art 3 s.h.
Art and architecture of imperial Rome and provinces, from the Antonines through Constantine, C.E. 138-337. Prerequisite: 01H:005 or 01H:026. Same as 01H:133.

20E:134 Soul and the Afterlife in the Ancient World 3 s.h.
The concept of soul and its fate in the ancient classical world, Homer's *Odyssey* through writings of the Presocratic philosophers, Plato, Aristotle, and the Stoics.

20E:135 Topics from the Ancient World 3 s.h.
Culture, literature, and history of the ancient Mediterranean.

20E:150 Gender and Sexuality in the Ancient World 3 s.h.
Thematic survey of gender and sexuality issues in the social, political, and religious life of ancient Greece and Rome; evidence from literature, the visual arts, archaeology. GE: foreign civilization and culture. Prerequisites: 20E:030 or consent of instructor, completion of rhetoric requirement, and sophomore standing. Same as 131:152, 154:121.

20E:190 Honors Readings arr.
Discussion, readings, research for a paper on ancient civilization.

20E:194 Seminar in Ancient Civilization 3 s.h.

20E:198 Postbaccalaureate Seminar 0 s.h.
Current work of postbaccalaureate students; preparation of writing sample and portfolio. Prerequisite: postbaccalaureate certificate enrollment.

20E:199 Private Assignments arr.
Readings in classical literature in translation.

Classics in English for Graduate Students

20E:201 Topics in Comparative Romance Linguistics 3 s.h.
Same as 035:207, 103:262.

20E:210 Seminar Problems in Ancient Art 3 s.h.
Repeatable. Same as 01H:326.

20E:220 Proseminar in Classics 1 s.h.
Texts, techniques, and trends in classical scholarship; areas and subtopics of classical scholarship.

20E:230 Classical Rhetoric 2-4 s.h.
Same as 008:267, 010:301, 036:310.

Greek for Undergraduates

- 20G:001 Elementary Greek I** 4 s.h.
Ancient Greek, the language of Homer, the New Testament, modern medicine and science; focus on reading Greek, Greek culture. GE: foreign language.
- 20G:002 Elementary Greek II** 4 s.h.
Continuation of 20G:001; selections from Greek authors. GE: foreign language. Prerequisite: 20G:001.
- 20G:011 Second-Year Greek I** 3 s.h.
Focus on reading Greek prose authors, such as Xenophon and Plato. GE: foreign language. Prerequisite: 20G:002 or equivalent.
- 20G:012 Second-Year Greek II** 3 s.h.
Continuation of 20G:011; focus on reading and interpretation of Greek poetry. GE: foreign language. Prerequisite: 20G:011.

Greek for Undergraduate and Graduate Students

- 20G:120 Archaic and Classical Periods I** 3 s.h.
Readings in major Greek authors of the Archaic and Classical periods. Prerequisites: 20G:012 or equivalent, and consent of instructor.
- 20G:121 Archaic and Classical Periods II** 3 s.h.
Continuation of 20G:120. Prerequisite: 20G:012 or equivalent.
- 20G:122 Classical and Hellenistic Periods I** 3 s.h.
Readings in Greek literature of the Classical and Hellenistic periods. Prerequisite: 20G:012 or equivalent.
- 20G:123 Classical and Hellenistic Periods II** 3 s.h.
Continuation of 20G:122. Prerequisite: 20G:012 or equivalent.
- 20G:176 Greek Composition** 3 s.h.
Review of Greek morphology, syntax, sentence structure; composition of sentences, short passages in Greek.
- 20G:190 Honors Readings** arr.
Discussion, readings, research for a paper on Greek literature, history, or civilization. Prerequisite: classics major.
- 20G:199 Private Assignments** 1-3 s.h.
Directed reading and study with faculty member.

Greek for Graduate Students

Courses numbered 20G:221 through 20G:227 cover topics from the major genres and periods of Greek literature. They are offered on a four-year cycle.

Courses numbered 20G:222, 20G:223, and 20G:228 cover authors, genres, and topics of the major periods of Greek history. Specific topics are determined by the instructor's expertise and research interests. Ph.D. students are exposed to topics in all major periods at least once in four years of course work.

- 20G:202 Advanced Reading** arr.
Prerequisite: classics graduate standing.
- 20G:204 Archaic Greek Literature** 3 s.h.
Introductory survey of Greek literature and language from Homer to end of the fifth century.

20G:205 Classical and Hellenistic Literature 3 s.h.
Introductory survey of Greek literature and language in and after the fourth century B.C.E.

20G:220 Greek and Roman Literary Criticism 3 s.h.
Early literary criticism in the fifth century B.C.E.; Aristophanes' critiques of his fellow poets, prose theory through Plato and Aristotle, Hellenistic and Roman treatises by "Longinus" (*On the Sublime*) and Horace (*Ars Poetica*); readings of Greek and Latin texts.

20G:222 Archaic Poetry 3 s.h.
Topics chosen from Homer, Hesiod, Homeric hymns or lyric poetry. Repeatable.

20G:223 Hellenistic Literature 3 s.h.
Authors, genres, and topics from the death of Alexander to the accession of Augustus. Repeatable.

20G:224 Greek History 3 s.h.
Readings in the ancient Greek historians (e.g., Herodotus, Thucydides) and examination of their times. Repeatable.

20G:227 Greek Oratory 3 s.h.
Readings from classical Greek orators with attention to their historical, social, and cultural contexts and place in history of rhetoric. Repeatable.

20G:228 Classical Greece 3 s.h.
Authors, genres, and topics from the fourth and fifth centuries B.C.E. Repeatable.

20G:291 Greek Thesis arr.
For Ph.D. students writing a dissertation. Repeatable. Prerequisite: Ph.D. candidacy.

Latin for Undergraduates

- 20L:001 Elementary Latin I** 4 s.h.
Focus on reading Latin and on Roman culture. GE: foreign language.
- 20L:002 Elementary Latin II** 4 s.h.
Continuation of 20L:001. GE: foreign language. Prerequisite: 20L:001.
- 20L:011 Second-Year Latin I** 3 s.h.
Focus on reading Latin prose authors, such as Caesar and Cicero. GE: foreign language. Prerequisite: 20L:002 or two years of high school Latin.
- 20L:012 Second-Year Latin II** 3 s.h.
Focus on reading and interpretation of Roman poets, such as Vergil and Catullus. GE: foreign language. Prerequisite: 20L:011 or equivalent.

Latin for Undergraduate and Graduate Students

- 20L:120 Latin Literature of the Republic I** 3 s.h.
Prose or poetry by major authors of the republic. Prerequisite: 20L:012 or equivalent.
- 20L:121 Latin Literature of the Republic II** 3 s.h.
Continuation of 20L:120. Prerequisite: 20L:012 or equivalent.
- 20L:122 Latin Literature of the Empire I** arr.
Prose or poetry by major authors of the empire. Prerequisite: 20L:012 or equivalent.
- 20L:123 Latin Literature of the Empire II** 3 s.h.
Continuation of 20L:122. Prerequisite: 20L:012 or equivalent.

20L:171 Elementary Latin Composition 3 s.h.

Review of Latin morphology, syntax, sentence structure; composition of sentences, short passages in Latin.

20L:190 Honors Readings 3 s.h.

Discussions, readings, research for a paper on Roman literature, history, or civilization.

20L:199 Private Assignments 1-3 s.h.

Directed reading and study with faculty member for advanced students.

Latin for Graduate Students

Courses numbered 20L:222 through 20L:225 cover topics from the major genres and periods of Latin literature. They are offered on a four-year cycle.

Courses numbered 20L:220, 20L:228, and 20L:229 cover authors, genres, and topics of the major periods of Roman history. Specific topics are determined by the instructor's expertise and research interests. Ph.D. students are exposed to topics in all major periods at least once in four years of course work.

20L:202 Advanced Reading arr.

Repeatable. Prerequisite: classics graduate standing.

20L:204 Republican Literature 3 s.h.

Introductory survey of Latin literature and language from the early Republic to the end of the first century B.C.E.

20L:205 Imperial Literature 3 s.h.

Introductory survey of Latin literature and language from the Augustan age through the second century C.E.

20L:217 Accelerated Elementary Latin/Graduate 4 s.h.

One year of Latin in one semester. Offered summer session.

20L:220 Republican Rome 3 s.h.

Authors and topics from the beginnings of Roman literature to the death of Julius Caesar. Repeatable.

20L:222 Augustan Poetry 3 s.h.

Authors and topics from the death of Caesar to the accession of Tiberius. Repeatable.

20L:223 Silver Latin 3 s.h.

Readings from Roman poets of the Neronian Era in the context of the times and poetic artistry. Repeatable.

20L:225 Roman Philosophy 3 s.h.

Close examination of Latin works of Lucretius, Cicero, and/or Seneca; wider readings in English. Repeatable.

20L:228 Late Roman Empire 3 s.h.

Authors and topics from the first and second centuries C.E. Repeatable.

20L:229 High Empire: Apuleius 3 s.h.

Authors and topics from the third through fifth centuries C.E. Repeatable.

20L:272 Advanced Latin Composition 3 s.h.

Writing of extended prose passages in Latin.

20L:291 Latin Thesis arr.

For Ph.D. students writing a dissertation. Repeatable. Prerequisite: Ph.D. candidacy.

Communication Studies

Chair: Kristine L. Fitch

Professors: Leslie Baxter (Communication Studies/Nursing, F. Wendell Miller Distinguished Professor), David Depew, Steve Duck (Communication Studies/Psychology, Daniel and Amy Starch Research Professor), Kristine L. Fitch, Bruce E. Gronbeck (A. Craig Baird Distinguished Professor of Public Address), John B. Lowe (Community and Behavioral Health/Communication Studies), John Durham Peters (F. Wendell Miller Distinguished Professor)

Professors emeriti: Samuel L. Becker, Hanno Hardt, Robert Kemp, George Klingler, Donovan J. Ochs

Associate professors: Barbara Biesecker, Joy Hayes, David Hingstman, Kembrew McLeod

Assistant professors: Mark Andrejevic, Shelly Campo, Timothy Havens, Tomasz Tabako

Undergraduate degree: B.A. in Communication Studies

Undergraduate nondegree program: Minor in Communication Studies

Graduate degrees: M.A., Ph.D. in Communication Studies

Web site: <http://www.uiowa.edu/~commstud>

The Department of Communication Studies focuses on the study of human communication as a social practice. Scholarship and teaching in the department center on the role that human communication processes play in the construction, maintenance, reinforcement, and reformation of various aspects of social, professional, and institutional life.

The department provides a liberal-arts-based undergraduate education that prepares students to meet the complex communication challenges of the 21st century. It provides top-ranked doctoral education and is a national and international leader in research and knowledge dissemination.

The department has three areas of specialization. The rhetoric and public advocacy specialization focuses on how citizens use public argumentation and other rhetorical processes to bring about cultural, social, and political changes. The media and society specialization focuses on modern media in their cultural, economic, historical, political, and social contexts to understand how society and social relations shape and are shaped by media practices. The interpersonal communication and relationships specialization focuses on how the communicative practices of relating in everyday life construct, shape, sustain, and change who people are as individuals, as well as the quality of their lives.

The Department of Communication Studies encourages exploration of the practical, political, social, and aesthetic dimensions of symbolic exchange and awareness of the relationships among these dimensions. The department has produced many influential scholars and artists and has been a hub for the intersection of programs and projects of the University and other institutions.

Undergraduate Programs

The department offers a Bachelor of Arts in communication studies. First-year students interested in pursuing a degree in communication studies are advised at the Academic Advising Center. Students who have earned 30 s.h. or more and who have a cumulative (University of Iowa and transfer) g.p.a. of at least 2.50 can declare the major and are advised in the department.

Bachelor of Arts

The undergraduate curriculum is designed to encourage learning that progresses from a basic understanding of communication as symbolic action to intermediate and advanced courses that emphasize four approaches to communication: the practice of communication, the context of communication, communication research and criticism, and communication theory. Students who major in communication studies can choose among courses in interpersonal communication and relationships, media and society, production, public communication, and rhetoric and public advocacy. They may choose to focus on specific areas of the field to build creative combinations of course work that suit their individual learning and career goals.

The B.A. in communication studies requires a minimum of 30 s.h. in the major. Students may count up to 50 s.h. of communication studies course work toward the degree. Guided Independent Study and transfer courses may be accepted as long as the student meets University of Iowa and College of Liberal Arts and Sciences residency requirements and the department approves the courses; a maximum of 15 s.h. of transfer credit may be counted toward the

degree. Students must have a cumulative g.p.a. of at least 2.50 to take most communication studies courses.

All majors begin their studies with 036:001 Core Concepts in Communication Studies (3 s.h.). This course is prerequisite to other major courses. It introduces core concepts and problems in the field and orients students to the organization and goals of the major.

Students complete course work in each of the following areas. Lists of courses approved in each area are available from the department.

036:001 Core Concepts in Communication Studies	3 s.h.
Practice courses	6 s.h.
Context courses	6 s.h.
A research and criticism course	3 s.h.
A theory course	3 s.h.
Advanced courses numbered 036:080 and above, including 3 s.h. in courses numbered 036:110 or above	9 s.h.

Practice courses focus on communication production and practice. Students acquire practical skills and learn to recognize and understand the interpersonal, public, technical, or media production communication practices of others.

Context courses explore how communication practices and meanings are shaped by context—for example, historical, cultural, social, interpersonal, or institutional settings. Context courses provide students with a better understanding of communication practices useful in professional careers such as business, education, health care, law, and media production.

Research and criticism courses emphasize communication study methods and approaches as well as how those methods and approaches are interpreted and evaluated. They focus on the application of interpretive schemas and analytical models to communicative practices or bodies of discourse. Students work directly with primary materials such as institutional data, transcripts of conversations, speeches, historical documents, media programs, and performances.

Theory courses examine the process of abstracting, modeling, and conceptualizing communicative relationships and interactions. Students learn how scholars have described and explained communication practices as behavior, cultural and social forms and formations, expressions of commonality and difference, mediated discourses, and symbolic interaction. They explore particular bodies of theory and

investigate the process of theorizing in communication studies.

Students work with the department academic counselor to develop study plans that meet the requirements of the major. They may check their progress toward the degree by logging on to ISIS (Iowa Student Information Services).

Students may discuss their career goals and interests with faculty members.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. Students who have signed the four-year graduation agreement should consult the department for details.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The department encourages outstanding undergraduates to take part in the honors program. To graduate with honors in communication studies, students must maintain a cumulative University of Iowa g.p.a. of at least 3.33, join the University Honors Program, and fulfill the following course requirements.

036:101 Honors Workshop (seminar offered fall semesters only)	3 s.h.
036:102 Honors Thesis (usually taken final semester before graduation)	3 s.h.

In special cases, independent study course work may be substituted for the Honors Workshop, with the honors officer's permission. Additional course work may be required by the student's honors advisor.

To begin work toward a degree with honors in communication studies, students choose a faculty member to supervise their honors project and act as their honors advisor.

Students who enroll in the honors program are eligible to take courses offered through the University Honors Program and to add an honors designation to any other departmental course by completing an agreement with the course instructor for special work in that course.

Detailed information on the honors program is available from the communication studies departmental honors officer.

Minor

A minor in communication studies requires 15 s.h. of credit in communication studies, with a g.p.a. of at least 2.00 in those courses. The minor must include 036:001 Core Concepts in Communication Studies and at least 12 s.h. of courses taken at The University of Iowa and numbered 036:040 and above.

Forensics/Debate

Students in the forensics/debate program have the opportunity to participate in on-campus debates, in developmental programs designed to improve speech activities in the state, and as members of competitive intercollegiate debate teams. Forensics scholarships are available. Students interested in debate should enroll in 036:013 Practicum in Debate or 036:014 Elements of Debate.

Internships

Internships enable students to supplement their course work with professional experiences relevant to careers in communication-related fields. The internship program is open only to communication studies majors.

To earn academic credit for internships, students must complete an internship application and obtain approval for their internship experience and site before they register for 036:028 Communication Studies Internship (arr.). Internship academic credit is awarded for an analytical paper submitted at the end of the internship and for the number of hours worked. Internships can be completed during the fall or spring semester or summer session.

For applications, contact the Department of Communication Studies or visit <http://www.uiowa.edu/~commstud/>

[undergrad/index.html](http://www.uiowa.edu/~commstud/undergrad/index.html). Contact the internship coordinator or the academic counselor for more information.

Graduate Programs

The department offers the Doctor of Philosophy in communication studies with specializations in interpersonal communication and relationships, media and society, and rhetoric and public advocacy. The department offers a Master of Arts to students who have their committee's approval.

Master of Arts

The M.A. in communication studies requires a minimum of 30 s.h. and usually is granted to students in the process of pursuing the Ph.D. All students take 036:200 Introduction to Research (2 s.h.), 036:201 Issues in Teaching (1 s.h.), and at least two courses numbered 200 or above. They also prepare a graduate seminar paper that involves significant original research. For a detailed description of M.A. requirements, see the Communication Studies Graduate Student Handbook.

Doctor of Philosophy

The Doctor of Philosophy requires a minimum of 82 s.h. of graduate credit, including dissertation credit. All students take 036:200 Introduction to Research and 036:201 Issues in Teaching, and earn at least 10 s.h. of dissertation credit in 036:399 Ph.D. Dissertation.

Ph.D. students must successfully complete a qualifying examination during their second or third semester and a comprehensive (predissertation) examination in their major research area during their fifth or sixth semester, and write a substantial scholarly dissertation. Students must maintain a cumulative g.p.a. of at least 3.00 throughout the program. Individual Ph.D. specializations may have additional requirements; contact the director of graduate studies for details.

Admission usually is for fall semester entry. Applicants whose materials are received at the department by January 1 receive preference for admission and financial aid. Admission decisions are based on undergraduate achievement, letters of reference, Graduate Record Examination (GRE) General Test scores, the statement of purpose, and samples of scholarly work.

Interpersonal Communication and Relationships

The communication and relationships program is centered on theory complemented by strength in quantitative and qualitative research methods. It focuses on scholarly issues that arise from face-to-face, everyday communication practices in interpersonal, small-group, and organizational contexts. It emphasizes personal relationship processes, decision making and problem solving, persuasion, culture, and issues in health communication.

The goal of the program is to produce scholars who possess sophisticated knowledge of theory and methodology, who are careful consumers of theories and methods, and who can develop their own approaches to communication phenomena. The program emphasizes systematic analysis of the forms, functions, and meanings of messages within various contexts. Its broad social-scientific orientation springs from the belief that many methodological approaches are appropriate to studying and building theoretical explanations of communication.

Graduate students typically enter the program to earn a Ph.D. Advisors and committee members work closely with individual students to select courses from communication studies and other University departments and plan teaching and research experiences that will prepare students well for the employment they seek after graduation.

Media and Society

The graduate program in media and society focuses on the interplay of institutions, texts, and audiences of mediated communication systems. Its central aim is to examine modern media—radio, television, advertising, music, and a wide range of other popular cultural expressions—within their historical, social, political, economic, and cultural contexts. It also uses the mass media as sites for asking basic questions about culture, society, politics, and modernity.

Like the department's other graduate programs, media studies has a strong interdisciplinary flavor. Students draw not only on allied areas in the Department of Communication Studies but on fields across the University.

Rhetoric and Public Advocacy

The program in rhetoric and public advocacy is built on foundation courses in classical and 20th-century rhetorical theory and in an

overview of 20th-century rhetorical criticism. Courses from a rhetorical perspective include rhetorical theory, rhetorical criticism, visual rhetoric and politics, public address and public culture, studies in argumentation and freedom of speech, work in science and technology as well as academic inquiry, and historical methods. Cognate work of interest to rhetoricians also can be found in interpersonal communication and relationship studies as well as media studies.

The Ph.D. in rhetorical studies is designed to give students a mature grasp of the specialties and perspectives embraced by the field and to develop research competence essential to a life of productive scholarship.

Work in related departments—political science, history, sociology, English, cinema and comparative literature, anthropology, American studies, and journalism—complements rhetorical studies course offerings. Faculty from the Departments of Rhetoric, Political Science, and American Studies cross-reference their courses on rhetorical topics in this program.

The Project on Rhetorics of Inquiry (POROI) offers a certificate program, allowing doctoral students to specialize in the study of how academic fields use argumentative and linguistic strategies to generate and control knowledge. Many doctoral students also do extensive work in media studies or interpersonal communication to improve their range of teaching opportunities and their research skills.

Facilities

The Samuel L. Becker Communication Studies Building is designed to meet the department's research and technological needs. Included are two television studios, a film sound stage, a scene shop, areas for animation and graphics production, a radio studio, and digital nonlinear editing stations. Introductory and intermediate video and radio production classes are offered each semester.

Courses

Courses numbered below 200 are intended primarily for undergraduates; those numbered 200 and above are for graduate students. Graduate students may take 100-level courses for credit, with their committee's approval.

Not all courses are offered each semester.

For Undergraduates

To register for most undergraduate communication studies courses, students must have earned 30 s.h. and have a cumulative g.p.a. of at least 2.50. However, registration for the following courses is open to all undergraduates, regardless of their grade-point average: 036:017, 036:070, 036:074, 036:143, 036:146, and 036:158. Registration in 036:029 is open to first- and second-semester students regardless of grade-point average.

036:001 Core Concepts in Communication Studies 3 s.h.
Introduction to fundamental ideas in communication studies; concepts important for understanding communication in history and today. Prerequisites: g.p.a. of at least 2.50 and 30 s.h. of credit.

036:002 Workshop in Debate and Forensics 3 s.h.
Public argument on questions of value and policy; opportunities for demonstration and practice in discussion and debate. Corequisite: enrollment in the National Summer Institute in Forensics.

036:011 Group Communication 3 s.h.
Application of group problem-solving techniques; leadership, group participation; projects in social decision, action. Area: practice. Prerequisite: g.p.a. of at least 2.50.

036:012 Interpersonal Communication 3 s.h.
Informal social interaction between individuals; evaluation of students' own interpersonal skills. Area: practice. Prerequisite: g.p.a. of at least 2.50.

036:013 Practicum in Debate 1 s.h.
Specialized research, case construction, argument preparation, and practice for intercollegiate policy debate competition. Area: practice. Prerequisites: g.p.a. of at least 2.50 and participation in A. Craig Baird Debate Forum.

036:014 Elements of Debate 3 s.h.
Debate and debate procedures; teaching debate in school settings, directing interscholastic debate programs. Area: practice. Prerequisite: g.p.a. of at least 2.50.

036:015 Persuasive Communication 3 s.h.
Applications of persuasive communication, persuasive speaking; persuasive messages. Area: practice. Prerequisite: g.p.a. of at least 2.50.

036:016 Business and Professional Communication 3 s.h.
Basic concepts and skills of communication in workplace settings; interviewing, formal presentations, speeches, team-building, managing difference. Area: practice. Prerequisite: g.p.a. of at least 2.50.

036:017 Theory and Practice of Argument 4 s.h.
Public argument as practiced in law, social science, politics, other arenas; oral argument. Area: practice. GE: quantitative or formal reasoning. Prerequisite: completion of General Education Program rhetoric component.

036:018 Parliamentary Procedure 1 s.h.
Rules of order for meetings of committees, clubs, organizations; making and debating motions from the floor; presiding over parliamentary sessions. Offered only through Guided Correspondence Study. Prerequisite: g.p.a. of at least 2.50.

036:019 Organizational Leadership 2-3 s.h.
Focus on communication methods, motivation, parliamentary procedure. Offered only through Guided Correspondence Study. Prerequisite: g.p.a. of at least 2.50.

036:020 Clothing as Nonverbal Communication 3 s.h.
How clothing communicates culture, gender, self-concept, age, occupation, values, status, tastes, sexuality; clothing for international business, children, the elderly; fashion theory. Area: practice. Prerequisite: g.p.a. of at least 2.50. Same as 049:020.

036:021 Oral Interpretation 3 s.h.
Principles, practice of reading literary prose and poetry to audiences; analysis, interpretation, performance, evaluation. Area: practice. Prerequisite: g.p.a. of at least 2.50. Same as 07E:021.

036:022 Introduction to Media Production 4 s.h.
Short projects in audio and single-camera video production; emphasis on building a working knowledge of how projects are created in a real-world environment, and developing critical thinking skills about media industries. Area: practice. Prerequisites: 036:001, g.p.a. of at least 2.50, and sophomore standing.

036:024 Media Industry Practices 3 s.h.
Budgeting, staff, audience research, programming, promotion, sales, labor relations, government regulation, community responsibility. Area: practice. Prerequisite: g.p.a. of at least 2.50.

036:025 Writing for Television and Radio 3 s.h.
Basic writing skills for broadcast media. Area: practice. Prerequisites: 036:001 and g.p.a. of at least 2.50.

036:026 Theory and Practice of Debate 3 s.h.
Case construction and refutation; organization of speeches; discussion and practice of specialized formats. Area: practice. Prerequisites: g.p.a. of at least 2.50 and participation in A. Craig Baird Debate Forum.

036:028 Communication Studies Internship arr.
Communication skills, knowledge in work assignments related to students' academic and career interests; full- or part-time, on or off campus. Area: practice. Prerequisites: g.p.a. of at least 2.50 or higher, communication studies major, and consent of instructor.

036:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

036:040 Communication and Conflict 3 s.h.
Implications of communication theories, conflict theories; applications to everyday life. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50.

036:041 Gender Roles and Communication 3 s.h.
Gender roles and communication processes; function of communication in gender role development. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50. Same as 131:041.

036:042 Intercultural Communication 3 s.h.
Relationships among culture-based assumptions, values, thought patterns, communication behavior; theory and practice. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50. Same as 042:042.

036:043 Rhetoric, Science, and Technology 3 s.h.
Role of technology in contemporary culture; representation of technology in film and advertising, technology's role in the physical and biological sciences, cultural implications of the information revolution. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50.

036:044 Rhetoric and Public Advocacy 3 s.h.
Rhetoric of campaigns at national, state, local levels; in election years, discussions with candidates, media representatives; individual investigations. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50.

- 036:048 The Rise of Electronic Media** 3 s.h.
 Technical, economic, legal development of electronic media in the United States; embedment in social institutions such as family, nation, consumer culture. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:051 Politics of Popular Culture** 3 s.h.
 Critical cultural approach to study of popular culture (e.g., television shows, movies, music); mainstream media, alternative forms of mass communication. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:052 Introduction to Health Communication** 3 s.h.
 Research, concepts, and theories on communication about health; interpersonal communication in contexts of provider-patient, family, and social support; mass communication and health, including health communication campaigns, public relations, advertising; how news media and Internet present health information. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:060 Communication Inquiry** 3 s.h.
 Social scientific methods used to generate knowledge about interpersonal, group, and mediated communication. Area: research and criticism. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:061 Persuasion in Society** 3 s.h.
 Theories of public persuasion, types of persuasive campaigns and movements in society; rhetorical analysis of advertising, political processes, social unrest. Area: research and criticism. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:062 Feminist Critical Practice** 3 s.h.
 Feminist approaches to communicative practices. Area: research and criticism. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:064 Media, Advertising, and Society** 3 s.h.
 Media advertising in contemporary culture; marketing to ethnic, class, gender groups. Area: research and criticism. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:065 Television Criticism** 3 s.h.
 Television form and content; roles of industry, audience, and textual conventions in defining the medium. Area: research and criticism. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:066 Media Audiences** 3 s.h.
 Historical survey of major methods in mass communication and cultural studies that are used to understand effects of mass media on audiences; student projects involving audience research and analysis. Area: research and criticism. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:068 Popular Music and Culture** 3 s.h.
 What makes popular music important for people; music's power to change culture; production, distribution, reception of popular music in cultural and historical contexts. Area: research and criticism. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:070 Communication and Everyday Life** 3 s.h.
 Theory, research on basic skills, processes in everyday communication. Area: theory. GE: social sciences.
- 036:071 Communication and Contemporary Culture** 3 s.h.
 Culture in social, political, and rhetorical terms; how cultural theory is used as an analytical-critical tool; communication—speech, writing, material and embodied practices. Area: theory. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:073 Public Argument** 3 s.h.
 Theories of argument contexts, practice, strategies in public controversies. Area: theory. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:074 Media and Society** 3 s.h.
 Processes and effects of mass communication; how mass media operate in the United States; how mass communication scholars develop knowledge. Area: theory. GE: social sciences.
- 036:075 Gender, Sexuality, and Media** 3 s.h.
 Media as a site for theorizing gender, sexuality, identity. Area: theory. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:076 Race, Ethnicity, and Media** 3 s.h.
 Principal debates in media criticism about representation, circulation, and commodification of popular images of race and ethnicity. Area: theory. Prerequisites: 036:001 and g.p.a. of at least 2.50. Same as 129:076.
- 036:080 Radio Production** 3 s.h.
 The studio as a production resource; radio production forms and practices; multitrack recording and mixing, tape editing. Area: practice. Prerequisites: 036:001, 036:022, and g.p.a. of at least 2.50.
- 036:081 Television Production** 3 s.h.
 The studio as a production facility; interview, news show, demonstration, other forms typical of local station or cable operation. Area: practice. Prerequisites: 036:001, 036:022, and g.p.a. of at least 2.50.
- 036:082 Sound and Video Documentary** 3 s.h.
 Nonfiction forms and practices in historical context. Area: context. Prerequisites: 036:001, 036:022, and g.p.a. of at least 2.50.
- 036:083 Cultural History of Radio** 3 s.h.
 Development of radio as a sociocultural system. Area: context. Prerequisites: 036:048 and g.p.a. of at least 2.50.
- 036:084 Cultural Approaches to Mass Communication** 3 s.h.
 Methods of conceiving, observing, and analyzing media artifacts, processes, politics. Area: context. Prerequisites: 036:001, 036:024 or 036:048 or 036:066 or 036:074, and g.p.a. of at least 2.50.
- 036:085 Media Industries and Organizations** 3 s.h.
 Industry economics and organizational practices as contexts for media production. Area: context. Prerequisites: 036:001, 036:024 or 036:048 or 036:066 or 036:074, and g.p.a. of at least 2.50.
- 036:086 Global Media Studies** 3 s.h.
 Development of media systems, content strategies, and audience formations internationally, comparatively. Area: context. Prerequisites: 036:001, 036:024 or 036:048 or 036:066 or 036:074, and g.p.a. of at least 2.50.
- 036:087 Culture and Intellectual Property Law** 3 s.h.
 How culture and media are shaped by intellectual property laws. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50.
- 036:088 Mass Communication and American Democracy** 3 s.h.
 Philosophical foundations of American democracy; focus on contemporary issues of news, media and politics, culture, technology, freedom of speech. Area: theory. Prerequisites: 036:001, one course from 036:070 to 036:075, and g.p.a. of at least 2.50.
- 036:089 Nonverbal Communication** 3 s.h.
 Theoretical approaches to nonverbal communication as it occurs in everyday context and situations. Area: theory. Prerequisites: 036:001, one course from 036:070 to 036:075, and g.p.a. of at least 2.50.
- 036:090 Topics in Communication Studies** 3 s.h.
 Topics vary. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50.

036:091 Organizational Communication 3 s.h.
 Contemporary concepts of communication's meaning and function in organizations. Prerequisites: 036:001, 036:011, 036:016, and g.p.a. of at least 2.50.

036:092 Advanced Video Production 3 s.h.
 Use of software programs, digital video cameras, and scanners to create commercials, visual identity, movie trailers, and so forth. Recommended: working knowledge of nonlinear editing, software, use of digital video cameras, production. Area: practice. Prerequisites: 036:001, 036:022, and g.p.a. of at least 2.50.

036:093 Rhetoric of War 3 s.h.
 Argumentation and rhetorical strategies for going to war, for opposing war, for managing public opinion during the reverses of war, and for making peace; examples from ancient and modern wars in the light of classical rhetorical theory and as affected by modern media. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50.

036:094 Topics in Production 3 s.h.
 Topics vary. Area: practice. Prerequisites: 036:001, 036:022, and g.p.a. of at least 2.50.

036:100 Independent Study arr.
 Creative or research project under faculty supervision. Area: context. Prerequisites: g.p.a. of at least 2.50 and consent of instructor, advisor, and department chair.

036:101 Honors Workshop 3 s.h.
 Preparation for honors thesis prospectus; coordination of student's individual thesis work, introduction to issues in research design, methods. Area: context. Prerequisites: 036:001, g.p.a. of at least 3.33, and honors standing.

036:102 Honors Thesis 3 s.h.
 Individual research, writing, or creative production under faculty supervision. Area: context. Prerequisites: 036:001, 036:101, g.p.a. of at least 3.33, and honors standing.

036:105 Workshop in Teaching Communication and Forensics arr.
 Methods, materials, progression, evaluation in teaching and supervising students in courses and class activities; opportunities for observation, demonstration, practice in teaching theater, discussion and debate, individual speech, dramatic and forensic events. Prerequisite: g.p.a. of at least 2.50. Same as 07S:178.

036:106 Radio Production Workshop 3 s.h.
 Independent creative work. Area: practice. Prerequisites: 036:080, g.p.a. of at least 2.50, and consent of instructor.

036:140 Communication and Relationships 3 s.h.
 Communication issues that come into play as relationships are established, developed, maintained, dissolved. Area: context. Prerequisites: 036:001, 036:040 or 036:041 or 036:060 or 036:070, and g.p.a. of at least 2.50.

036:141 Advanced Organizational Communication 3 s.h.
 Organizational theory and trends in the field of organization studies; organizational culture, power, technology, decision making, teamwork, leadership, diversity, socialization, impact of globalization on organizing. Area: context. Prerequisites: 036:091 and g.p.a. of at least 2.50.

036:142 Advanced Intercultural Communication 3 s.h.
 Culture and intercultural contact examined through positivistic, interpretive, and critical approaches to communication. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50. Recommended: 036:042.

036:143 Classical Rhetoric and Greek Culture 3 s.h.
 Area: context. GE: humanities. Same as 010:131.

036:144 Contemporary Political Rhetoric 3 s.h.
 Televised presidential speechmaking and political action, John F. Kennedy to present. Area: context. Prerequisites: 036:001, 036:017 or 036:044 or 036:051 or 036:093, and g.p.a. of at least 2.50.

036:145 Studies in Argument 3 s.h.
 Advanced topics in argumentation within specialized personal, public, and technical forums; argument strategies, modes of decision making in social disputes. Area: context. Prerequisites: 036:001, 036:017, and g.p.a. of at least 2.50.

036:146 Issues in Rhetoric and Culture 3 s.h.
 Case studies of relationships between public discourse, particular cultural contexts. Same as 008:181, 010:160, 160:160.

036:147 Family Communication 3 s.h.
 Concepts, theories, and research on communication in family relationships; how information can be used to describe and understand communication behaviors in families. Area: context. Prerequisites: 036:001, 036:040 or 036:041 or 036:060 or 036:070, and g.p.a. of at least 2.50.

036:150 Cultural History of Advertising 3 s.h.
 Evolution of consumer culture in the United States since the mid-19th century. Area: context. Prerequisites: one course from 036:040 to 036:051 and g.p.a. of at least 2.50.

036:151 Cultural History of Television 3 s.h.
 Changing structure, content of U.S. television since World War II. Area: context. Prerequisites: one course from 036:040 to 036:051 and g.p.a. of at least 2.50.

036:152 Latin American Media 3 s.h.
 History of Latin American media development; debates over U.S. media and cultural imperialism in the region. Area: context. Prerequisites: one course from 036:040 to 036:051 and g.p.a. of at least 2.50.

036:155 Visual Rhetoric 3 s.h.
 Role of visual and material culture in American life; strategic use of images and objects, rather than language, to move audiences to attitude, action. Area: context. Prerequisites: 036:001, 036:051 or 036:061 or 036:062 or 036:064 or 036:065 or 036:068 or 036:071 or 036:074 or 036:075 or 036:076 or 036:088, and g.p.a. of at least 2.50.

036:157 Advanced Topics in Communication Studies 3 s.h.
 Issues or problems in particular communication contexts. Area: context. Prerequisites: 036:001, one course from 036:040 to 036:051 or 036:060 to 036:075, and g.p.a. of at least 2.50.

036:158 Rhetoric and Past Public Controversy 3 s.h.
 Rhetoric's role in public controversy, in particular time periods. GE: historical perspectives. Same as 010:141.

036:161 Physician-Patient Communication 3 s.h.
 Methods for studying physician-patient communication, patient outcomes, research on characteristics and qualities of physician-patient talk; in-depth study. Prerequisite: 036:060. Same as 172:144.

036:162 Rhetorical Strategies of Documentaries 3 s.h.
 Rhetorical strategies used in documentary film and video; documentaries as rhetorical acts, use of appeals and rhetorical strategies; nonfiction film in theory and practice. Area: context. Prerequisites: 036:001 and g.p.a. of at least 2.50.

036:165 Introduction to Rhetorical Criticism 3 s.h.
 Rhetorical discourses, situations. Area: research and criticism. Prerequisites: 036:001, 036:017 or 036:044 or 036:051 or 036:061 or 036:071 or 036:093, and g.p.a. of at least 2.50.

036:170 Theories of Persuasion 3 s.h.
 Persuasion beyond advertisements, political speeches, and sales pitches; persuasion in interpersonal contexts; theories of persuasion examined from three points of view—psychological, social, cultural. Area: theory. Prerequisites: 036:001, 036:015 or 036:017 or 036:040 or 036:043 or 036:044 or 036:061 or 036:093, and g.p.a. of at least 2.50.

036:173 Technoculture and the Information Society 3 s.h.

The Internet and new media in economic, political, and historical context; perspectives from cultural theory, examples from business, popular culture, the arts. Area: theory. Prerequisites: 036:001, one course from 036:060 to 036:075, and g.p.a. of at least 2.50.

036:176 Advanced Relational Theory 3 s.h.

Relational communication as a persuasive activity and a way of knowing in the world; theories of relational communication vis à vis rhetorical theories, theories of knowledge. Area: theory. Prerequisites: 036:001, 036:040 or 036:041 or 036:060 or 036:070, completion of research and criticism major requirements, and g.p.a. of at least 2.50.

For Graduate Students

Graduate students also may take 100-level courses for credit, with approval of their committee.

036:200 Introduction to Research 2 s.h.

Communication studies as a field of scholarship; selection of research problems, major lines of research represented in the department, bibliographical tools for scholarship in the field.

036:201 Issues in Teaching 1 s.h.

Continuation of 036:200; issues, practical tasks, and concerns relevant to effective college or university classroom teaching.

036:210 Introduction to Rhetorics of Inquiry 2-4 s.h.

Practice in invention and arrangement of academic prose through peer criticism; exemplary works, especially at and across disciplinary boundaries. Same as 160:200.

036:220 Rhetorical Criticism 3 s.h.

Approaches to rhetorical analysis of communicative artifacts, acts, events; rhetorical-critical essay writing. Same as 010:230.

036:222 Feminist Cultural Studies 3 s.h.

Same as 008:243, 010:243, 131:243.

036:223 Deliberation, Advocacy, Civic Engagement 3 s.h.

Practices of public deliberation in governance and civil society; counterpublic sphere discourses.

036:224 Movements and Media 3 s.h.

036:225 Seminar: Social Movements 3 s.h.

036:240 Media Criticism 3 s.h.

Focus on television, video.

036:241 Theories of Mass Communication 3 s.h.

Major concepts, theories, schools of thought in media studies, mass communication.

036:242 Studies and Practices of Audio and Video Production 3 s.h.

Introduction to audio and video production; acquisition of a production tool; critical vocabulary; teaching introductory production courses. Prerequisite: advanced graduate standing.

036:270 Health Communication 3 s.h.

Same as 172:240.

036:299 Graduate Independent Study arr.

036:310 Classical Rhetoric 2-4 s.h.

Discourse in the ancient world. Same as 008:267, 010:301, 20E:230.

036:311 Modern Rhetoric 2-4 s.h.

History of modernist rhetorical theory in the 20th century; relationships with philosophy, social and physical sciences, cultural change. Same as 008:268.

036:312 Rhetoric and Philosophy 2-4 s.h.

Contemporary philosophical approaches to the study of rhetoric.

036:313 Rhetoric and Argument Theory 2-4 s.h.

Approaches to study of argumentation, key issues at dispute in contemporary conceptualizations of argument.

036:315 Rhetorics of Technology and Technoscience 2-4 s.h.

Survey of rhetorical sites and situations involving technology; rhetorical criticism of technological and technoscientific discourses; evaluation and construction of theories about technological discourses and practices. Same as 160:307.

036:316 Foundations for Feminist Inquiry II 3 s.h.

Same as 010:201, 131:201.

036:317 Current Issues in Rhetoric 3 s.h.

Same as 008:315, 010:340, 160:340.

036:319 Practical Criticism 3 s.h.

Basics of rhetorical criticism; rhetoric as practice or technique; how to read rhetorically; fundamentals (i.e., figuration and tropes, form and genre, voice, style, topoï) and art of rhetorical critique.

036:330 Reading Group 1-2 s.h.

Analysis and discussion of important texts in rhetorical theory and criticism. Repeatable.

036:331 Studies in Language Theory 2-4 s.h.

Semiotics, speech acts, philosophy of language; emphasis on their relationship to rhetoric. Same as 008:306.

036:332 Visual Political Rhetoric 1-4 s.h.

Theoretical and critical studies of visual political discourse.

036:335 Proseminar: Contemporary Rhetorical Studies 2-4 s.h.

Problems in contemporary rhetorical studies; may include works of Kenneth Burke, Wayne Booth, deconstructionists, feminist theorists and critics, critics of communication technologies.

036:336 Seminar in Rhetorical Theory 1-4 s.h.

Topics in history and development of rhetorical theory; theory construction and application to critical practice. Same as 010:600.

036:337 Seminar: Public Address 1-4 s.h.

History and criticism of discourse addressed to the public; periods, approaches.

036:339 Seminar: Rhetoric and Culture 1-4 s.h.

Cultural theories, their utility in accounting for communication practices.

036:340 Media and Modernity 3 s.h.

Survey of classic and contemporary theoretical texts on cultural, social, political, and human consequences of 19th- and 20th-century media.

036:341 Topics in Mass Communication Scholarship 1-3 s.h.

Theory and research on problems in mass communication.

036:343 Rise and Fall of the American TV Networks 3 s.h.

Conditions supporting American television's 30-year domination by a commercial broadcast network oligopoly; the oligopoly's decline; the relationship between such institutional changes and television's cultural roles.

036:346 The Public Sphere 3 s.h.

Theories, intellectual history, critics, contemporary issues of the public sphere.

036:347 Nationalism as a Communication Process 3 s.h.

Nation building and construction of national identity as a problem in communication history and theory; the nation as a community constructed through discourse, role of the state and other social forces in creating and deploying nationalist discourse.

036:348 Audience Studies	3 s.h.	036:383 Seminar: Constructs, Communication, and Identity	3 s.h.
Tradition of critical, qualitative, and interpretive tradition of media audience research that has developed since the mid-1980s; recent ethnographic studies of audience experiences; institutional and global economic and cultural forces on audiences' engagement with media.		Concepts of identity and sociality in George Kelly's Personal Construct Theory; their connection to theories of rhetoric, especially Burke, and social community, especially Mead.	
036:349 Visual Advocacy	3 s.h.	036:395 Research Practicum	arr.
		Individual projects.	
036:350 Seminar: Mass Communication	1-4 s.h.	036:399 Ph.D. Dissertation	arr.
Topics vary.			
036:351 Global Media Seminar	3 s.h.		
Theories and processes of globalization and the cultural implications of media globalization; local responses to globalizing processes with reference to questions of modernity and national/transnational identity.			
036:352 Seminar: Media Theory	3 s.h.		
Topics vary.			
036:353 Seminar: Intellectual Property	3 s.h.		
Areas of cultural production that have been affected by intellectual property law; notions of authorship and ownership that lie at the heart of intellectual property law, how they affect varied areas of cultural production. Same as 160:353.			
036:370 Quantitative Research Methods	3 s.h.		
Primary methods for conducting quantitative research on interpersonal and group communication.			
036:371 Communication Theory	3 s.h.		
Survey of primary theories of interpersonal, cultural, group, and organizational communication.			
036:372 Qualitative and Ethnographic Research Methods	3 s.h.		
Qualitative methods used by ethnographers and interpretive researchers, including participant observation, field interviewing.			
036:373 Persuasion Theory and Research	3 s.h.		
Traditional social scientific approaches to research and theory; development of a cultural perspective on persuasion.			
036:374 Relational Communication Theory and Research	3 s.h.		
Communication in initiation, development, maintenance, breakdown, and repair of social and personal relationships.			
036:375 Ethnography of Communication	3 s.h.		
Research and theory on face-to-face communication, from ethnography of communication perspective.			
036:376 Family Communication	3 s.h.		
Theory and research on communication among and between family members (parents, children, marital partners, siblings); quantitative and qualitative research.			
036:378 Critical Ethnography	3 s.h.		
Same as 010:332, 160:332.			
036:379 Health Communication Campaigns	3 s.h.		
Design and analysis of health campaigns blending theory, practice, and methods to critique past, present, and future campaigns; mass media, community, organization, and interpersonal campaigns. Same as 172:246.			
036:380 Seminar: Dialogic Communication	3 s.h.		
Dialogic approaches to communication, including Bakhtin and Buber.			
036:381 Seminar: Topics in Communication Research	3 s.h.		
036:382 Seminar: Group Communication	3 s.h.		
Issues in group communication.			

Computer Science

Chair: James F. Cremer

Professors: Steven Bruell, James F. Cremer, Sukumar Ghosh, Joseph Kearney, Gregg Oden (Psychology/Computer Science), Teodor Rus, Alberto Segre, Hantao Zhang

Professors emeriti: Donald Alton, Kendall Atkinson, Robert J. Baron, Donald Epley, Arthur Fleck

Associate professors: David Eichmann (Library and Information Science/Computer Science), Ted Herman, Douglas Jones, Jarkko Kari, Suely Oliveira, Sriram V. Pemmaraju, Cesare Tinelli, Kasturi Varadarajan

Adjunct associate professor: William Decker

Assistant professors: Juan Pablo Hourcade, Christopher Wyman, Hwanjo Yu

Adjunct assistant professors: Donald McClain, Jun Ni

Lecturers: Ines Z. Curto, Kenneth R. Slonneger

Undergraduate degrees: B.A., B.S. in Computer Science

Undergraduate nondegree program: Minor in Computer Science

Graduate degrees: M.C.S., M.S., Ph.D. in Computer Science

Web site: <http://www.cs.uiowa.edu>

Undergraduate Programs

Undergraduates majoring in computer science develop competence in programming principles and methodologies, problem-solving techniques, mathematics, and computer systems. Computer science training is critical for many careers in science, engineering, and business.

The department offers both Bachelor of Arts and Bachelor of Science degrees. Of the two, the B.S. program provides more intensive concentration in computer science and greater emphasis in science and mathematics. Students interested in pursuing graduate work in computer science should strongly consider seeking the B.S. The B.A. requires fewer courses in computer science and mathematics, allowing for a wider choice of electives.

Both the B.A. and B.S. provide students with the necessary training for employment in careers such as software development and information management. Students who do not want to pursue a computer science career should consider a computer science minor to gain fundamental knowledge of the use and applications of computers. The department encourages students in both B.A. and B.S.

programs to consider adding another major, certificate, or minor to their graduation plans.

Students may declare a major in computer science and be admitted to the department's B.A. or B.S. program at any time on or after admission to the University. After admission to the major, students must maintain a g.p.a. of 2.00 or higher in all course work to receive a degree in computer science. All computer science students are advised at the Academic Advising Center until they have completed 22C:019. Students who are being advised at the advising center also may consult with computer science faculty members.

Transfer students who have taken a course approved as equivalent to one of the computer science courses are exempt from that course. Transfer grades are included in the computer science grade-point average.

Majors should consult the department's Computer Science Undergraduate Student Handbook, available on the department's web site. The handbook details department policies, suggests possible elective areas, and discusses internships, scholarships, and student groups, such as the University's chapter of the Association for Computing Machinery and Women in Computer Science.

Advanced Placement

The Computer Science Advanced Placement Program test can be used to gain credit for elective semester hours. See the Computer Science Undergraduate Student Handbook for more details.

Bachelor of Arts

The B.A. program is designed for students who wish to gain considerable knowledge in computer science and have flexibility in selecting electives. Students preparing for computer careers in business may pursue the B.A., but they are encouraged to supplement the base requirements with additional computer science courses. The flexibility of the program makes it suitable for combination with other majors.

The B.A. in computer science requires a minimum of 41 s.h. in the major.

All students must complete the College of Liberal Arts and Sciences General Education Program.

Students who are enrolled in the B.A. program but who might switch to the B.S. program should choose their natural science courses carefully; see “Natural Science Sequences” under “Bachelor of Science,” below.

The B.A. program requires the following core courses. They may not be taken pass/nonpass. Students also must take one advanced computer science elective.

COMPUTER SCIENCE CORE

All of these:

- 22C:016 Computer Science I: Fundamentals 4 s.h.
- 22C:019 Discrete Structures 3 s.h.
- 22C:021 Computer Science II: Data Structures 4 s.h.
- 22C:022 Object-Oriented Software Development 4 s.h.
- 22C:031 Algorithms 3 s.h.
- 22C:111 Programming Language Concepts 3 s.h.

One of these:

- 22C:060 Computer Organization 3 s.h.
- 055:035 Computer Architecture and Organization 3 s.h.

One of these:

- 22C:112 Operating Systems 3 s.h.
- 22C:113 Introduction to Systems Software 3 s.h.
- 22C:118 Introduction to Networks and Their Applications 3 s.h.

MATHEMATICS CORE

Calculus I—one of these:

- 22M:025 Calculus I 4 s.h.
- 22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.

Calculus II—one of these:

- 22M:026 Calculus II 4 s.h.
- 22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.

Linear algebra/probability and statistics—one of these:

- 22M:027 Introduction to Linear Algebra 4 s.h.
- 22M:047 Linear Algebra and Differential Equations for Scientists 3 s.h.
- 22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
- 22S:120 Probability and Statistics 4 s.h.

ADVANCED ELECTIVES

Bachelor of Arts students must earn at least 3 s.h. in advanced electives.

- 22C:072/22M:072 Elementary Numerical Analysis 3 s.h.
- 22C:096 Topics in Computer Science (with advisor’s approval) arr.
- 22C:099 Honors in Computer Science (may be counted once as an advanced course) arr.
- Any 100-level computer science course numbered above 22C:110

With instructor’s approval, most 22C courses numbered above 200 may be counted as advanced courses.

Bachelor of Science

The B.S. program is more rigorous than the B.A. and is designed to give in-depth training for students who may pursue graduate work in computer science. However, the choice between the B.A. or the B.S. should be dictated by students’ personal career goals. The B.S. is not required for graduate study, and many students not interested in graduate study may choose the B.S. to enhance their skills and job prospects.

The B.S. in computer science requires a minimum of 64 s.h. in the major.

All students must complete the College of Liberal Arts and Sciences General Education Program. When chosen carefully, courses that complete the General Education Program natural sciences component also satisfy the Department of Computer Science natural science requirement (see “Natural Science Sequences,” below).

Students complete all department requirements for the B.A. They also must complete an additional mathematics course, a course on computation theory, another computer science elective, two technical electives, and the natural science requirement. These courses cannot be taken pass/nonpass. Students with certain special elective programs may petition for additional courses to be accepted for this requirement.

COMPUTER SCIENCE CORE

All of these:

- 22C:016 Computer Science I: Fundamentals 4 s.h.
- 22C:019 Discrete Structures 3 s.h.
- 22C:021 Computer Science II: Data Structures 4 s.h.
- 22C:022 Object-Oriented Software Development 4 s.h.

22C:031 Algorithms 3 s.h.
 22C:111 Programming Language Concepts 3 s.h.

One of these:
 22C:060 Computer Organization 3 s.h.
 055:035 Computer Architecture and Organization 3 s.h.

One of these:
 22C:112 Operating Systems 3 s.h.
 22C:113 Introduction to Systems Software 3 s.h.
 22C:118 Introduction to Networks and Their Applications 3 s.h.

MATHEMATICS CORE

Calculus I—one of these:
 22M:025 Calculus I 4 s.h.
 22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.

Calculus II—one of these:
 22M:026 Calculus II 4 s.h.
 22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.

Linear algebra—one of these:
 22M:027 Introduction to Linear Algebra 4 s.h.
 22M:047 Linear Algebra and Differential Equations for Scientists 3 s.h.

Probability and statistics—one of these:
 22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
 22S:120 Probability and Statistics 4 s.h.
 Another probability and statistics course with a calculus prerequisite, approved by a computer science advisor

ADVANCED ELECTIVES

Bachelor of Science students must earn at least 6 s.h. in advanced electives.

22C:072/22M:072 Elementary Numerical Analysis 3 s.h.

22C:096 Topics in Computer Science (with advisor's approval) arr.

22C:099 Honors in Computer Science (may be counted once as an advanced course) arr.

Any 100-level computer science course numbered above 22C:110

With instructor's approval, most 22C courses numbered above 200 may be counted as advanced courses.

COMPUTATION THEORY

One of these:
 22C:131 Limits of Computation 3 s.h.
 22C:135 Theory of Computation 3 s.h.

TECHNICAL ELECTIVES

Bachelor of Science students must earn 6 s.h. in technical electives. Advanced elective courses in computer science or in any other department, approved by an advisor, can be counted as technical electives. For a list of approved technical electives, visit the Department of Computer Science web site.

NATURAL SCIENCE SEQUENCES

For the B.S., students take two or more courses in a sequence required of majors in a chosen area of natural science. This study is intended to enhance the student's perspective by providing a deeper understanding of the scientific method. It is typical, but not required, that these courses be taken in the same science department. This cognate sequence must total at least 7 s.h.

Students often choose courses that also complete the General Education Program natural sciences component. Some possible choices are listed below; the computer science advisor may approve others.

CLEP/APP credit may be used to satisfy part or all of the natural science requirement only if the appropriate science department at The University of Iowa accepts the credit as equivalent to one or more of the specific courses listed below.

Astronomy

029:061 General Astronomy I 4 s.h.
 029:062 General Astronomy II 4 s.h.

Biology/Chemistry

002:010 Principles of Biology I 4 s.h.
 002:011 Principles of Biology II 4 s.h.
 004:011 Principles of Chemistry I 4 s.h.

Chemistry

004:011 Principles of Chemistry I 4 s.h.
 004:012 Principles of Chemistry II 4 s.h.

Geography

044:003 Introduction to Earth Systems Science 4 s.h.
 044:005 Foundations of GIS 3 s.h.

Geoscience

012:005 Introduction to Geology 4 s.h.
 012:008 Introduction to Environmental Science 3 s.h.

Physics

One of these sequences:
 029:011-029:012 College Physics I-II 8 s.h.

029:027-029:028 Physics I-II 8 s.h.
 029:081-029:082 Introductory Physics
 I-II (recommended) 8 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

Before the third semester begins: math through calculus I, three courses in the major (e.g., 22C:016, 22C:019, and 22C:021), and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: math through calculus II, two more courses in the major (e.g., 22C:022 and 22C:060), and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least two more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least one more course in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

These checkpoints do not include the required natural science sequence, which students usually complete as part of their General Education Program natural science component.

Before the third semester begins: math through calculus I, three courses in the major (e.g., 22C:016, 22C:019, and 22C:021), and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: math through calculus II, at least two more courses in the major (e.g., 22C:022 and 22C:060), and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least three more courses in the major and at least

three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

In order to pursue honors study in the Department of Computer Science, students must be members of the University Honors Program, which requires them to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

To graduate with honors in computer science, students must complete 4-6 s.h. of 22C:099 Honors in Computer Science and submit an acceptable honors thesis. Students are responsible for finding a faculty member willing to supervise their honors project. The faculty member must approve the proposed project and a timetable for the work. Students register for 22C:099 under the thesis supervisor's instructor number. See the Computer Science Undergraduate Student Handbook for details. Students may count 3 s.h. of 22C:099 toward an advanced or technical elective for the B.S.

Minor

The minor in computer science requires the following courses, for a minimum of 18 s.h.

22C:016 Computer Science I: Fundamentals	4 s.h.
22C:019 Discrete Structures	3 s.h.
22C:021 Computer Science II: Data Structures	4 s.h.
22C:022 Object-Oriented Software Development	4 s.h.
One computer science elective	3 s.h.

Any computer science course except 22C:001, 22C:002, 22C:104, and 22C:109 may be used as an elective. To avoid regression, 22C:005 may be used as an elective only if taken before 22C:016.

No course accepted toward the minor may be taken pass/nonpass. Students must have a g.p.a. of at least 2.00 on all work attempted in the minor.

Students in electrical and computer engineering who have completed 055:033, 057:017, and 059:006 are considered to have satisfied the

requirements for 22C:016 and 22C:022; they receive 8 s.h. of credit toward a computer science minor.

Students may apply a maximum of 6 s.h. of transfer course work toward the minor. Students excused from the minor courses may substitute other computer science electives.

Students apply for a minor in computer science when they apply for a degree.

Graduate Programs

The department offers three graduate degree programs: Master of Computer Science (M.C.S.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.).

The M.C.S. is a non-research, course-based program for students who wish to enhance their careers with advanced knowledge of computer science. The M.S. is granted only to students working toward the Ph.D., which emphasizes preparation for research, teaching, and scholarly work in academic settings or private, industrial, or government laboratories.

Admission decisions are based on prior academic performance, letters of reference, scores on the Graduate Record Examination, and the applicant's statement about background and purpose. Students need not have a master's degree either to begin the Ph.D. program or to be eligible to receive the Ph.D. A student admitted without a master's degree may choose to receive an M.S. while working toward the doctorate.

Current and prospective graduate students should consult the Computer Science Graduate Student Handbook, available from the department's office or on its web site. The handbook provides detailed information about specific degree requirements, such as required courses, examinations, and dissertation requirements. For general information about the department, faculty, and research activities, contact the Department of Computer Science or visit its web site.

Master of Computer Science

The M.C.S. requires a minimum of 32 s.h. Students must complete at least 26 s.h. at The University of Iowa, including 8 s.h. on campus.

Basic M.C.S. requirements are as follows. Consult the Computer Science Graduate Student Handbook for detailed information about M.C.S. requirements and graduate study policies.

ALGORITHMS AND THEORY

One of these:	
22C:131 Limits of Computation	3 s.h.
22C:135 Theory of Computation	3 s.h.
22C:231 Design and Analysis of Algorithms	3 s.h.

SYSTEMS

One of these:	
22C:160 High Performance Computer Architecture	3 s.h.
22C:162 Advanced Operating Systems	3 s.h.
22C:166 Distributed Systems and Algorithms	3 s.h.
22C:168 Computer Communications	3 s.h.
22C:181 Formal Methods in Software Engineering	3 s.h.
22C:185 Programming Language Foundations	3 s.h.
22C:186 Introduction to Compiler Construction	3 s.h.

COLLOQUIUM

M.C.S. students must earn at least 2 s.h. in 22C:399 Research Seminar: Colloquium Series.

ELECTIVES

M.C.S. students fill their remaining 24 s.h. with a combination of computer science graduate courses, reading and project courses, and non-computer science graduate courses approved by their advisor.

Students must take at least six computer science graduate courses (18 s.h.), excluding 22C:190 through 22C:199, 22C:290 through 22C:299, and 22C:390 through 22C:399. They may take only one computer science graduate course (3 s.h.) numbered 22C:190 through 22C:199, 22C:290 through 22C:299, or 22C:390 through 22C:399.

Students may not count computer science graduate courses numbered 22C:101 through 22C:119 toward the elective requirement.

Students may count no more than two non-computer science graduate courses (6 s.h.) of a technical or quantitative nature, approved by their advisor, toward the elective requirement.

Master of Science

The M.S. is offered only to students working toward a Ph.D. in computer science. Students who are interested primarily in a master's degree and do not intend to pursue a more advanced degree should apply to the M.C.S. program.

Doctor of Philosophy

The Ph.D. requires a minimum of 72 s.h., three examinations (qualifying, comprehensive, and final), and a dissertation.

Basic Ph.D. requirements are as follows. Consult the Computer Science Graduate Student Handbook for detailed information about Ph.D. requirements and graduate study policies.

ALGORITHMS AND THEORY

Both of these:

22C:231 Design and Analysis of Algorithms	3 s.h.
22C:135 Theory of Computation	3 s.h.

BREADTH

Ph.D. students must complete at least three of the following courses, with at least one course selected from each area (9 s.h.).

Systems and software:

22C:160 High Performance Computer Architecture	3 s.h.
22C:162 Advanced Operating Systems	3 s.h.

Networks and distributed systems:

22C:166 Distributed Systems and Algorithms	3 s.h.
22C:168 Computer Communications	3 s.h.

Programming languages and compilers:

22C:181 Formal Methods in Software Engineering	3 s.h.
22C:185 Programming Language Foundations	3 s.h.
22C:186 Introduction to Compiler Construction	3 s.h.

PRACTICE

Ph.D. students must complete at least one course (3 s.h.) with significant practical or implementation-oriented content. Each semester the department designates courses that satisfy this requirement. The following are typical selections.

22C:144 Database Systems	3 s.h.
22C:145 Artificial Intelligence	3 s.h.
22C:151 Computer Graphics	3 s.h.
22C:165 Parallel Programming	3 s.h.
22C:174 Optimization Techniques	3 s.h.
22C:177 High Performance and Parallel Computing	3 s.h.
22C:180 Fundamentals of Software Engineering	3 s.h.
22C:198 Individual Programming Projects	3 s.h.

COGNATE AREA

Ph.D. students are required to select, in consultation with their advisor, a total of 9 s.h. in courses that constitute coherent coverage of an external cognate area. Choices include, but are not limited to, mathematics, statistics, genetics, biology, and engineering disciplines.

COLLOQUIUM

Ph.D. students must earn at least 4 s.h. in 22C:399 Research Seminar: Colloquium Series.

ELECTIVES

Ph.D. students fill their remaining semester hours with a selection of computer science graduate courses (excluding those numbered 22C:101 through 22C:119) and non-computer science graduate courses approved by their advisor.

QUALIFYING EXAM

Ph.D. students are required to pass a qualifying examination by the end of their second year of graduate study. Once students select a topic in consultation with their advisor, they are assigned a three-member faculty examination panel by the department. Then they prepare a written prospectus for review by the committee, followed by an oral presentation.

COMPREHENSIVE EXAM

The comprehensive examination is an evaluation of the student's mastery of a research area at or near completion of formal course work, and before preparation of the dissertation. The exam may be written, oral, or both, at the department's discretion, and is administered by a faculty committee. The comprehensive exam typically should be completed by the end of the student's third year and no later than the end of the fourth year in the Ph.D. program.

DISSERTATION

Each Ph.D. student must write a dissertation, a significant, original contribution to the field of computer science. Once students obtain some preliminary results and can identify and describe the boundaries of their dissertation, they prepare a written proposal for their committee's review. The dissertation must be prepared in accordance with the format specified in the Graduate College Thesis Manual.

FINAL ORAL EXAMINATION

Once the dissertation is complete and has been reviewed by the student's committee, a final oral examination is administered on campus. This examination must take place no sooner than the semester following successful completion of the

comprehensive examination and no later than five years after completion of the comprehensive exam.

Graduate Service Courses

Competence and exposure to computer science are not only useful, they often are prerequisite to advanced study and research in many disciplines. For most graduate students from other disciplines, an appropriate first course is 22C:104 Introduction to Informatics.

Courses

Primarily for Nonmajors

Computer science students may not earn degree credit for 22C:104 and 22C:109.

22C:001 Computer Literacy 3 s.h.
Computer literacy; nature, uses, limitations of computers and computing; impact of computer technology on society; privacy, ethics, security; overview of computer organization; introduction to applications, including communications, word processing, desktop publishing, spreadsheets, graphics, databases, World Wide Web.

22C:002 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

22C:005 Introduction to Computer Science 3 s.h.
Broad overview; programming, algorithmic problem solving and analysis, hardware, operating systems, networks, graphics, databases. GE: quantitative or formal reasoning. Prerequisite: closed to students who have completed a computer science course numbered 22C:016 or above.

22C:104 Introduction to Informatics 3 s.h.
Fundamentals of computer science: algorithms, complexity, relational databases, systems concepts, programming in Perl. Prerequisite: closed to computer science majors. Same as 185:104.

22C:109 Programming Languages and Tools 3 s.h.
Varied programming languages and tools. Prerequisite: a programming course (e.g., 22C:005, 22C:016, or 22C:104) or consent of instructor.

For Undergraduate Majors and Minors

22C:016 Computer Science I: Fundamentals 4 s.h.
Programming using Java with emphasis on software engineering practice; programming constructs, data types, problem-solving strategies, data structures, object-oriented programming. GE: quantitative or formal reasoning. Prerequisites: 22M:005, and MPT II score of 20 or higher or MPT III score of 10 or higher.

22C:019 Discrete Structures 3 s.h.
Mathematical methods used in computer science, including logic, proof techniques (with induction), functions, relations, algorithm analysis, recurrence relations, counting methods, combinatorics, graphs, trees. Prerequisite: grade of C- or higher in 22C:016. Recommended: calculus I.

22C:021 Computer Science II: Data Structures 4 s.h.
Design, implementation and analysis of data structures and algorithms, including linked lists, stacks, queues, hash tables, trees, graphs; complexity analysis; recursion; dynamic data structures. Prerequisite: grade of C- or higher in 22C:016. Pre- or corequisite: 22C:019.

22C:022 Object-Oriented Software Development 4 s.h.
Object-oriented design and software development methodology; team programming projects; GUIs, event handling, network programming, concurrency, data representation, IO programming. Prerequisite: grade of C- or higher in 22C:016. Pre- or corequisite: 22C:019.

22C:031 Algorithms 3 s.h.
Algorithm design techniques (divide and conquer, dynamic programming, greedy) and analysis techniques (big O notation, recurrence); sorting (merge sort, heapsort, and quicksort), searching (B-trees, AVL trees or red black trees, hashing); basic graph algorithms (depth-first and breadth-first search, minimum spanning trees, shortest paths); NP-completeness. Prerequisites: grade of C- or higher in 22C:021, and 22M:025 or 22M:031.

22C:060 Computer Organization 3 s.h.
Computer building blocks: representing data, computer arithmetic, instruction sets, assembly language, digital logic, control units, ALU design, register operations, memory organization, IO. Prerequisite: grade of C- or higher in 22C:021.

22C:072 Elementary Numerical Analysis 3 s.h.
Computer arithmetic, rootfinding, polynomial approximation, numerical integration, systems of linear equations, ordinary differential equations; use of higher-level computer languages such as Mathematica. Prerequisite: grade of C- or higher in 22M:026. Same as 22M:072.

22C:096 Topics in Computer Science arr
Complement to material in other courses. Prerequisite: consent of instructor.

22C:099 Honors in Computer Science arr
Individual projects. Prerequisites: computer science major, honors standing, and consent of instructor.

For Advanced Undergraduate Majors

Computer science graduate students may not earn degree credit for these courses.

22C:111 Programming Language Concepts 3 s.h.
Imperative, functional, and logical programming languages, and differences between them; syntax specification, types, control structures, recursion, data abstraction. Prerequisite: grade of C- or higher in 22C:019, 22C:021, and 22C:022.

22C:112 Operating Systems 3 s.h.
Introduction to modern operating systems, including device control, memory management and addressing, process scheduling, interprocess communication, interrupts, synchronization, security. Prerequisite: grade of C- or higher in 22C:060.

22C:113 Introduction to Systems Software 3 s.h.
Design and implementation of system software, including operating systems and programming support software (assemblers, compilers, linkers, loaders); process, memory, message management. Prerequisite: grade of C- or higher in 22C:060.

22C:118 Introduction to Networks and Their Applications 3 s.h.
Introduction to networks and the development of network applications; basic concepts of network communication common to applications such as simulation and web services. Prerequisite: grade of C- or higher in 22C:060.

For Advanced Undergraduate and Graduate Students

22C:131 Limits of Computation 3 s.h.

Turing machines, undecidability and complexity; reductions, Cook's theorem and NP-completeness, approximation algorithms and randomized algorithms. Prerequisite: grade of C- or higher in 22C:031 or equivalent.

22C:135 Theory of Computation 3 s.h.

Finite automata; regular sets and expressions; context-free and context-sensitive grammars, their properties; push-down automata; standard, universal, and linear-bounded Turing machines; relationships between formal languages and automata; undecidability and its consequences. Prerequisite: grade of C- or higher in 22C:031 or equivalent.

22C:137 Theory of Graphs 3 s.h.

Connectivity properties, including Euler, Hamilton cycle problems; graph colorings, matchings; characterization of families of graphs such as trees, planar graphs, networks; graph algorithms, their applications. Prerequisite: grade of C- or higher in 22M:050 or equivalent. Same as 22M:152.

22C:141 Knowledge Discovery 3 s.h.

Knowledge discovery process, including data reduction, cleansing, transformation; advanced modeling techniques from classification, prediction, clustering, association; evaluation and integration. Prerequisite: consent of instructor. Same as 06K:275.

22C:142 Knowledge Discovery and Data Mining 3 s.h.

Concepts and techniques in knowledge discovery and data mining (KDD); data preprocessing, online analytical processing, association analysis, classification, prediction, clustering. Prerequisites: 22C:031 and 22C:104, and some probability/statistics.

22C:144 Database Systems 3 s.h.

Introduction to database systems including querying using SQL, design using ER diagrams, programming using JDBC and XML; practice using and developing databases and applications. Prerequisites: grades of C- or higher in 22C:021 and 22C:022, or equivalents.

22C:145 Artificial Intelligence 3 s.h.

Introduction to artificial intelligence covering problem-solving methods, heuristic search, knowledge representation, automated reasoning, planning, game playing, machine learning, and neural networks. Prerequisite: grade of C- or higher in 22C:031 or equivalent.

22C:146 Introduction to Computational Linguistics 3 s.h.

Introduction to computational linguistics with focus on theory and practice of natural language processing and syntactic and semantic analysis. Same as 103:140.

22C:151 Computer Graphics 3 s.h.

Introduction to computer graphics algorithms and techniques, with emphasis on interactive 3-D graphics; coordinate systems and frames, modeling and viewing transformations, rendering, shading, lighting, texture, bump, environment mapping, animation, ray tracing, radiosity. Prerequisites: grades of C- or higher in 22C:031 and 22M:027, or equivalents.

22C:160 High Performance Computer Architecture 3 s.h.

Processor architectures: Von Neumann machine, evolution of instruction set design, RISC and CISC, implementation of instruction set, microprogramming; storage systems—cache, main and secondary memory, virtual memory; I/O organizations; CPU design—instruction, arithmetic pipelines; high performance computers; array and vector processors, shared-memory and distributed-memory multiprocessors; case studies from historic, current architectures. Prerequisite: grade of C- or higher in 22C:112 or 22C:113 or equivalent. Same as 055:132.

22C:162 Advanced Operating Systems 3 s.h.

Operating system support for sequential, concurrent, distributed programming; interprocess communication, synchronization constructs: semaphores, sockets, monitors, remote procedure calls; management, protection of memory, communication resources. Prerequisites: grades of C- or higher in 22C:031, 22C:111, and 22C:112 or 22C:113, or equivalents.

22C:165 Parallel Programming 3 s.h.

Parallel computations: concepts, design, implementation; performance evaluation; concept of process, parallel algorithms, language and architectural supports; development, running of parallel programs on available parallel machines. Prerequisite: grade of C- or higher in 22C:112 or 22C:113 or equivalent.

22C:166 Distributed Systems and Algorithms 3 s.h.

Models of distributed systems, program correctness—safety and liveness properties, causality, logical and vector clocks, mutual exclusion, distributed snapshot, leader election, distributed algorithms for graph-theoretic problems, fault-tolerance—masking versus nonmasking types, checkpointing, stabilization, consensus—byzantine generals problem, fault-tolerant broadcast and multicast, management of replicated data. Prerequisite: grade of C- or higher in 22C:162 or 22C:168 or equivalent.

22C:168 Computer Communications 3 s.h.

Networks, ISO model, network topology, data link control; error control; point-to-point networks, local area networks; transport services; wireless networking; internetworking; user services. Prerequisites: 22S:039 or 22S:120, familiarity with C and Unix, and senior or graduate standing in computer science or electrical and computer engineering; or consent of instructor. Same as 055:134.

22C:169 Computer Security 3 s.h.

Mechanism versus policy; authentication, access control, security domains; perimeter security, defense in depth; cryptographic protocols; key management and distribution; security assessment. Prerequisite: grade of C- or higher in 22C:060 or equivalent.

22C:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.

Root finding for nonlinear equations; polynomial interpolation; polynomial approximation of functions; numerical integration. Prerequisites: 22M:027 and 22M:028, or 22M:037, or 22M:056, computer programming knowledge; or consent of instructor. Same as 22M:170.

22C:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.

Numerical methods for initial value problems for ordinary differential equations; direct and iterative methods for linear systems of equations; eigenvalue problems for matrices. Prerequisites: 22M:027 and 22M:028, or 22M:037, or 22M:056; 22M:100; and computer programming knowledge; or consent of instructor. Same as 22M:171.

22C:174 Optimization Techniques 3 s.h.

Basic theory of optimization, use of numerical algorithms in solution of optimization problems; linear and nonlinear programming, sensitivity analysis, convexity, optimal control theory, dynamic programming, calculus of variations. Prerequisite: 22M:100 or equivalent. Same as 22M:174.

22C:177 High Performance and Parallel Computing 3 s.h.

Parallel scientific computing methods such as parallel algorithms for dense and sparse matrices; implementation using libraries such as MPI; current topics such as grid computing. Prerequisites: a linear algebra course or a numerical analysis course, and a programming language. Same as 22M:178.

22C:180 Fundamentals of Software Engineering 3 s.h.

Problem analysis, requirements definition, specification, design, implementation, testing/maintenance, integration, project management; human factors; management, technical communication; design methodologies; software validation,

verification; group project experience. Prerequisite: 22C:022 or 055:033, and senior or graduate standing in computer science or electrical and computer engineering. Same as 055:180.

22C:181 Formal Methods in Software Engineering 3 s.h.
Models, methods, and their application in all phases of software engineering process; specification methods; verification of consistency, completeness of specifications; verification using tools. Prerequisite: grade of C- or higher in 22C:180 or consent of instructor. Same as 055:181.

22C:182 Software Engineering Languages and Tools 3 s.h.
Object-oriented programming concepts (objects, classes, single and multiple inheritance, polymorphism and dynamic binding, templates); advanced C++ topics (reusable class design, standard C++ class library, including Standard Template Library); other object-oriented languages and environments, such as SmallTalk, Eiffel; design patterns and software architectures, such as Model-View-Controller, application frameworks. Prerequisite: grade of C- or higher in 22C:180, or experience with C++ and consent of instructor. Same as 055:182.

22C:183 Software Engineering Project 3 s.h.
Use of object-oriented concepts and object-based models in software system analysis and design; Booch, OMT, and Booch-Rumbaugh unified method and notation; Jacobson's use cases; use of design patterns; software architectures; case studies; team project for a real software product; object-oriented process and project management. Prerequisites: 22C:181 and 22C:182, or consent of instructor. Same as 055:183.

22C:185 Programming Language Foundations 3 s.h.
Introduction to formal foundations of programming languages using a variety of models, including attribute grammars, operational, axiomatic, denotational, and algebraic techniques; proofs of program equivalence, correctness, termination. Prerequisites: grades of C- or higher in 22C:031 and 22C:111, or equivalents.

22C:186 Introduction to Compiler Construction 3 s.h.
Concept, design, implementation; simple one-pass compiler; lexical analysis—token specification and recognition, automatic scanner generation; syntax analysis—context-free grammars, top-down, bottom-up, and operator precedence parsing, LL- and LR-parser techniques, treating ambiguous grammars, error recovery; intermediate code generation—postfix notation, three-address code, syntax trees; code optimization—local, global, loop; large programming project. Prerequisites: grades of C- or higher in 22C:031, 22C:111, and 22C:112 or 22C:113, or equivalents.

22C:191 Research for Thesis arr.
Prerequisites: M.S. candidacy in computer science and consent of advisor.

22C:196 Topics in Computer Science arr.
Complements material in other courses. Prerequisite: consent of instructor.

22C:197 Readings in Computer Science arr.
Topics not covered in other courses; individual study. Prerequisite: consent of instructor.

22C:198 Individual Programming Projects arr.
Prerequisite: consent of instructor.

22C:242 Data Mining and Machine Learning 3 s.h.
Topics in machine learning theory and support vector machines (SVM); state-of-the-art data mining and machine learning explored through student projects and discussion of research papers. Prerequisites: 06K:275 or 22C:141 or 22C:142.

22C:244 Database System Implementation 3 s.h.
Advanced database topics including file organizations, storage management, architectures, query optimization, transaction management, recovery, and concurrency control. Optional topics include distributed databases and integration. Prerequisite: 22C:144 or equivalent.

22C:245 Advanced Artificial Intelligence 3 s.h.
In-depth treatment of one of these: automated deduction (e.g., first-order logic, natural deduction, resolution, model elimination, equational reasoning, search plans for theorem proving, theorem proven design), constraint satisfaction, model construction, planning, AI programming languages and techniques, machine learning, philosophies of machine intelligence. Prerequisite: 22C:145 or equivalent.

22C:251 Advanced Computer Graphics 3 s.h.
Topics such as global illumination and rendering; volume rendering; animation; curves and surfaces, advanced modeling and mapping techniques; graphics hardware; real-time graphics for virtual environments. Prerequisite: 22C:151 or consent of instructor.

22C:253 Algorithms in Discrete Optimization 3 s.h.
Recent progress in discrete algorithms and combinatorial optimization; approximation algorithms, randomized algorithms/sampling, network flow algorithms, LP-based algorithms. Prerequisite: 22C:231 or equivalent.

22C:290 Readings for Research arr.
Prerequisites: Ph.D. candidacy in computer science and consent of instructor.

22C:294 Seminar on Systems and Networks arr.
Prerequisite: consent of instructor.

22C:295 Seminar on Artificial Intelligence arr.
Prerequisite: consent of instructor.

22C:296 Seminar on Computer Science arr.
Prerequisite: consent of instructor.

22C:299 Research for Dissertation arr.
Prerequisites: Ph.D. candidacy in computer science and consent of advisor.

22C:391 Research Seminar: Algorithms 1 s.h.
Research papers in algorithm design and analysis. Repeatable. Prerequisite: 22C:131 or consent of instructor.

22C:394 Research Seminar: Distributed Systems 1-2 s.h.
Distributed systems theory. Repeatable. Prerequisites: 22C:166 and 22C:294, or consent of instructor.

22C:398 Research Seminar: Programming Languages 0 s.h.
Repeatable. Prerequisite: consent of instructor.

22C:399 Research Seminar: Colloquium Series 1 s.h.
Graduate colloquium. Repeatable.

For Graduate Students

22C:231 Design and Analysis of Algorithms 3 s.h.
Review of design and analysis techniques; advanced data structures (binomial and Fibonacci heaps, disjoint sets); graph algorithms (network flows, matching, min-cut); NP-completeness, randomization and approximation algorithms; special topics (string matching, computational geometry, number theoretic algorithms). Prerequisite: 22C:031 or 22C:131 or equivalent.

English

Chair: Jonathan Wilcox

Professors: Florence Boos, Ethan Canin, Lan Samantha Chang, Huston Diehl, Barbara Eckstein, Ed Folsom (Carver Professor), Patricia Foster, James Galvin, Miriam Gilbert, David Hamilton, Robin Hemley, Cheryl L. Herr (English/Cinema and Comparative Literature), Kevin Kopelson, Rudolf E. Kuenzli (English/Cinema and Comparative Literature), William Kupersmith, Brooks Landon, Susan Lohafer, Thomas Lutz, James Alan McPherson (F. Wendell Miller Distinguished Professor), Christopher Merrill (English/Cinema and Comparative Literature), Adalaide Morris, Peter Nazareth (English/African American Studies), Judith Pascoe, Horace Porter (English/American Studies), John Raeburn (American Studies/English), Marilynne Robinson, Claire Sponsler, Garrett Stewart (James O. Freedman Chair in Letters), Bonnie Sunstein (Teaching and Learning/English), Thomas Swiss (English/POROI), Jonathan Wilcox

Professors emeriti: Sven M. Armens, Paul Baender, Marvin Bell, Clark Blaise, David S. Chamberlain, Archibald C. Coolidge, Carol de Saint Victor, Stavros Deligiorgis, Hualing Nieh Engle, John E. Grant, Ray L. Heffner, John F. Huntley, Robert E. Kelley, Carl H. Klaus, Valerie Lagorio, John Leggett, Richard Lloyd-Jones, Frederick P.W. McDowell, John C. McLaughlin, K.K. Merker, William Murray, Alan F. Nagel, William J. Paff, Robert F. Sayre, Oliver Steele, Gerald Stern, Albert E. Stone, Daniel Weissbort

Associate professors: Bluford Adams (English/American Studies), Linda Bolton, Lori Branch, Corey Creekmur (English/Cinema and Comparative Literature), Kathleen Diffley, Mary Lou Emery, Claire Fox, Eric Gidal, Rob Latham (English/Sexuality Studies), Kathryn Lavezzo, Mark Levine, Teresa Mangum, Laura Rigal (English/American Studies), Phillip Round, Thomas Simmons, Alvin Snider, Cole Swensen, Douglas Trevor, Doris S. Witt, David Wittenberg (English/Cinema and Comparative Literature), Fredrick Woodard (English/African American Studies), Dean Young

Associate professors emeriti: Paul Diehl, Robert F. Woerner

Assistant professors: Gina Bloom, Matthew Brown (English/Center for the Book), John D'Agata, Loren Glass, Tamara Ho (Women's Studies/English), Marie Kruger, Priya Kumar, Jeff Porter, Harilaos Stecopoulos, Lara Trubowitz

Assistant professor emeritus: John B. Harper

Lecturers: Jeff Porter, Mary Ann Rasmussen, Anne Stapleton

Undergraduate degree: B.A. in English

Undergraduate nondegree program: Minor in English

Graduate degrees: M.A., M.F.A., Ph.D. in English

Web site: <http://english.uiowa.edu/>

The Department of English offers courses in literature, cultural studies, language, and writing. In these courses, students read poetry, fiction, essays, criticism, and theory to acquire methods for understanding literature and culture. In addition to providing these essential elements of a liberal education, department courses can augment students' specialized interests in other fields. The department also participates in the interdisciplinary departments and programs in American studies; American Indian and native studies; African American studies; the Center for the Book; cinema and comparative literature; literature, science, and the arts; and women's studies.

The department has a strong, long-standing commitment to teaching creative and nonfiction writing.

Although most students in the Ph.D. program are preparing for careers as teachers and scholars, and most in the M.F.A. nonfiction writing program are preparing for lives as storytellers and essayists, the B.A. and M.A. programs provide valuable training for careers in a variety of fields. Students who have earned English degrees from The University of Iowa write for advertising firms, newspapers, and book publishers; teach in primary and secondary schools; practice law and medicine; work in business and industry; and participate in state or federal government. As far as possible, a student's course of study is arranged to meet his or her individual needs and objectives.

Undergraduate Program

The English department offers courses in literature, film, critical theory, cultural studies, language, and writing. In these courses, students study poetry, fiction, essays, criticism, film, and theory to acquire methods for understanding the history and significance of texts in the cultures from which they emerge. The program also challenges students to strive for excellence as writers.

Bachelor of Arts

The Bachelor of Arts in English requires a minimum of 33 s.h. (11 courses) in the major.

Course work is divided into six areas and three historical periods. The area and historical period fulfilled by each regularly offered course is identified in the course description (see “Courses” in this section of the Catalog or visit the University’s ISIS web site). Information and course lists are also available on the department’s web site and from advisors.

Areas: at least one course (3 s.h.) from each of the following six areas is required.

Literary theory and interdisciplinary studies
Medieval and early modern literature and culture
Modern British literature and culture
American literature and culture
Transnational literature and postcolonial studies
Nonfiction and creative writing

Each student chooses one of the six areas as a concentration area and takes an additional two courses in that area, for a total of three courses (9 s.h.) in one area, and eight area courses in all.

Historical periods: students also must take at least two courses from each of the following three historical periods.

Early literatures through the 17th century
Eighteenth- and/or 19th-century literature
Twentieth- and/or 21st-century literature

Since most courses satisfy both an area and a historical period, most students complete the historical period requirements as they complete the area requirements and are able to choose additional elective course work to complete the major.

Of the 33 s.h. required for the major, 15 s.h. may be transferred from another institution. At least 18 s.h. in the major must be taken in residence at The University of Iowa.

Students who plan to apply to the College of Education for a degree in secondary education (English) should consult with an advisor in that program as early as possible. The education degree demands that students chose particular courses within each of the English major’s required categories in order for them to meet state requirements. See “English and Education” in this section of the Catalog.

Students interested in an English major should consult the director of undergraduate studies in the English department office. Visit the Department of English web site for details about the program, faculty, courses, and upcoming events.

Courses Approved for General Education

Courses numbered 08G cannot be counted toward the 33 s.h. required for the English major, so students majoring in English should not use 08G courses to complete the College of Liberal Arts and Sciences General Education Program. Although 08G:001 The Interpretation of Literature is a part of the General Education Program, English majors should substitute a course approved for General Education in the humanities area for 08G:001.

Creative Writing Studio Workshop (08C:001) and Introduction to Creative Nonfiction (08N:020) cannot be counted toward the English major.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The English major with honors gives talented students the opportunity to enhance their course of study through special courses and independent study. Each year the department offers five honors proseminars covering a wide range of historical areas and topics. These courses are taught by faculty members. Enrollment is limited to 18 students.

Students usually complete a four-semester sequence to graduate with honors in English. They must complete 008:098 Honors Proseminar twice, preferably during the junior year, and a

senior thesis. Students who wish to count other course work, including study abroad, toward the proseminar requirement must have the honors director's permission. The proseminar requirement must be completed the semester before graduation.

To graduate with honors in English, students must maintain a cumulative University of Iowa g.p.a. of at least 3.33 and an English g.p.a. of at least 3.50.

Ideally, the honors student's senior year is devoted to the thesis project, written under the supervision of a faculty member. Students may earn up to 6 s.h. of credit for work they carry out for the honors thesis, through a combination of semester hours earned in 008:120 Honors Thesis Workshop and/or 008:198 Undergraduate Honors Project Independent Study. Thesis projects may cover the range of fields offered by the Department of English: literary, theoretical, and cultural studies; nonfiction writing; and creative writing (poetry and fiction).

Students who wish to submit a nonfiction thesis must work under the supervision of a regular faculty member in the Nonfiction Writing Program and must have completed at least one nonfiction writing course above the 100 level. Students who wish to submit a creative thesis in poetry or fiction must work under the supervision of a permanent member of the Writers' Workshop.

Students interested in more information should contact the director of the English honors program or the director of undergraduate studies. A handout, *Guidelines and Deadlines*, which details requirements for the final project and specifies deadlines for turning in the prospectus and the final honors project, is available in the Department of English office and the Honors Lounge.

Contact the University Honors Program for more information about honors study at Iowa.

Minor

Before taking courses for the minor, students must complete 08C:001 The Interpretation of Literature.

The minor requires a minimum of 15 s.h. of course work in English, including at least 6 s.h. in the area of literature (courses numbered 008). The other 9 s.h. may be selected from additional courses in literature, courses in writing (08C, 08N) or courses in linguistics (08L). At least 12 s.h. must be from advanced courses

numbered 008:033 and above, 08C:002 and above, 08N:050 and above, and all 08L courses. Courses numbered 08G and 08A do not count toward the minor; 08N:020 Introduction to Creative Nonfiction and 08C:001 Creative Writing Studio Workshop also do not count. Transfer credit and credit by examination are not accepted toward the 12 s.h. of advanced work.

Students must have a g.p.a. of 2.00 or higher in course work taken toward the minor.

No course for the minor may be taken pass/nonpass.

The minor is officially acknowledged and recorded only after the student has completed the application for graduation.

Students who would like assistance in planning to meet requirements for the minor may stop by the advising office or schedule an appointment with an advisor in the English department; contact the undergraduate English secretary.

Writing for Undergraduates

Many undergraduate students come to The University of Iowa because of the Writers' Workshop (see "Writing Programs" later in this section of the Catalog). Although the workshop is essentially a graduate program, any student may take the undergraduate courses taught there: 08C:023 Creative Writing, 08C:097 Fiction Writing, 08C:098 Poetry Writing, and 08C:001 Creative Writing Studio Workshop. However, 08C:001 does not fulfill requirements for the English major or minor.

Admission to the undergraduate workshops in fiction and poetry (08C:163 Undergraduate Writers' Workshop: Fiction and 08C:166 Undergraduate Writers' Workshop: Poetry) requires the instructor's consent. Students who wish to participate in these workshops must submit samples of their poetry or fiction to the Writers' Workshop office no earlier than a week before registration and no later than the last day of registration for that semester.

Nonfiction writing is also a major area of interest for faculty and students in the department of English. Students may enroll for courses that stress practice in forms of nonfiction writing and for courses that focus on nonfiction literature. Students who wish to participate in 08N:150 Undergraduate Essay Workshop and other courses with special permission requirements should check with the instructor of the course before registering.

Undergraduate majors may concentrate in nonfiction and creative writing with any combination of 08N or 08C courses.

English and Education

Students planning to teach English in secondary schools must complete the requirements for the major in English and gain admission to the Teacher Education Program. Contact the College of Education Office of Teacher Education and Student Services for application forms and information.

COURSE REQUIREMENTS

By the end of the program, students must have taken the following courses.

English (Part of the Undergraduate Major)

- One Shakespeare course
- Three American literature courses
- One British literature course
- 08N:141/07S:155 Approaches to Teaching Writing (area: nonfiction and creative writing) 3 s.h.
- 08P:182/07S:182 Language and Learning (area: literary theory and interdisciplinary studies) 2-3 s.h.
- 08P:198/07S:193 Reading and Teaching Adolescent Literature (area: literary theory and interdisciplinary studies) 3 s.h.
- One nonfiction or creative writing course (in addition to 08N:141)

Education

- 07B:180 Human Relations for the Classroom Teacher 3 s.h.
- 07E:102/07S:102 Technology in the Classroom 2 s.h.
- 07P:075 Educational Psychology and Measurement 3 s.h.
- 07S:100 Foundations of Education 3 s.h.
- 07S:114 Introduction and Practicum: English/Speech 3 s.h.
- 07S:115 Methods: English 3 s.h.
- 07S:187 Seminar: Curriculum and Student Teaching 1-3 s.h.
- 07S:190 Orientation to Secondary Education 0-1 s.h.
- 07S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 07S:192 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 07S:194 Methods: High School Reading 2-3 s.h.
- 07U:100 Foundations of Special Education 3 s.h.
- One college-level mathematics or statistics course

Admission

Applicants to the Teacher Education Program in English must have completed a minimum of 12 s.h. in English before they can be admitted (8G courses do not count toward the 12 s.h.). Applicants must have a University of Iowa g.p.a. and a cumulative g.p.a. of at least 2.70 as well as an English major g.p.a. of at least 3.00. Applicants must submit an application to the College of Education, including PRAXIS I scores, an Iowa criminal history check, letters of recommendation, and proof of a 10-hour preadmission volunteer field experience.

Minor Licensure in English

Students who seek licensure for secondary teaching in fields other than English may seek minor licensure in English. First-year courses in rhetoric, speech, or writing do not count toward this requirement.

The English minor licensure program includes the following course work.

- An American literature course
- A British literature course
- A course in creative or nonfiction writing
- An additional English course
- 07S:115 Methods: English 3 s.h.
- 07S:194 Methods: High School Reading 2-3 s.h.
- 08N:141/07S:155 Approaches to Teaching Writing 3 s.h.
- 08P:182/07S:182 Language and Learning 2-3 s.h.
- 08P:198/07S:193 Reading and Teaching Adolescent Literature 3 s.h.

While this program meets minimum requirements for licensure, the department recommends that students who want to teach English have considerably more training in the field.

Graduate Programs

The Department of English offers four graduate degrees. The M.F.A. in creative writing and the M.F.A. in nonfiction writing offer advanced courses in writing poetry, creative nonfiction, and essays. The M.A. in literary studies introduces students to the professional study of literature, and the Ph.D. prepares them to serve as faculty members at colleges and universities.

Although direct application to the Ph.D. program is generally encouraged, some students consider the M.A. an appropriate step in their professional training. These students may have had an undergraduate major in a different field or may

want more preparation for other reasons. Some may intend to complete their studies elsewhere. Students interested in careers in any area of book studies (professional writing, editing, web design, or publishing) may wish to pursue the M.A. as a terminal degree, as may teachers seeking to enhance their credentials or students pursuing intellectual growth unrelated to a specific career.

M.A. and Ph.D. students mix freely in graduate courses, share the same access to faculty, and meet the same standards of quality in their work.

Master of Arts in Literary Studies

The M.A. in literary studies requires a minimum of 30 s.h., including 24 s.h. earned in residence at The University of Iowa with a g.p.a. of at least 3.25. Students who wish to transfer to Iowa's Ph.D. program must complete two semesters or 15 s.h. of course work in literature (whichever comes first) before applying for admission to the doctoral program.

COURSE WORK

Each student must take the following courses at the 200 level or above. Applicable transfer courses must be approved by a faculty advisor.

One course in criticism and theory

Four courses from the following five areas:

British or American literature and culture before 1500

British or American literature and culture 1500-1660

British or American literature and culture 1660-1800

British or American literature and culture 1800-1900

British or American literature and culture of the 20th Century

Elective courses constitute half of the total credit for the degree and may be chosen from graduate courses both in and outside the English department. Students may wish to explore opportunities for interdisciplinary study, language study, experience in theory and practice of writing, or specialization in a field of literary scholarship.

Completion of the M.A. requires either a thesis or a portfolio. Students submit a written description of their choice to the director of the program before the semester in which they plan to graduate.

M.A. THESIS

Students who choose to write an M.A. thesis must submit a brief prospectus approved by a thesis director before they register for thesis credit and at least one semester before they submit the thesis. The thesis committee consists of the thesis director, the director of the M.A. program, and one other faculty member. At a final oral examination, the thesis is evaluated by the committee as either satisfactory or unsatisfactory.

A copy of the thesis must be presented to the Graduate College for approval no later than four weeks before the date on which the degree is to be conferred. The final copy of the thesis must be deposited with the Graduate College no later than 10 days before graduation. For detailed information about Graduate College policies, see the Manual of Rules and Regulations of the Graduate College.

THE PORTFOLIO

Students working toward the M.A. in literary studies submit, near the end of their course work, a portfolio of work to the M.A. examination committee, which consists of the director of the M.A. program and two other English faculty members. All three read the full portfolio. To pass, the candidate must win a majority vote of the committee members.

Students take the first step toward preparing to submit a portfolio by meeting with the director of the M.A. program to discuss the portfolio. Soon after this meeting, and no less than three weeks before the exam date, the student presents to the director a draft of the portfolio's introductory statement. The director may suggest changes either before or after approving the statement. Once the director approves the statement, the student must provide the director with three copies of the full portfolio at least two weeks before the date of the examination.

The work in the portfolio should demonstrate the student's knowledge of literature as a broad historical and theoretical inquiry. Students submit approximately 50 pages (12,500 words) of their best work, along with an introductory statement of five to seven pages. The body of the portfolio should contain revised versions of papers originally produced for classes. The introductory statement should explain the contents of the portfolio, contextualize each paper, and give a brief overview of the writing. Students are expected to describe the research methods used in assembling their portfolios and the critical practices that ground their work.

M.A.T. Candidates

The English component of the exam for the M.A.T. program is administered in coordination with the College of Education. M.A.T. students should contact the Department of Teaching and Learning or visit the College of Education web site.

Master of Fine Arts (Nonfiction Writing)

The M.F.A. program in nonfiction writing is broadly devoted to literary nonfiction. It is designed primarily for persons who wish to become nonfiction writers, but it also may be appropriate for those who wish to teach, edit, or pursue other activities in the field of nonfiction. Normally, the program takes three years to complete.

The degree requires a total of 48 s.h., including at least 30 s.h. earned in residence at The University of Iowa and 24 s.h. of work in program-designated courses. In addition to the course work, students are required to enroll for at least 4 s.h. and no more than 8 s.h. of credit for the thesis.

Electives may be chosen widely, from courses in the English department as well as any other University departments.

All students in the program are required to write a thesis, which may be a single extended piece of nonfiction, a collection of shorter nonfiction pieces, or a collection of essays. Whatever the project, the thesis is expected to be of publishable quality.

For more information, consult the director of the Nonfiction Writing Program.

Master of Fine Arts (Creative Writing)

The purpose of the M.F.A. program in creative writing is to provide professional guidance and a stimulating environment for students with previous achievement or notable promise in writing poetry or fiction. The flexible requirements include 48 s.h. of graduate credit, earned chiefly in the Writers' Workshop; a collection of poems or short stories, or a novel; and satisfactory performance on an examination covering modern poetry or fiction.

Doctor of Philosophy

The Ph.D. program is designed as preparation for the teaching, publishing, and administrative service required of college and university faculty members. The degree requires 72 s.h. of graduate credit, including at least 30 s.h. earned in residence at The University of Iowa with a g.p.a. of at least 3.50.

Concentrations are offered in areas such as literary history, literary theory, and cultural studies.

Ph.D. requirements include the following.

Formal admission to candidacy by a vote of the Graduate Steering Committee, usually during the third semester of doctoral study

Course work in any four of the following historical periods:

British or American literature and culture before 1500

British or American literature and culture 1500-1660

British or American literature and culture 1660-1800

British or American literature and culture 1800-1900

British or American literature and culture of the 20th century

Three English department seminars taken at The University of Iowa

Fulfillment of the language requirement, usually by completion of an advanced undergraduate course (100-level or above) in a language other than English

A comprehensive examination that consists of the following: a portfolio of five scholarly questions based on a period of British and/or American literary history; a review essay and annotated bibliography in a special area of interest; two course syllabi; an article to be submitted for publication; and an introduction to the portfolio that synthesizes its parts in preparation for a two-hour exam

A dissertation

A final examination in defense of the dissertation

All doctoral candidates are encouraged to gain teaching experience, preferably in the College of Liberal Arts and Sciences Department of Rhetoric and in General Education Program literature courses.

For application forms and a complete description of the Ph.D. program, contact the department's graduate secretary.

Admission

For admission requirements, visit the Department of English web site. Applications for admission are due January 15.

Financial Support

Graduate scholarships, fellowships, and teaching and research assistantships are awarded on a competitive basis. The department strives to support all doctoral students who are in good standing, which requires a University of Iowa g.p.a. of at least 3.50 and full-time student standing.

Financial aid applications are considered only from students who have applied or been admitted to a degree program in the Graduate College. Applications and all necessary supporting material must be submitted by the end of January for the following academic year. Forms are available from the Department of English and the University's Office of Admissions.

Writing Programs

For the past 70 years, The University of Iowa has been a national leader in virtually all areas of the teaching of writing.

Founded in 1936, the Writers' Workshop was a pioneer in the field of creative writing. It counts scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students to work with outstanding teacher-authors. It also brings numerous prominent authors to campus each year for lectures and readings.

The University of Iowa M.F.A. program in nonfiction writing is one of the few programs in the nation that offers a full range of graduate course work in this area. It also gives undergraduates the opportunity to pursue a concentration in nonfiction writing. See "Master of Fine Arts (Nonfiction Writing)" and "Writing for Undergraduates" earlier in this section of the Catalog.

Facilities

The University of Iowa Libraries collection is strong in all areas of English and American literature. Partly because of the influence of the Writers' Workshop, University Libraries has particular strengths in 20th-century fiction and poetry, including manuscript collections of 20th-century authors.

Several periodicals are published under the department's aegis. The Iowa Review, Walt Whitman Quarterly Review, and Philological Quarterly offer opportunities for especially qualified graduate students to work as research assistants or editorial associates. The Iowa Journal of Cultural Studies, edited by English department graduate students, features creative and scholarly work by students in English and related areas.

The Windhover Press, which publishes fine editions of works by contemporary authors, offers qualified students the opportunity to learn the art of fine printing.

The Department of English and the Writers' Workshop sponsor a rich and extensive series of readings and lectures by poets, fiction writers, and scholars, all open to students in the department.

The Association of Graduate Students in English sponsors social and intellectual events during the year and provides a forum for student opinion. All graduate students in the department are members.

Courses

Individual descriptions for most English courses are not included because content and emphasis may vary considerably from one semester to the next. For detailed descriptions of each semester's courses, visit the University's ISIS web site.

Courses for Non-English Majors

08A:015 Writing for Practical Purposes for Non-English Majors	2-3 s.h.
08A:072 Shakespeare for Non-English Majors	3 s.h.
08A:080 Nonfiction Writing for Non-English Majors	3 s.h.
08A:104 Personal Writing for Non-English Majors	3 s.h.
08A:106 Literature and Culture of 20th-Century America for Non-English Majors	3 s.h.
08A:113 Writing for Business and Industry for Non-English Majors	3 s.h.
08A:133 British Novel: Scott to Conrad for Non-English Majors	3 s.h.
08A:135 Forms of the Essay for Non-English Majors	3 s.h.
08A:142 Popular Literature for Non-English Majors	3 s.h.
08A:182 Science Fiction for Non-English Majors	3 s.h.
08A:188 Prose by Women Writers for Non-English Majors	3 s.h.

General Education

Note: 08C:001 and 08N:020 do not count toward the English major or minor.

08C:001 Creative Writing Studio Workshop 3 s.h.

Experience reading and writing fiction, poetry, and literary nonfiction in a workshop setting; study of published work and critical discussion from a writer's standpoint; critique of class members' work. GE: fine arts or humanities.

08N:020 Introduction to Creative Nonfiction 3 s.h.

GE: fine arts.

Literature, General Education

All students who seek a degree from the College of Liberal Arts and Sciences, except English majors, must take 08G:001 The Interpretation of Literature as part of the General Education Program. English majors should substitute any course that is approved for General Education in the humanities, except those numbered 08G.

Course 08G:001 (or its equivalent by examination or transfer) is a prerequisite for courses 08G:002 through 08G:015. The pass/nonpass option is available only for students in the Colleges of Nursing and Engineering with consent of the student's advisor and the instructor. Students must successfully complete the rhetoric requirement before they take 08G courses.

08G:001 The Interpretation of Literature 3 s.h.

Ways of reading; focus on reader, text, contexts; poetry, short fiction, drama, novels. GE: interpretation of literature.

08G:002 Biblical and Classical Literature 3 s.h.

Literatures of ancient cultures—Jewish and Christian, Greek and Roman—that have deeply affected later civilizations. GE: humanities. Prerequisite: 08G:001.

08G:003 Medieval and Renaissance Literature 3 s.h.

English and European poetry, prose, drama circa 400-1700 in dialogue with contemporary concerns. GE: humanities. Prerequisite: 08G:001.

08G:004 Epic and Tragic Literature 3 s.h.

Heroes and heroines as the products of imagination; literary representations of heroes and heroines in differing social and historical situations; how their representation shapes our understanding of heroism. GE: humanities. Prerequisite: 08G:001; closed to students who have taken 08G:012.

08G:005 Literatures of Native American Peoples 3 s.h.

Genres of Native American literature, including oral literature; focus on written literature (fiction, essays, poetry, drama). GE: cultural diversity. Prerequisite: 08G:001. Same as 149:005.

08G:006 Fictions 3 s.h.

Selected masterpieces and recent developments in the art of storytelling in poetry and prose. GE: humanities. Prerequisite: 08G:001.

08G:007 Poetry 3 s.h.

Poetry from major periods of development as well as contemporary verse; emphasis on distinctive language, major formal patterns of poetry. GE: humanities. Prerequisite: 08G:001.

08G:008 Drama 3 s.h.

Plays from a wide range of periods; relationship of text to performance. GE: humanities. Prerequisite: 08G:001.

08G:009 American Lives 3 s.h.

Major works of American literature. GE: humanities. Prerequisite: 08G:001.

08G:011 Literature and Sexualities 3 s.h.

Works from various genres, time periods, cultures that reflect and construct a wide range of sexual identities. GE: cultural diversity or humanities. Prerequisite: 08G:001.

08G:012 Comic and Tragic Literature 3 s.h.

Interrelations of comic and tragic literature, including film and other popular media, and their connection with human experience; comic and tragic forms and their uses in different social and historical situations. GE: humanities. Prerequisite: 08G:001; closed to students who have taken 08G:004.

08G:013 Literatures of Latinos/as in the USA 3 s.h.

Works in English by U.S. authors of Latin American descent. GE: cultural diversity or humanities. Prerequisite: 08G:001.

08G:014 Literatures of the African Peoples 3 s.h.

Works in English by authors of African descent from America, continental Africa, the Caribbean. GE: foreign civilization and culture or humanities. Prerequisite: 08G:001. Same as 129:008.

08G:015 Women and Literature 3 s.h.

Works from various genres and time periods focusing on a wide range of women's experiences. GE: humanities. Prerequisite: 08G:001.

Literature, Primarily for Undergraduates

English department courses are open to all undergraduates who have satisfied the rhetoric requirement. Undergraduates are encouraged to complete one or more departmental courses below the 100 level before attempting 100-level courses.

008:001 Modern Fiction 3 s.h.

Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:002 Postmodern Fiction 3 s.h.

Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:008 Classical and Biblical Literature 3 s.h.

Area: medieval and early modern literature and culture. Period: early literatures through 17th century.

008:011 Films and Screenplays 3 s.h.

Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 048:011.

008:030 Introduction to Cultural Studies 3 s.h.

Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st century literature.

008:031 Introduction to Postcolonial Studies 3 s.h.

Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st century literature.

008:032 Introduction to the English Language 3 s.h.

Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st century literature.

008:033 Introduction to Criticism and Theory 3 s.h.

Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

- 008:034 Introduction to the Novel** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:035 Introduction to Poetry** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:036 Introduction to the Short Story** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.
- 008:037 Introduction to Drama** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.
- 008:038 Introduction to the Essay** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.
- 008:039 Introduction to Digital Media** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.
- 008:050 Sexuality and Popular Culture in Postwar U.S.** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 045:060, 154:060.
- 008:052 Women in Literature** 2-3 s.h.
Area: literary theory and interdisciplinary studies. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature. Same as 131:161.
- 008:053 Lyric Structures** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.
- 008:055 American Poetry** 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:056 American Literary Classics** 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:057 American Novel I** 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature.
- 008:058 American Novel II** 3 s.h.
Area: American literature and culture. Period: 20th and/or 21st-century literature.
- 008:059 American Short Story** 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:060 Selected Works of the Middle Ages** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:061 Selected Works of the 16th and 17th Centuries** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:062 Eighteenth-Century British Literature** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.
- 008:063 British Romanticism** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.
- 008:064 Victorian Literature** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.
- 008:065 Twentieth-Century British Literature** 3 s.h.
Area: modern British literature and culture. Period: 20th- and/or 21st-century literature.
- 008:066 Twenty-first-Century British Literature** 3 s.h.
Area: modern British literature and culture. Period: 20th- and/or 21st-century literature.
- 008:069 Selected African American Authors** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature. Same as 129:069.
- 008:074 Selected American Authors** 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:075 Selected Transnational Authors** 3 s.h.
Area: Transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.
- 008:076 Selected Early Authors** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:077 Selected British Authors** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:081 Film and Literature** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 048:081.
- 008:082 Latina/o Studies** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature.
- 008:083 Topics in African American Literature** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature.
- 008:084 Topics in Culture and Identity** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:086 Topics in Asian American Literature** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature.
- 008:095 Seminar in Interdisciplinary Studies** 3-4 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 154:095.
- 008:100 Literature and Culture of Seventeenth-Century England** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:101 Literature and Culture of the Middle Ages** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:102 Literature and the Culture of the Renaissance** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:103 Literature and the Culture of Eighteenth-Century Britain** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.

- 008:104 Literature and the Culture of
Nineteenth-Century Britain** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.
- 008:105 Literature and Culture of
Nineteenth-Century America** 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature.
- 008:106 Literature and the Culture of
Twentieth-Century America** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature.
- 008:107 Literature and Culture of
Nineteenth-Century Scotland** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.
- 008:108 Literature and Culture of America Before
1800** 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature.
- 008:109 Literature and Culture of the Twentieth
Century** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.
- 008:110 Literature and Culture of 20th- and
21st-Century Britain** 3 s.h.
Area: modern British literature and culture. Period: 20th- and/or 21st-century literature.
- 008:111 Literature and Culture of the Restoration** 3 s.h.
Area: modern British literature and culture. Period: early literatures through 17th century.
- 008:112 Literature and Culture of the Romantic
Period** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.
- 008:113 Literature and Culture of the Americas** 3 s.h.
Area: transnational literature and culture. Period: 20th- and/or 21st-century literature.
- 008:114 Caribbean Literature and Culture** 3 s.h.
Area: transnational literature and culture. Period: 20th- and/or 21st-century literature.
- 008:115 Literatures of the American Peoples** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature.
- 008:116 African American Literature I** 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature. Same as 129:116.
- 008:117 African American Literature II** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature. Same as 129:117.
- 008:118 Jewish American Literature** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature.
- 008:119 African Literature** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature. Same as 129:119.
- 008:121 British Poetry** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:122 16th- and 17th-Century Poetry** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:123 American Literature and History** 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature. Same as 045:123.
- 008:124 Topics in British and Irish Film** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature. Same as 048:127.
- 008:127 Topics in Asian Cinema** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature. Same as 039:145, 048:106.
- 008:128 London Performance Study** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 049:177.
- 008:129 Topics in Criticism and Theory** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.
- 008:130 Literature and the Book** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 108:181.
- 008:131 European Literature of the Nineteenth
Century** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature. Same as 048:109.
- 008:132 Literature of the Indian Subcontinent** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.
- 008:133 Inter-American Studies** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.
- 008:134 Introduction to Book Studies** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 108:185.
- 008:135 Topics in American Literature** 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:136 Topics in Popular Culture** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.
- 008:137 African American Autobiography** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature. Same as 129:181.
- 008:138 Topics in Postcolonial Studies** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.
- 008:139 African American Poetry** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature. Same as 129:139.
- 008:140 Elementary Old English** 4 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century. Same as 103:132.
- 008:141 Old English Beowulf** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:142 Medieval Celtic Literature** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.

- 008:143 Medieval Norse Literature** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:144 Medieval Drama** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century. Same as 049:181.
- 008:145 English Renaissance Drama** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century. Same as 049:184.
- 008:146 Chaucer** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:147 Shakespeare** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century. Same as 049:072.
- 008:148 Milton** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:149 Spenser** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:150 Topics in Medieval and Renaissance Literature** 3 s.h.
Area: medieval and early modern literature and culture. Period: early literatures through 17th century.
- 008:152 Introduction to Chicano Literature and Culture** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature. Same as 035:137.
- 008:153 Native American Literature** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature. Same as 149:113.
- 008:154 American Regional Literatures** 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:157 Topics in African Cinema** 3 s.h.
Area: Transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature. Same as 129:158.
- 008:158 Storytelling and Urban Engagement** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 045:163, 102:158.
- 008:160 African American Literary and Rhetorical Criticism I** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 010:132, 129:130.
- 008:161 Transnational and Postcolonial Writing by Women** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.
- 008:162 Midwest African American Literature and Culture** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature. Same as 129:162.
- 008:163 Identity and Social Issues** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.
- 008:164 Topics in Transnational Literature** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.
- 008:165 Diaspora and Transnational Migrations** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.
- 008:166 African American Literary/Rhetorical Criticism II** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 010:133, 129:131, 160:162.
- 008:168 Topics in Poetry and Poetics** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:169 Changing Concepts of Women in Literature** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 131:169.
- 008:170 Literary Genres and Modes** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.
- 008:171 Topics in Film and Popular Culture** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 048:174.
- 008:172 Narrative and the Cinema** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 048:172.
- 008:173 Topics in Digital Media** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.
- 008:174 Topics in Modern British Literature** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:175 Topics in Film and Literature** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 048:175.
- 008:176 Literature and Philosophic Thought** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.
- 008:177 Literature and Art** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature. Same as 048:177.
- 008:178 Modern British Drama** 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature.
- 008:179 Literature and Society** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 048:179.
- 008:182 Science Fiction** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.
- 008:183 Modern Drama** 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.
- 008:184 Contemporary Theatre and Drama** 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. GE: fine arts or humanities. Same as 049:114.
- 008:185 Native American Autobiography** 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature. Same as 149:185.

008:186 African American Drama 3 s.h.
 Area: American literature and culture. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature. Same as 049:186, 129:186.

008:187 Handprinted Book: Design and Production 3 s.h.
 Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 01P:161, 108:161.

008:188 Prose by Women Writers 3 s.h.
 Area: literary theory and interdisciplinary studies. Period: 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature. Same as 131:188.

008:191 International Literature Today 1, 3 s.h.
 Area: transnational literature and culture. Period: 20th- and/or 21st-century literature. Same as 181:191.

008:193 Transcultural Modernism 3 s.h.
 Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.

008:194 Introduction to Feminist Criticism 3 s.h.
 Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 048:194, 131:194.

008:195 Modernist Women Writers 3 s.h.
 Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.

008:196 American Novel Since 1945 3 s.h.
 Area: American literature and culture. Period: 20th- and/or 21st-century literature.

008:197 American Drama Since 1945 3 s.h.
 Area: American literature and culture. Period: 20th- and/or 21st-century literature. Same as 049:117.

Nonfiction and Creative Writing

Courses 08N:080, 08N:119, 08N:130, 08N:135, 08N:150, and 08N:155 may be repeated. Others may be repeated with consent of the instructor and the director of undergraduate studies.

08C:023 Creative Writing 3 s.h.
 Guidance in the process of writing fiction and poetry; writing as exploration; development of students' critical skills as readers; application of new knowledge and skills to students' own writing. Period: 20th- and/or 21st-century literature.

08C:097 Fiction Writing 3 s.h.
 Analysis of works of accomplished fiction writers; critique of class members' short stories, in writing and in class; discussion of how class members use language, characterization, point of view, other elements of fiction in their work. Period: 20th- and/or 21st-century literature.

08C:098 Poetry Writing 3 s.h.
 Careful writing of poems, reading of poetry by class members as well as established poets; supportive workshop context. Period: 20th- and/or 21st-century literature.

08C:163 Undergraduate Writers' Workshop: Fiction arr.
 Period: 20th- and/or 21st-century literature. Prerequisite: consent of instructor.

08C:166 Undergraduate Writers' Workshop: Poetry arr.
 Period: 20th- and/or 21st-century literature. Prerequisite: consent of instructor.

08N:050 Word Power: Building English Vocabulary 3 s.h.
 Period: 20th- and/or 21st-century literature. Same as 20E:050.

08N:080 Nonfiction Writing 3 s.h.
 Period: 20th- and/or 21st-century literature.

08N:090 Intermediate Nonfiction Writing 3 s.h.
 Period: 20th- and/or 21st-century literature.

08N:094 Nature Writing for Interdisciplinary Audiences 3 s.h.
 Period: 20th- and/or 21st-century literature. Same as 012:094.

08N:102 Prose Style 3 s.h.
 Period: 20th- and/or 21st-century literature.

08N:104 Personal Writing 3 s.h.
 Period: 20th- and/or 21st-century literature.

08N:113 Writing for Business and Industry 3 s.h.
 Period: 20th- and/or 21st-century literature.

08N:119 Writing for Interdisciplinary Audiences 3 s.h.
 Period: 20th- and/or 21st-century literature. Same as 024:119, 153:119, 154:119.

08N:120 Advanced Nonfiction Writing 3 s.h.
 Period: 20th- and/or 21st-century literature.

08N:125 Freelance Reporting and Writing 4 s.h.
 Period: 20th- and/or 21st-century literature. Same as 019:125.

08N:130 Forms of Nonfiction 3 s.h.
 Period: 20th- and/or 21st-century literature.

08N:133 Advanced Writing for Business 3 s.h.
 Period: 20th- and/or 21st-century literature.

08N:135 Forms of the Essay 3 s.h.
 Period: 20th- and/or 21st-century literature.

08N:140 Editing a Literary Magazine 3 s.h.
 Period: 20th- and/or 21st-century literature.

08N:141 Approaches to Teaching Writing 3 s.h.
 Period: 20th- and/or 21st-century literature. Same as 07S:155.

08N:145 Multimedia Writing 3 s.h.
 Period: 20th- and/or 21st-century literature.

08N:150 Undergraduate Essay Workshop arr.
 Period: 20th- and/or 21st-century literature. Prerequisite: consent of instructor.

08N:155 Undergraduate Nonfiction Workshop 3 s.h.
 Period: 20th- and/or 21st-century literature. Prerequisite: consent of instructor.

08N:183 Invention 3 s.h.
 Period: 20th- and/or 21st-century literature. Same as 160:183.

08N:199 Undergraduate Project in Nonfiction Writing arr.
 Period: 20th- and/or 21st-century literature.

Special Topics

These courses do not fulfill area or period requirements for the English major. They may be used to earn elective credit in the major.

008:029 First-Year Seminar 1-2 s.h.
 Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

008:040 Major Texts in World Literature I 3 s.h.
 GE: humanities. Same as 048:040.

008:041 Major Texts of World Literature II 3 s.h.
 GE: humanities. Same as 048:041.

008:125 Classical Mythology GE: humanities. Same as 20E:112.	3 s.h.	008:224 Victorian Literature	3 s.h.
008:126 Literary Genres in European Literature II Same as 041:115, 048:115.	3 s.h.	008:225 Late Victorian and Edwardian Literature	3 s.h.
008:151 Literature and Anthropology Same as 048:151, 113:109.	3 s.h.	008:226 Readings in African Literature	3 s.h.
008:155 Tolstoy and Dostoevsky Same as 041:155.	3-4 s.h.	008:227 Three African Writers Same as 129:227.	3 s.h.
008:156 Invitation to Nabokov Same as 041:156, 048:156.	3 s.h.	008:228 Studies in African American Literature	3 s.h.
008:159 African Literature Today Same as 048:159, 187:159.	3 s.h.	008:229 Introduction to Contemporary Theory	3 s.h.
008:181 Issues in Rhetoric and Culture Same as 010:160, 036:146, 160:160.	3 s.h.	008:234 Readings in South Asian Literature Same as 048:234.	3 s.h.
008:199 Special Project for Undergraduates	arr.	008:235 Readings in Twentieth-Century Literatures I Repeatable.	3 s.h.
		008:236 Readings in Twentieth-Century Literatures II Repeatable.	3 s.h.

Honors

008:098 Honors Proseminar Area varies. Period: early literatures through 17th century, or 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature. Prerequisites: 3.20 cumulative g.p.a. and consent of English honors director.	4 s.h.	008:237 Indigenous Writings	3 s.h.
008:120 Honors Thesis Workshop Prerequisites: 008:098, admission to English department honors program, and consent of English honors director.	3 s.h.	008:238 Readings in American Indian Literature Repeatable.	3 s.h.
008:198 Undergraduate Honors Project Prerequisites: admission to English honors program and consent of instructor.	1-4 s.h.	008:239 Queer Theory Same as 035:239, 048:239.	3 s.h.
		008:240 Readings in American Literary Genres	3 s.h.
		008:241 Topics in Contemporary Literature	3 s.h.
		008:243 Feminist Cultural Studies Same as 010:243, 036:222, 131:243.	3 s.h.
		008:245 Theory of the Novel	3 s.h.
		008:249 Modernist Studies	3 s.h.
		008:250 Readings in American Literature Repeatable.	3 s.h.
		008:253 Shakespeare Same as 049:213.	3 s.h.
		008:262 History of Criticism: 1700 to Present Same as 048:262, 049:262.	3 s.h.
		008:263 Issues in Rhetoric and Culture Repeatable. Same as 010:360, 160:360.	3 s.h.
		008:267 Classical Rhetoric Same as 010:301, 20E:230, 036:310.	2-4 s.h.
		008:268 Modern Rhetoric Same as 036:311.	2-4 s.h.
		008:270 Introduction to Cultural Studies	3 s.h.
		008:274 Postcolonial Women's Writing Same as 131:274.	3 s.h.
		008:275 Literature as Letters	3 s.h.
		008:276 Writing and Revolution	3 s.h.
		008:283 New Media Poetics	3 s.h.
		008:284 Types of Modern Criticism Same as 035:284, 048:284.	3 s.h.

Literature for Graduate Students

Introductory Course

008:201 Introduction to Graduate Study	1 s.h.
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Graduate Reading Courses

008:210 Doctoral Workshop in English	arr.		
008:212 Bible and Literature	3 s.h.		
008:216 Medieval Authors Repeatable.	3 s.h.		
008:218 Readings in Medieval Literature and Culture Repeatable.	3 s.h.		
008:219 Sixteenth- and Seventeenth-Century Authors Repeatable.	3 s.h.		
008:220 Readings in Sixteenth- and Seventeenth-Century Genres Repeatable.	3 s.h.		
008:222 Restoration and Eighteenth-Century Literature	3 s.h.		
008:223 Romantic Literature Same as 048:223.	3 s.h.		
		008:306 Studies in Language Theory Same as 036:331.	2-4 s.h.

Graduate Special Topics

008:313 Digital Rhetorics Same as 160:313, 650:313.	3 s.h.	008:550 Advanced Studies in an Interdisciplinary Subject	arr.
008:315 Current Issues in Rhetoric Same as 010:340, 036:317, 160:340.	3 s.h.	008:585 M.A. Thesis in Literary Studies	arr.
008:324 Topics in Twentieth-Century Literature	3 s.h.	008:590 Special Project for Graduate Students	arr.
		008:595 Ph.D. Thesis	arr.

Seminars

Advanced work in literary history, criticism, and theory; concentration varies from semester to semester.

008:230 Crossing Borders Seminar: Introductory Repeatable. Same as 01H:230, 013:264, 016:293, 030:241, 035:272, 044:285, 048:230, 113:230.	3-4 s.h.	008:131 History of the English Language Same as 103:131.	3 s.h.
008:231 Crossing Borders Seminar Repeatable. Same as 01H:247, 013:262, 016:247, 030:242, 035:273, 044:286, 048:247, 113:247, 129:231.	2-3 s.h.	008:215 Historical and Comparative Linguistics Same as 103:215.	3 s.h.
008:402 Seminar: Medieval Literature and Culture Same as 048:402.	arr.		
008:407 Seminar: Renaissance Literature Same as 048:407.	arr.		
008:418 Bodies and Politics	3 s.h.		
008:421 Seminar: Restoration and Eighteenth-Century Literature	arr.		
008:431 Seminar: Romantic Literatures	arr.		
008:432 Seminar: Victorian Literature	arr.		
008:440 Seminar: Studies in the Twentieth Century Repeatable.	arr.		
008:455 Seminar: Post-Colonial Studies Same as 048:455.	arr.		
008:457 Virginia Woolf et al	3 s.h.		
008:458 Seminar: American Literature and Culture	arr.		
008:459 Reading Place and Scale	3 s.h.		
008:460 Seminar: Problems in Aesthetics and Literary Theory Same as 048:460.	arr.		
008:462 Seminar: Cultural Studies	arr.		
008:465 Seminar: History, Literature, and American Culture Same as 045:260.	arr.		

Independent Study

008:500 Advanced Studies in an Author	arr.		
008:505 Advanced Studies in a Literary Period	arr.		
008:510 Advanced Studies in a Literary Form	arr.		
008:515 Advanced Studies in a Literary Genre	arr.		
008:520 Advanced Studies in a Literary Mode	arr.		
008:525 Advanced Studies in a Literary Movement	arr.		
008:530 Advanced Studies in a Literary Theme	arr.		
008:535 Advanced Studies in Literary Criticism	arr.		

Linguistics and Language

08L:100 Introduction to Linguistics Same as 103:100, 113:100.	3 s.h.
08L:131 History of the English Language Same as 103:131.	3 s.h.
08L:215 Historical and Comparative Linguistics Same as 103:215.	3 s.h.

Professional Training

The following courses offer theoretical and practical training for those who plan to teach.

08P:182 Language and Learning Same as 07E:182, 07S:182.	2-3 s.h.
08P:190 Methods English Same as 07S:115.	3 s.h.
08P:198 Reading and Teaching Adolescent Literature Same as 07S:193.	3 s.h.
08P:204 Literature for Children II Analysis, selection of current literature for programs in a variety of settings; appropriate methods, research techniques, multimedia approaches to promote pleasure and insight through prose, poetry. Same as 07E:204, 07S:204.	3 s.h.
08P:300 Methods in Literacy Research Same as 07E:370, 07S:370.	3 s.h.
08P:405 M.A. Seminar: English Education Same as 07S:315.	arr.
08P:425 Ph.D. Seminar: Language, Literacy, and Culture Historical and recent research and theory in literacy education. Repeatable. Prerequisite: consent of instructor. Same as 07E:415, 07S:415.	arr.

Nonfiction Writing

Courses 08N:250, 08N:255, 08N:262, 08N:350, and 08N:355 may be repeated. Others may be repeated with consent of the instructor and the director of graduate studies.

Practice in Writing

These courses give intensive attention to composition and exposition and to formal and thematic problems, both in the meditative essay and in extended works of nonfiction.

08N:250 Forms of Nonfiction	arr.
08N:255 Forms of the Essay	arr.

08N:320 Uncreative Writing	3 s.h.
Same as 160:320.	
08N:340 Writing for Learned Journals	1-4 s.h.
Same as 160:300, 650:300.	
08N:350 Essay Writing Workshop	arr.
08N:355 Nonfiction Writing Workshop	arr.
Repeatable.	

Theory and Practice of Writing

These courses combine theory and analysis of nonfiction writing with practical experimentation in writing. They are intended for people who want to practice, criticize, and/or teach nonfiction writing.

08N:262 Readings in Nonfiction	3 s.h.
Same as 160:262.	
08N:270 Twenty-first-Century Nonfiction	arr.
08N:365 Overseas Writing Workshop	arr.
08N:375 Teaching in a Writing Center	3 s.h.
Same as 010:375.	

Independent Study

08N:550 Special Project in Nonfiction Writing	arr.
08N:580 Thesis in Nonfiction Writing	arr.

Creative Writing

All may be repeated.

Workshops and Seminars

Open only to Writers' Workshop students or to others with consent of instructor.

08C:251 Fiction Workshop	arr.
08C:252 Poetry Workshop	arr.
08C:270 Form of Fiction	3 s.h.
08C:275 Form of Poetry	3 s.h.
08C:297 Fiction Writing	3 s.h.
Reading and discussion of published stories and those written by class members, with the aim of improving writing through careful reading and reflection, spirited discussion, and written comments. Repeatable.	
08C:298 Poetry Writing	3 s.h.
Careful writing and reading of poems by students as well as by established poets; thorough discussion in a supportive context. Repeatable.	
08C:490 Seminar: Problems in Modern Fiction	arr.
08C:495 Seminar: Problems in Modern Poetry	arr.
08C:496 The Poetics of the Book	3 s.h.
Role of the book in literature and culture. Prerequisite: B.A. or consent of instructor. Same as 108:496.	

Independent Study

08C:195 Undergraduate Project in Creative Writing	arr.
08C:555 Graduate Project in Creative Writing	arr.
08C:590 M.F.A. Thesis	arr.

Translation Studies

08W:079 Undergraduate Translation Workshop	3 s.h.
Same as 048:079.	
08W:260 Translation Workshop	1-3 s.h.
Same as 048:260, 181:260.	
08W:265 Seminar: Issues in the History of Translation	3 s.h.
Same as 048:270.	

Environmental Sciences

Academic coordinator: Stephen D. Hendrix
Executive committee chair: C. Thomas Foster Jr.
Undergraduate degree: B.S. in Environmental Sciences
Web site: <http://www.uiowa.edu/~envsci>

The Environmental Sciences Program provides strong and rigorous interdisciplinary training in the scientific aspects of environmental study. Because it promotes the understanding of Earth as a complex network of interacting organic and inorganic systems, the environmental sciences major demands that students acquire a solid foundation of knowledge in the sciences. It also requires that they attain a thorough grounding in mathematics so that they will have the basic tools to use scientific data necessary for understanding earth systems.

The major draws on the diversity in the broad field of environmental sciences and the disciplinary strengths of the College of Liberal Arts and Sciences to offer four tracks: geosciences, biosciences, chemical sciences, and hydrosciences. Each track focuses on an aspect of environmental sciences, with the aim of preparing scientists to tackle problems whose solutions require particular areas of expertise:

Geosciences track—earth materials and surficial geologic processes;

Hydrosciences track—hydrogeology and hydrogeologic systems, and water chemistry;

Chemical sciences track—environmental systems and chemistry; and

Biosciences track—biological systems and ecological approaches.

Students are assigned an advisor who specializes in their track. The Department of Geoscience is the administrative home for the Environmental Sciences Program.

Bachelor of Science

The B.S. in environmental sciences requires 84-90 s.h. in the major. Students majoring in environmental sciences must complete requirements in three areas: a science and mathematics foundation that provides the basic comprehension students need to complete the rigorous degree requirements; an earth sciences

foundation that develops students' comprehensive knowledge of earth surface physical and biotic systems as well as the skills they will need for employment or future graduate study; and one of the four tracks providing a focus in one area of environmental science. Students must complete the College of Liberal Arts and Sciences General Education Program. Courses required for the major in environmental sciences also can be used to complete the General Education Program.

SCIENCE AND MATHEMATICS FOUNDATION

Students must complete at least 34 s.h. of course work in this area, including the following.

002:010-002:011 Principles of Biology I-II	8 s.h.
004:011-004:012 Principles of Chemistry I-II	8 s.h.
012:005 Introduction to Geology	4 s.h.
22M:025-22M:026 Calculus I-II	8 s.h.

One of these:

22S:039 Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
22S:101 Biostatistics	3 s.h.
22S:105 Statistical Methods and Computing	3 s.h.

One of these:

044:019 Contemporary Environmental Issues	3 s.h.
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An approved environmental policy or issues course

EARTH SCIENCES FOUNDATION

All environmental sciences majors must complete the following earth systems courses.

All of these:

159:008 Introduction to Environmental Science	4 s.h.
159:100 Environmental Sciences Seminar (section 1)	0 s.h.
159:100 Environmental Sciences Seminar (section 2)	1 s.h.
159:102 Earth Surface Processes	3 s.h.
159:110 Introduction to Applied Remote Sensing	4 s.h.
159:134 Ecology	4 s.h.

One of these:

044:005 Foundations of GIS	3 s.h.
159:153 Geocomputing	3 s.h.

Tracks

All environmental sciences majors must choose one of the four tracks in the major. Each track requires additional general sciences courses, track foundation courses, field courses, and electives.

ENVIRONMENTAL GEOSCIENCES (BROWN) TRACK

The environmental geosciences track provides training for entry-level positions that require a basic understanding of geological principles and a working knowledge of basic geologic concepts applied in the environmental industry. It also lays a strong foundation for graduate study in environmental geology, engineering geology, and natural hazards assessment. Students must complete 36 s.h. of environmental geosciences track course work.

General Science

029:008 Basic Physics 4 s.h.

Students are strongly encouraged to take additional work in physics.

Environmental Geosciences Foundation

012:041 Mineralogy 4 s.h.

012:052 Petrology 4 s.h.

012:092 Structural Geology 4 s.h.

012:136 Soil Genesis and Geomorphology 3 s.h.

012:179 Engineering Geology 3 s.h.

Environmental Geosciences Field Study

012:093 Geologic Field Methods 2 s.h.

012:194 Environmental Field Methods 3 s.h.

Environmental Geosciences Electives

At least 9 s.h. from these:

*06E:133 Environmental and Natural Resource Economics 3 s.h.

012:114 Energy and the Environment 3 s.h.

012:149 Elements of Geochemistry 3 s.h.

012:152 Isotope Geochemistry 3 s.h.

012:161 Stratigraphy 3 s.h.

012:166 Hydrogeology 3 s.h.

012:172 Glacial and Pleistocene Geology 3 s.h.

012:178 Applied Geostatistics 3 s.h.

012:180 Principles of Geophysics 3 s.h.

012:181 Exploration Geophysics 3 s.h.

012:184 Groundwater Modeling 3 s.h.

012:191 Geotectonics 3 s.h.

044:101 Climatology 3 s.h.

*044:122 Environmental Conservation in the United States 3 s.h.

*044:125 Environmental Impact Analysis 4 s.h.

053:050 Natural Environmental Systems 3 s.h.

053:158 Solid and Hazardous Wastes 3 s.h.

*No more than one of these policy courses may be included in the 9 s.h.

ENVIRONMENTAL HYDROSCIENCES (BLUE) TRACK

The environmental hydrosciences track provides training for entry-level positions that require a simple understanding of geological principles and a working knowledge of hydrogeology and hydrogeochemistry. It also prepares students for graduate education in hydrogeology, hydrology, geochemistry, and aqueous chemistry. Students must complete 34 s.h. of environmental hydrosciences track course work.

General Science

029:011-029:012 College Physics 8 s.h.

Environmental Hydrosciences Foundation

Both of these:

012:166 Hydrogeology 3 s.h.

012:179 Engineering Geology 3 s.h.

Two of these:

012:138 Fluvial Geomorphology 3 s.h.

012:139 Integrated Watershed Analysis 3 s.h.

012:149 Elements of Geochemistry 3 s.h.

053:152 Environmental Chemistry I 3 s.h.

Environmental Hydrosciences Field Study

012:194 Environmental Field Methods 3 s.h.

Students also must complete the OSHA training program for hazardous waste site workers.

Environmental Hydrosciences Electives

At least 11 s.h. from these:

*06E:133 Environmental and Natural Resource Economics 3 s.h.

012:161 Stratigraphy 3 s.h.

012:178 Applied Geostatistics 3 s.h.

012:180 Principles of Geophysics 3 s.h.

012:184 Groundwater Modeling 3 s.h.

012:186 Contaminant Hydrogeology 3 s.h.

012:187 Vadose Zone Hydrology 3 s.h.

044:101 Climatology 3 s.h.

*044:122 Environmental Conservation in the United States 3 s.h.

*044:125 Environmental Impact Analysis 4 s.h.

044:126 Wetlands: Function, Geography, and Management 3 s.h.

044:129 Water Resources Management 3 s.h.

053:050 Natural Environmental Systems 3 s.h.

053:071 Principles of Hydraulics and Hydrology 3 s.h.

053:152 Environmental Chemistry I 3 s.h.

053:153 Environmental Chemistry Laboratory 3 s.h.

053:154 Environmental Microbiology 3 s.h.

053:179 Hydroclimatology 3 s.h.

*No more than one of these may be included in the 11 s.h.

ENVIRONMENTAL CHEMICAL SCIENCES (YELLOW) TRACK

The environmental chemical sciences track provides training for entry-level positions that require a basic understanding of chemical principles and a working knowledge of basic chemical concepts as applied in the environment. It also provides a strong foundation for graduate or professional training in environmental chemistry. Students must complete 37 s.h. of environmental chemical sciences track course work.

General Sciences

One of these sequences:
 029:011-029:012 College Physics 8 s.h.
 029:081-029:082 Introductory Physics I-II 8 s.h.

Environmental Chemical Sciences Foundation

004:111-004:112 Analytical Chemistry I-II 6 s.h.

One of these sequences:
 004:121-004:122 Organic Chemistry I-II 6 s.h.
 004:123-004:124 Organic Chemistry I-II for Majors 6 s.h.

One of these:
 004:131 Physical Chemistry I 3 s.h.
 004:132 Physical Chemistry II 3 s.h.

Field and Laboratory Courses

004:141 Organic Chemistry Lab 3 s.h.
 004:143 Analytical Measurements 3 s.h.

Environmental Chemical Sciences Electives

At least 8 s.h. from these:
 004:125 Inorganic Chemistry 2 s.h.
 004:131 Physical Chemistry I (if not taken as a foundation course) 3 s.h.
 or
 004:132 Physical Chemistry II (if not taken as a foundation course) 3 s.h.
 004:162 Undergraduate Research 1-3 s.h.
 004:173 Atmospheric and Environmental Chemistry 3 s.h.
 *06E:133 Environmental and Natural Resources Economics 3 s.h.
 012:149 Elements of Geochemistry 3 s.h.
 012:152 Isotope Geochemistry 3 s.h.
 012:195 Field Methods: Environmental Processes 3 s.h.
 044:101 Climatology 3 s.h.
 *044:122 Environmental Conservation in the United States 3 s.h.
 *044:125 Environmental Impact Analysis 4 s.h.
 053:152 Environmental Chemistry I 3 s.h.

053:153 Environmental Chemistry Lab 3 s.h.
 053:252 Environmental Chemistry II 3 s.h.
 099:110 Biochemistry 3 s.h.

*Only one of these policy courses may be counted as part of the 8 s.h. of electives.

Students may petition the chemistry department's environmental science advisor to use appropriate 100- and 200-level courses taught in the chemistry department as electives.

ENVIRONMENTAL BIOSCIENCES (GREEN) TRACK

The environmental biosciences track provides the essential skills for entry-level positions that require a good knowledge of biotic systems and the ability to inventory biologic resources. It also provides a strong foundation for graduate or professional training in disciplines such as ecology, wildlife management, and natural resource management. Students must complete 33-35 s.h. of environmental biosciences track course work.

General Science

004:121 Organic Chemistry I 3 s.h.

Students are encouraged to take at least one semester of physics.

Environmental Biosciences Foundation

002:128 Fundamental Genetics 4 s.h.
 002:131 Evolution 4 s.h.

At least 7 s.h. from these:

00L:102 Plant-Animal Interactions 4 s.h.
 00L:105 Plant Taxonomy 4 s.h.
 00L:115 Field Mycology 4 s.h.
 00L:117 Ecology and Systematics of Diatoms 4 s.h.
 00L:128 Fish Ecology 4 s.h.
 00L:129 Vertebrate Ecology 4 s.h.
 002:100 Plant Diversity and Evolution 4 s.h.
 002:107 Invertebrate Biology 4 s.h.
 002:108 Vertebrate Zoology 4 s.h.
 002:113 Ecological Plant Anatomy 4 s.h.
 002:136 Conservation Biology 4 s.h.
 002:140 Systematics 2-3 s.h.
 012:122 Evolution of the Vertebrates 3 s.h.

Environmental Biosciences Field Study

The minimum requirement is 7 s.h., with at least 3 s.h. from the field methods courses.

Field methods:
 00L:103 Aquatic Ecology 4 s.h.
 00L:121 Plant Ecology 4 s.h.
 00L:122 Prairie Ecology 4 s.h.
 00L:144 Ecosystems of North America 4 s.h.
 00L:160 Restoration Ecology 4 s.h.

00L:163 Conservation Biology	4 s.h.
002:136 Conservation Biology	4 s.h.
002:148 Field Ecology	4 s.h.
Field organismal courses:	
00L:102 Plant-Animal Interactions	4 s.h.
00L:105 Plant Taxonomy	4 s.h.
00L:115 Field Mycology	4 s.h.
00L:117 Ecology and Systematics of Diatoms	4 s.h.
00L:128 Fish Ecology	4 s.h.
00L:129 Vertebrate Ecology	4 s.h.

Environmental Biosciences Electives

The minimum requirement is 8 s.h., with at least 5 s.h. from the following (3 s.h. may be chosen from the field methods or field organismal courses).

002:087 Spring Flora	3 s.h.
002:103/044:103 Biogeography	2-3 s.h.
002:110 Plant Physiology	3-4 s.h.
002:113 Ecological Plant Anatomy	4 s.h.
002:124 Animal Physiology	3 s.h.
002:140 Systematics	2-3 s.h.
002:143 Animal Behavior	4 s.h.
002:199 Introduction to Research	3 s.h.
004:111 Analytical Chemistry I	3 s.h.
004:112 Analytical Chemistry II	3 s.h.
*06E:133 Environmental and Natural Resource Economics	3 s.h.
012:108 Introduction to Oceanography	2 s.h.
012:121 Principles of Paleontology	3 s.h.
012:173 Quaternary Environments	3 s.h.
22S:148 Intermediate Statistical Methods	4 s.h.
044:101 Climatology	3 s.h.
*044:122 Environmental Conservation in the United States	3 s.h.
044:123 Landscape Ecology	3 s.h.
*044:125 Environmental Impact Analysis	4 s.h.
044:126 Wetlands: Function, Geography, and Management	3 s.h.

*Only one of these policy courses may be included in the 8 s.h.

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available for environmental sciences. Students work with their advisors on individual graduation plans.

Honors

Environmental sciences students who wish to graduate with honors must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Requirements for the B.S. with honors in environmental sciences include a research project that culminates in an honors thesis. Students should join the honors program early to ensure that they have adequate time to complete the research project.

Before beginning the research, students must find a faculty research sponsor from one of the Environmental Sciences Program's four participating departments (biological sciences, chemistry, geography, and geoscience). Honors students usually spend two or more semesters working on the research under the guidance of their faculty research sponsor, with enrollment in 002:196, 004:162, 012:119, or 044:195. Then they write an honors thesis based on their research. The thesis must be submitted before classes end in the student's last semester before graduation.

Students work with their faculty research sponsor to determine the format, length, and content of the honors thesis as well as the number of semester hours the student will earn for the honors research.

Students must notify the environmental sciences honors advisor of their intent to graduate with honors by the eighth week of the semester before they graduate.

Courses

159:008 Introduction to Environmental Science 3-4 s.h.
Biological and physical character of the Earth; interaction of humans with the environment, including impacts on ecosystems, climate, natural processes, resources; alternative options, including sustainability, waste management, energy, land reform. GE: natural sciences. Same as 012:008.

159:009 Introduction to Environmental Sciences Laboratory 1 s.h.
GE: natural sciences. Same as 012:009.

159:100 Environmental Sciences Seminar 0-1 s.h.
Role of sciences in environmental issues and problems; progression from observation to evaluation to design of better questions and experiments. Prerequisite: environmental sciences major.

159:102 Earth Surface Processes 3 s.h.
Basic geomorphic, environmental processes that shape the earth's surface; emphasis on weathering—mass movement (creep, landslides, earth flow), erosion, transport, deposition by fluid agents (wind, water, ice); methods used to study these processes. Prerequisite: 012:005 or 012:008 or 044:003 or 159:008 or consent of instructor. Same as 012:102.

159:110 Introduction to Applied Remote Sensing 4 s.h.
Remote sensing of the earth's surface from aircraft, satellites; aerial photograph interpretation; remote sensing systems, methods, data analysis using electromagnetic spectrum and digital processing techniques, including ultraviolet, visible, infrared, microwave radiation; remote sensing applied to geologic and environmental problems. Same as 012:110.

159:134 Ecology 4 s.h.

Adaptations of organisms to their physical, biological environments; organism/environment interactions; population biology; interactions between species; ecology of communities, ecosystems; human impact on ecosystems. Prerequisites: 002:010, 002:011, 22M:025, and environmental sciences major. Same as 002:134.

159:153 Geocomputing 1-3 s.h.

Computer applications in geology; visualization, data management, interactive modeling, computer graphics. Same as 012:153.

159:194 Environmental Field Methods 3 s.h.

Same as 012:194.

French and Italian

Chair: Downing A. Thomas

General education language coordinators: Kathy Heilenman, Anny Dominique Curtius, (French), Deborah Contrada (Italian)

Professors: Wendelin Guentner, Geoffrey R. Hope, Downing A. Thomas, Steven Ungar (French and Italian/Cinema and Comparative Literature)

Professors emeriti: Janet G. Altman, Jacques A. Bourgeacq, Florindo Cerreta, Simone Delaty, John T. Nothnagle

Associate professors: Cinzia Blum, Deborah L. Contrada, L. Kathy Heilenman (French and Italian/Teaching and Learning), Michel Laronde, Roland Racevskis, Rosemarie Scullion (French and Italian/Women's Studies)

Assistant professor: Anny Dominique Curtius

Lecturers: Katja Liimatta, Arne Seim

Undergraduate degrees: B.A. in French, Italian

Undergraduate nondegree programs: Minor in French, Italian

Graduate degrees: M.A., Ph.D. in French

Web site: <http://www.uiowa.edu/~frenchit>

Undergraduate Programs

The department introduces students to the cultures of France and Italy, provides an understanding of those countries' historical and contemporary importance, and facilitates development of proficiency in the French and Italian languages. It also fosters critical appreciation of French, Francophone, and Italian literature and civilization.

Students choose from varied programs for French and Italian majors and electives for nonmajors. They are afforded flexible means to complete the College of Liberal Arts and Sciences General Education Program foreign language component and to satisfy individual needs and interests.

Students majoring in French or Italian may combine their studies with courses in education to prepare for jobs in high school teaching. They may go on to graduate study in areas such as French, Italian, comparative literature, and other interdisciplinary areas as preparation for college-level teaching. Or they may combine other skills and studies with their major in French or Italian to prepare for challenging career opportunities in international government, business, finance, travel, communications, and other fields where the knowledge of a foreign language is essential.

Bachelor of Arts in French

The Bachelor of Arts in French requires 31 s.h. in the major. Students choose one of five tracks: culture and civilization, language, literature, teaching, or French interdisciplinary studies.

All majors must complete the following courses (total of 10 s.h.) plus an additional 21 s.h. of course work from one of the five emphasis areas.

009:111 Introduction to Reading and Writing in Literature	3 s.h.
009:112 French Grammar	3 s.h.
009:106 Oral Expression in French II	2 s.h.
009:136 Oral Expression in French III	2 s.h.

Students must maintain a g.p.a. of at least 2.00 in all major course work, including all University of Iowa course work in the major. Majors must maintain portfolios documenting their progress toward attaining the objectives of the French major. On the basis of materials in his or her portfolio, a student may petition the department to count a literature course toward the culture and civilization distribution requirement, or vice-versa.

Transfer course work is acceptable, and students are encouraged to participate in study abroad, but the last two courses in the major ordinarily must be completed at The University of Iowa. Transfer work for application to the major is evaluated on an individual basis.

Upon declaring the major (or later, but before the senior year), students choose an emphasis in one of the following five tracks.

Culture and Civilization Track

The culture and civilization track is designed for students interested in French history, politics, and culture. It is recommended for students who wish to combine studies in French with a major in another area, such as history, political science, pre-law, communication studies, or journalism.

Requirements for the culture and civilization track include the following courses in addition to the 10 s.h. of foundation course work in French. Only one of the courses may be taught in English under the French department prefix. This restriction does not apply to courses taught in English with an additional semester hour in French. Two courses must be numbered above 009:150.

Four courses in culture/civilization
 Three courses in literature or language

Language Track

The language track is designed for students with an interest in language and translation. Students work in specific areas such as international business, comparative stylistics, and translation.

Requirements for the language track include the following courses in addition to the 10 s.h. of foundation course work in French. Only one of the courses may be taught in English under the French department prefix. This restriction does not apply to courses taught in English with an additional semester hour in French. At least two courses must be numbered above 009:150.

009:115 Business French 3 s.h.
 009:197 Techniques of Translation 3 s.h.

Five courses in French
 culture/civilization, literature, or
 language

Courses in French stylistics and textual analysis, another language, economics, political science, and/or business administration are recommended as adjunct electives.

Literature Track

The literature track is designed for students who are interested in French literature or in combining the study of French literature with a major in another area, such as English, comparative literature, cinema, or fine arts.

Requirements for the literature track include the following seven courses in addition to the 10 s.h. of foundation course work in French. Only one of the courses may be taught in English under the French department prefix. This restriction does not apply to courses taught in English with an additional semester hour in French. At least two courses must be numbered above 009:150.

Four courses in literature
 Three courses in culture/civilization or language

Teaching Track

French majors interested in obtaining licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in French in the teaching track and must be admitted to the College of Education's foreign language Teacher Education Program (TEP). Several courses in the College of Education are required, as is one semester of student teaching. Contact the Department of Teaching and Learning for details.

Requirements for the teaching track include the following courses in addition to the 10 s.h. of foundation course work in French. Only one of the courses may be taught in English under the French department prefix. This restriction does not apply to courses taught in English with an additional semester hour in French. At least two courses must be numbered above 009:150.

Two courses in culture/civilization
 Two courses in literature
 Three courses from these areas:
 culture/civilization, literature, pedagogy, or
 language

Students who plan to use a French minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements. See College of Education in the Catalog.

French Interdisciplinary Studies Track

The French interdisciplinary studies (FIS) track is designed for students with interests in French culture and in French historical, social, and cultural studies. It includes areas of French studies from a variety of fields, such as art history, comparative literature and film, francophone studies, history, linguistics, philosophy, music, and women's studies.

Requirements for the FIS track include the following courses in addition to the 10 s.h. of foundation course work in French.

Two courses in French
 culture/civilization, literature, or
 language taught in French 6 s.h.
 Five courses taught in French or English
 representing a coherent
 interdisciplinary focus in French
 studies (advisor's approval required) 15 s.h.

Students are expected to write a paper on their particular interdisciplinary focus in one of their upper-level classes, for inclusion in their portfolio.

The following courses, offered by other departments, may be taken for the FIS track. Students may petition the department to count other courses toward the major in this track.

Art and Art History

01H:162 National Images: American Art
 to 1865 3 s.h.

History

16E:126 The French Revolutions and
 Human Rights 3 s.h.

16E:127 European History in Text and Film	4 s.h.
16E:144 Modern France 1870-Present	3 s.h.
16E:146 France from 1815 to the Present	3 s.h.
16E:148 Society and Gender in Europe 1750-Present	3 s.h.
16E:161 Politics and Culture in Twentieth-Century Europe	3 s.h.
16W:121 African History Since 1880	3 s.h.

Linguistics

103:110 Articulatory and Acoustic Phonetics	3 s.h.
103:111 Syntactic Analysis	3 s.h.
103:112 Phonological Analysis	3 s.h.

Philosophy

026:158 Descartes	3 s.h.
026:174 Sartre	3 s.h.

Political Science

030:176 French Politics and Society	3 s.h.
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Bachelor of Arts in Italian

The B.A. in Italian requires a minimum of 31 s.h. in the major, as follows.

018:011-018:012 Intermediate Italian	8 s.h.
018:111-018:112 Advanced Italian Composition and Conversation	8 s.h.
018:105 Modern Italian Fiction	3 s.h.
018:106 Modern Italian Poetry and Drama	3 s.h.
018:119 Medieval Italian Literature	3 s.h.
018:120 Medieval and Renaissance Italian Literature	3 s.h.
An additional course taught in Italian, numbered above 018:103	3 s.h.

Elementary and Secondary Teaching Licensure in Italian

Italian majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in Italian, including an additional 2 s.h. in either 018:013 or 018:014, and must be admitted to the College of Education’s foreign language Teacher Education Program. Several courses in the College of Education are required, as is one semester of student teaching. Contact the Department of Teaching and Learning for details.

Students who plan to use an Italian minor to teach at the elementary and/or secondary level must contact the College of Education

concerning requirements. See College of Education in the Catalog.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan.

B.A. in French

Before the third semester begins: competence in first-year French and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: second-year French (009:012) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: two semesters of third-year French (009:111-009:112), one or two other courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 009:106 and three more courses in the major; for students in the French language track, 009:115 and 009:197

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Italian

Before the third semester begins: competence in first-year Italian and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: competence in second-year Italian (018:012) and at least one-half of the semester hours required for graduation.

Before the seventh semester begins: four courses in the major numbered above 018:103 and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: a total of at least five courses in the major numbered above 018:103

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The department participates in the University Honors Program. To gain admission to honors in French or Italian, a student must have a University of Iowa g.p.a. of at least 3.33 and a department g.p.a. of at least 3.50, and must be a member of the University Honors Program. Students register for 009:198 (in French)/018:198 (in Italian) Honors Research and Thesis, and one honors-designated course numbered above 009:160 (in French) or 018:103 (in Italian). Students must complete an honors thesis or equivalent (for example, translation, comparative stylistics, cultural studies, or research paper) in French or Italian and must present their work to a faculty committee.

Minor in French

The requirements for a minor in French are 15 s.h. with a g.p.a. of at least 2.00; 12 s.h. must be completed in courses numbered 009:105 or above. Credit from the Iowa Regents' Summer Program in Lyon is counted as University of Iowa credit; 6 s.h. earned in other programs abroad may be applied to the minor. Courses taught in English, including 009:152 and 009:158, do not count toward the minor in French.

Minor in Italian

The requirements for a minor in Italian are 15 s.h. with a g.p.a. of at least 2.00, with 12 s.h. taken at The University of Iowa in courses numbered 018:105 and above. All courses taken to complete the minor must be taught in Italian.

Summer Program in France

The department cosponsors the Iowa Regents Summer Program in France for students enrolled in any of the three Board of Regents, State of Iowa universities. Eligibility for the program requires a good basic knowledge of French (two years of college-level preparation is recommended), but students need not be French majors.

Centered in Lyon, the eight-week program combines formal class work in language skills, courses in the culture and civilization of France, and visits to points of cultural and historical interest. Students may earn 8 or 9 s.h. in the program.

Summer Program in Quebec

The department participates in the Committee on Institutional Cooperation (CIC) Summer French Program in Quebec at the Université de Laval. The CIC is a nonprofit organization whose purpose is to foster cooperative educational opportunities among the Big Ten universities and the University of Chicago. Affiliated with the Cours d'été pour non-francophones of the Université de Laval, the program is designed to offer qualified students the opportunity to increase their command of French in a French-speaking environment and to introduce them to the heritage and cultural traditions of a unique and vital segment of North American culture. To participate in the program, students must have taken at least two semesters of French.

Foreign Language House

The French and Italian department maintains close connections with the Maison Française in the International Crossroads Community at Hillcrest Residence Hall. Residents initiate cultural and educational programs with the participation of the faculty and other students, providing a unique opportunity to combine living with language learning.

Language for Nonmajors

Nonmajors who wish to study French and who have a background in the language should take the French Foreign Language Placement Test, offered online through Evaluation and Examination Service. The test helps determine the level at which a student should begin French language study at The University of Iowa.

Students without a background in French should begin with 009:001.

Students who wish to complete the General Education Program foreign language component with French can choose from the following sequences.

009:001, 009:002, 009:011, 009:012
009:010, 009:011, 009:012

Nonmajors who wish to study Italian and who have a background in the language should consult with the department before the beginning of classes to determine the level at which they should begin Italian language study at The University of Iowa.

Students without a background in Italian should begin with 018:001.

Students who wish to complete the General Education Program foreign language component with Italian should complete the following course sequence: 018:001, 018:002, 018:011, and 018:012. Students with strong language-learning abilities or background in another romance language can choose the sequence 018:103, 018:011, and 018:012.

The Department of French and Italian is the administrative home for Arabic language and literature courses. Though Arabic language courses are not listed in the General Education Program, students may request General Education Program credit for courses in Arabic.

Graduate Programs

The department offers the Master of Arts and the Doctor of Philosophy in French.

The faculty's expertise allows for courses in the traditionally recognized historical periods of French literature, various literary genres, and critical theories as well as the francophone literatures of Canada, North and Sub-Saharan Africa, and the Caribbean. The department has particular strengths in interdisciplinary studies, notably in the areas of comparative arts, film studies, history, and second language acquisition.

Emphasis on language proficiency, composition, and stylistics remains integral to the M.A. program. Along with the literature-centered M.A., the department offers an M.A. in French education.

For more detailed information on graduate degrees in French, contact the Department of French and Italian or visit its web site. The department also publishes the Guide for Graduate Students and Assistants.

Master of Arts in French

The Master of Arts in French requires a minimum of 30 s.h. of graduate credit and is offered with thesis and nonthesis options.

Thesis students may earn up to 6 s.h. of the required 30 s.h. for thesis work. They must take a written and oral examination on their areas of study and must defend their thesis at the time of the comprehensive examination. A thesis prospectus must be accepted one year before the student defends the thesis.

Nonthesis students must pass a written and oral examination. With permission of the director of graduate studies and the department chair, nonthesis students may take up to 6 s.h. of the

required 30 s.h. outside the department or transfer up to 6 s.h. of course work taken at another institution.

All M.A. students must complete the following course work.

009:208 Introduction to Graduate Study in French	1 s.h.
009:210 Comparative Stylistics	3 s.h.
At least four graduate-level literature or culture courses numbered 200 and above	

Master of Arts in French Education

The Master of Arts in French education requires a minimum of 38 s.h. of graduate credit in French. The program is intended primarily for prospective secondary school and junior college teachers. Candidates must pass a final written and oral examination.

All M.A. in French education students must complete the following course work.

009:208 Introduction to Graduate Study in French	1 s.h.
009:210 Comparative Stylistics	3 s.h.
009:234 Principles of Teaching and Learning Foreign Languages	3 s.h.
Courses in French literature numbered 200 and above (minimum requirement)	9 s.h.

Doctor of Philosophy

The Ph.D. in French is designed to prepare students for research, teaching, and professional service normally required of college and university faculty members.

The Ph.D. requires a minimum of 72 s.h. of graduate credit, including credit earned for the M.A. The program takes at least three years of graduate study, of which at least one must be spent in residence at The University of Iowa. Students must pass a comprehensive examination and make a successful oral defense of their dissertation.

Specific requirements include the following.

Fifth semester (or equivalent proficiency) in a foreign language other than French	
Three graduate courses in a related field, such as another literature, history, or philosophy (8 s.h. minimum)	8 s.h.
009:208 Introduction to Graduate Study in French	1 s.h.

009:260 Critical Theory and Practice 3 s.h.
 009:277 Thesis (6 s.h. minimum) 6 s.h.

Students working toward the Ph.D. are required to spend at least one year teaching as graduate assistants in the department.

Admission

Applicants to the M.A. program in French must have completed the equivalent of The University of Iowa undergraduate major in French. The M.A. in French is prerequisite to admission to the Ph.D. program in French. Successful completion of the M.A. program, however, does not necessarily qualify a student for doctoral study.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants for fall semester whose application materials are received in the department by January 15 have the best chance to be admitted and receive financial aid. They must submit academic transcripts, letters of recommendation from three persons familiar with their past academic work, Graduate Record Examination (GRE) General Test results, a statement of purpose in taking graduate work, and one or more samples of original writing, one of which should be in French, that show their ability to pursue graduate work in French (an honors thesis, term paper, seminar paper, or other course papers).

Financial Support

Teaching and research assistantships are offered through the department, and University fellowships and scholarships are available through the Graduate College. Contact the Department of French and Italian for details.

Teaching assistants in the department must take 009:234 Principles of Teaching and Learning Foreign Languages.

Exchange assistantship agreements with the University of Pau, the University of Picardie (Amiens), and the University of Poitiers provide one year of residence in France for a limited number of graduate students.

Courses

The department offers courses in French, Italian, and Arabic. For a detailed description of courses

offered each semester, contact the Department of French and Italian. French courses are conducted in French and Italian courses are conducted in Italian, unless otherwise indicated. Students may not receive credit for a course that is prerequisite to, or whose equivalent is prerequisite to, a higher-level course they have already completed.

French courses numbered 150-199 are intended primarily for advanced undergraduates; graduate students should consult with their advisor before registering for these courses.

With the exception of the interdisciplinary track, only one course in English may be used to fulfill requirements for the undergraduate major in French. This restriction does not apply to courses taught in English with an additional semester hour in French. Students should consult with their advisor before registering.

Students who have had significant experience with French through study or foreign residence should consult with the department before enrolling in any French course.

French, Primarily for Undergraduates

009:001 Elementary French I 4 s.h.
 For students who have no knowledge of French. Offered fall semesters. GE: foreign language.

009:002 Elementary French II 4 s.h.
 Offered spring semesters. GE: foreign language. Prerequisite: 009:001 or equivalent.

009:010 First-Year French Review 5 s.h.
 A year in one semester. GE: foreign language.

009:011 Intermediate French I 4 s.h.
 GE: foreign language. Prerequisite: 009:002 or 009:010 or equivalent.

009:012 Intermediate French II 4 s.h.
 Continuation of 009:011. GE: foreign language. Prerequisite: 009:011 or equivalent.

009:026 Oral Expression in French I 2 s.h.
 Prerequisite: 009:002 or 009:010 or equivalent.

009:029 First-Year Seminar 1-2 s.h.
 Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Taught in English. Prerequisite: first- or second-semester standing.

009:030 Cultural Misunderstandings: France and U.S.A. 3 s.h.
 Key moments in the history of relations between the United States and France, from similarities underlying democratic principles to recent divergent worldviews. Taught in English. GE: humanities.

009:055 Revolutions in 19th-Century France 3 s.h.
 GE: humanities. Same as 033:055.

009:060 Fashioning France: The Land and Its People 3 s.h.
 The beauty of France; distinctive regional differences, richness, diversity; why France appeals to travelers worldwide.

009:070 Nature/Ecology French Philosophy and Fiction 3 s.h.
 Representations of the natural world in literary works from the 16th to the 20th centuries and in film; readings in English translation.

French, for Undergraduate and Graduate Students

009:105 Third-Year French 3 s.h.
 Development of reading skills in French; composition and review of basic grammar structures. Prerequisite: 009:012 or equivalent.

009:106 Oral Expression in French II 2 s.h.
 Second in a three-course sequence. Prerequisite: 009:026 or equivalent.

009:108 Introduction to French Literature: Seventeenth and Eighteenth Centuries 3 s.h.
 Prerequisite: 009:111 or equivalent.

009:109 Introduction to French Literature: Nineteenth Century 3 s.h.
 Prerequisite: 009:111 or equivalent.

009:110 Introduction to French Literature: Twentieth Century 3 s.h.
 Prerequisite: 009:111 or equivalent.

009:111 Introduction to Reading and Writing in Literature 3 s.h.
 Development of analytical, organizational skills for interpretation of literature; readings in prose, poetry, drama, criticism; emphasis on essay writing. Prerequisite: 009:012 or equivalent.

009:112 French Grammar 3 s.h.
 Study of word forms, sentence patterns for more accurate use of French. Prerequisite: 009:012 or equivalent.

009:113 French Civilization 3 s.h.
 Institutions and events from the beginning of French civilization to the Renaissance. GE: foreign civilization and culture. Prerequisites: 009:111 and 009:112, or equivalents.

009:114 French Civilization 3 s.h.
 From Renaissance to Revolution. GE: foreign civilization and culture. Prerequisite: 009:111 or equivalent.

009:115 Business French 3 s.h.
 Language of economics and business; practice in business correspondence and communication, active use of business vocabulary. Offered fall semesters. Prerequisite: 009:112 or equivalent or consent of course supervisor.

009:116 Cinema, Society, and Culture in Twentieth-Century France 3 s.h.
 French cultural and social history of the 20th century introduced through selected fictional and documentary films of the period. Prerequisite: 009:111 or equivalent.

009:118 Topics in French Studies I 3 s.h.
 Prerequisite: 009:111 or equivalent.

009:120 French-Speaking Cultures 3 s.h.
 Features of cultures in which French is spoken; North Africa, Sub-Saharan Africa, the Indian Ocean, Indochina, the West Indies, Canada, Europe; cinema, music, literature, the arts, the media. Prerequisite: 009:111 or equivalent.

009:124 Study Abroad: Language 3 s.h.
 Written and spoken French; listening, speaking, reading, writing in cultural contexts. Prerequisite: 009:012 or equivalent.

009:127 Study Abroad: Culture 3 s.h.
 Geography, history, architecture, painting, music of France; readings, slides, video and audio cassettes, visits to sites of cultural significance. Prerequisite: 009:012 or equivalent.

009:130 Paris and the Art of Urban Life 3 s.h.
 Same as 01H:157, 033:130.

009:136 Oral Expression in French III 2 s.h.
 Last in a three-course sequence. Prerequisite: 009:106 or equivalent.

009:144 Tales of Love in French Literature 3 s.h.
 The problematic of love, politics and poetics of desire; selected works, Middle Ages to 20th century. Prerequisite: ability to read French.

009:146 Francophone Cinema 3 s.h.
 Introduction to the cinema of French-speaking countries outside of France; history, production, distribution; issues of colonialism, postcolonial identities, gender, social realism, diasporas, popular culture.

009:147 French Cinema 3 s.h.
 GE: foreign civilization and culture. Prerequisite: 009:012 or equivalent. Same as 048:105.

009:148 Gender and Sexuality in French Cinema 3 s.h.
 Cultural, historical, semiotic approach to studying construction of gender identity and sexual codes in French cinema from 1920s to present. Prerequisite: 009:111 or 048:001 or 048:002 or 131:010 or consent of instructor. Same as 048:167, 131:167.

009:161 Topics in French Civilization 3 s.h.
 Prerequisites: 009:111 and 009:112, or equivalents.

009:163 Francophone Literature of the African Diaspora 3 s.h.
 Literatures and cultures of Africa, the Caribbean, and the Indian Ocean analyzed through fiction, essays, films, documentaries. Prerequisites: 009:111 and 009:112, or equivalents.

009:164 Québécois Literature 3 s.h.
 Prerequisites: 009:111 and 009:112, or equivalents.

009:168 Post-Colonial Literature in France 3 s.h.
 Literatures and cultures of Arabo-French (Beur) and Afro-French immigrants. Prerequisites: 009:111 and 009:112, or equivalents. Same as 048:168.

009:170 Early Modern French Literature and Culture 3-4 s.h.
 Literary representations of social trends in early modern France. Prerequisites: 009:111 and 009:112.

009:178 Topics in French Studies II 3 s.h.
 French and/or Francophone literature or culture. Prerequisites: 009:111 and 009:112, or equivalents.

009:186 Twentieth-Century French Poetry 3-4 s.h.
 Prerequisites: 009:111 and 009:112, or equivalents.

009:187 Aspects of Poetry 3 s.h.
 Prerequisites: 009:111 and 009:112, or equivalents.

009:188 Twentieth-Century French Drama 3-4 s.h.
 Prerequisites: 009:111 and 009:112, or equivalents. Same as 049:189.

009:191 Early Modern Culture 3 s.h.
 Same as 048:191.

009:192 French Classical Literature 3 s.h.
 Prerequisites: 009:111 and 009:112, or equivalents.

009:193 French Literature of the Enlightenment 3 s.h.
 Principal literary genres and key issues from the Enlightenment; aristocratic libertinism of the early 18th century to radical tendencies of the Revolutionary period. Prerequisites: 009:111 and 009:112 or equivalents.

009:196 Independent Study arr.

009:197 Techniques of Translation 3 s.h.
Methodology of translation; comparative stylistics; original texts from English-to-French translation project. Prerequisites: 009:111 and 009:112. Same as 048:197.

009:198 Honors Research and Thesis 3 s.h.

French, Primarily for Graduate Students

009:205 French for Reading/Research 3 s.h.

009:206 French for Reading/Research 3 s.h.

009:208 Introduction to Graduate Study in French 1 s.h.
Expectations, resources, and opportunities of graduate study in French; introduction to course work, development of pre-professional competencies.

009:209 Grammar in Second Language Teaching/Learning 3 s.h.
Grammar, second language acquisition, and teaching. Taught in English, projects in varied languages. Same as 164:225.

009:210 Comparative Stylistics 3 s.h.
Translation from English to French, including literary texts. Same as 048:211.

009:212 Realism and Naturalism 3 s.h.
Representative novels of Realist and Naturalist movements, in historical, literary, and theoretical context.

009:214 Studies in the Enlightenment 3 s.h.

009:215 The Renaissance in France 3 s.h.

009:216 Studies in the Nineteenth Century 3 s.h.
Introduction to the literary traditions of 19th-century France; principal literary and aesthetic movements of the century (Romanticism, Realism, Naturalism, Symbolism); prose, poetry, theater. Repeatable.

009:220 Topics in French Studies 3 s.h.
Repeatable.

009:221 Literature of the Twentieth Century 3 s.h.

009:222 New Historicisms in France 3 s.h.
Theory and practice of historical interpretation developed by the "Annales" historians and in the philosophical discourses of Michel Foucault, Michel de Certeau, other prominent postmodern critics.

009:223 French History in/and Cinema 3 s.h.
Theory and practice of historical interpretation developed by the "Annales" historians and in the philosophical discourses of Michel Foucault, Michel de Certeau, other prominent postmodern critics.

009:224 Modern French Novel 3 s.h.

009:225 Literature of Immigration in France 3 s.h.
Contemporary literature written by non-European immigrants in France; issues of identity, institutional power, exclusion, displacement; rhetorical strategies used in these decentered texts to open a discursive/subversive space in canonical literary discourse.

009:227 Studies in the Seventeenth Century 3 s.h.

009:234 Principles of Teaching and Learning Foreign Languages 3 s.h.
Prerequisite: consent of instructor. Same as 013:221, 039:234, 041:234.

009:236 Topics in SLA: Speaking 3 s.h.
Theory, pedagogy, research, and assessment in second language speaking. Same as 035:228, 164:221.

009:237 Second Language Acquisition Research and Theory I 3 s.h.
Same as 035:201, 039:200, 39J:201, 164:201.

009:238 Multimedia and Second Language Acquisition 3 s.h.
Same as 013:253, 035:212, 164:211.

009:239 Advanced CALL Curriculum Development 3 s.h.
Same as 013:254, 035:214, 164:214.

009:240 Studies in Francophone Literature 3 s.h.
Historical, anthropological, comparative approach to Francophone literatures and cultures; Afro/Indo-Caribbean religions in literatures, theoretical and critical discourses, women's literature and cinema.

009:241 Seminar: 19th-Century French Art/Literature/Culture 1-3 s.h.
Repeatable. Same as 01H:360.

009:260 Critical Theory and Practice 3 s.h.

009:277 Thesis arr.

009:279 Independent Study arr.

009:355 Seminar 3 s.h.
Repeatable.

Italian, Primarily for Undergraduates

018:001 Elementary Italian 4 s.h.
For students who have no knowledge of Italian. Offered fall semesters. GE: foreign language.

018:002 Elementary Italian II 4 s.h.
Offered spring semesters. GE: foreign language. Prerequisite: 018:001 or equivalent.

018:011 Intermediate Italian 4 s.h.
Offered fall semesters. GE: foreign language. Prerequisite: 018:002 or equivalent.

018:012 Intermediate Italian II 4 s.h.
Offered spring semesters. GE: foreign language. Prerequisite: 018:011 or equivalent.

018:013 Conversational Italian 2 s.h.
Offered fall semesters. Prerequisite: 018:002 or 018:103.

018:014 Conversational Italian II 2 s.h.
Offered spring semesters. Prerequisite: 018:011 or equivalent.

018:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Taught in English. Prerequisite: first- or second-semester standing.

018:053 Independent Study arr.

Italian, for Undergraduate and Graduate Students

018:103 Intensive Elementary Italian 6 s.h.
Offered spring semesters. GE: foreign language. Prerequisite: two years of another foreign language.

018:105 Modern Italian Fiction 3 s.h.
Prerequisite: 018:012.

018:106 Modern Italian Poetry and Drama	3 s.h.
Continuation of 018:105, but may be taken as independent unit. Prerequisite: 018:012 or equivalent.	
018:111 Advanced Italian Composition and Conversation	3-4 s.h.
Offered fall semesters. Prerequisite: 018:012 or equivalent.	
018:112 Advanced Italian Composition and Conversation	3-4 s.h.
Offered spring semesters. Prerequisite: 018:111.	
018:114 Studies in Italian Language	3 s.h.
Prerequisite: 018:112 or equivalent.	
018:119 Medieval Italian Literature	3 s.h.
Prerequisite: 018:012.	
018:120 Medieval and Renaissance Italian Literature	3 s.h.
Continuation of 018:119. Prerequisite: 018:012.	
018:132 Images of Modern Italy	3-4 s.h.
Survey of Italy's history since Unification; diverse aspects of modern Italian culture and society through visual and textual materials. GE: foreign civilization and culture or humanities. Prerequisite: 018:012 for students earning 4 s.h.	
018:142 Topics in Italian Literature	3 s.h.
Topics chosen by genre, gender, artistic and literary movement, or regional and cultural diversity. Prerequisite: 018:111 or equivalent.	
018:153 Independent Study	arr.
018:162 Topics in Italian Culture and Civilization	3 s.h.
Prerequisite: 018:111 or equivalent.	
018:198 Honors Research and Thesis	3 s.h.

Italian, Primarily for Graduate Students

018:217 Studies in Italian Literature	3 s.h.
018:279 Independent Study	arr.

Arabic Language and Literature

195:101 Elementary Arabic I	3-4 s.h.
Speaking, listening, reading, and writing skills.	
195:102 Elementary Arabic II	3-4 s.h.
Continuation of 195:101.	
195:103 Intermediate Arabic I	3-4 s.h.
Communication in speaking and writing; cultural topics. Prerequisite: 195:102.	
195:104 Intermediate Arabic II	3-4 s.h.
Continuation of 195:103. Prerequisite: 195:103.	
195:110 Accelerated Elementary Arabic	4, 6 s.h.
First-year Arabic in one semester.	

Geography

Chair: Marc P. Armstrong

Professors: Marc P. Armstrong, Rex D. Honey, George P. Malanson, R. Rajagopal, Gerard Rushton

Professors emeriti: James B. Lindberg, Michael L. McNulty, David R. Reynolds

Associate professor: David A. Bennett

Associate professor emerita: Rebecca S. Roberts

Adjunct associate professor: David E. Osterberg (Occupational and Environmental Health/Geography)

Assistant professors: Naresh Kumar, Marc A. Linderman

Adjunct assistant professors: Edwin Brands, David L. McGinnis, Douglas Schnoebelen, Mary P. Skopec, William J. Smith Jr., Shaowen Wang, Peter J. Weyer

Adjunct instructor: Clifford Missen

Lecturer: Claire E. Pavlik

Undergraduate degrees: B.A., B.S. in Geography

Undergraduate nondegree program: Minor in Geography

Graduate degrees: M.A., Ph.D. in Geography

Web site: <http://www.uiowa.edu/~geog>

Geography is concerned with place and environment and the ongoing processes of change within and between social and physical systems. Geography's importance to scholarly inquiry is rooted in the complexity of the social and environmental problems with which the science deals. Its analytical power comes from its ability to understand and work with complex systems and with problems that require synthesis and integration. Three concepts at the core of the discipline—space, place, and scale—provide theoretical constructs and methodological tools for a science that investigates the complex character of social and environmental phenomena.

Geographers examine issues such as distribution and consumption of natural resources, air and water quality, climate changes and ecosystem dynamics, growth and development of urban areas, population dynamics, politics and practice of international development, social justice, and gender relations. They view society and the environment as a physical/social/cultural system. They apply uniquely geographical perspectives and tools, as well as knowledge from other social and scientific disciplines, to analyze the emergent properties of these systems.

Department of Geography graduates find employment opportunities in government, nongovernmental organizations, and business. For example, many geographers are employed in

resource management, urban and regional development, site selection, and market area analysis. They analyze problems in the distribution and interactions among physical, ecological, social, and political systems.

Geography students acquire skills in computer-based cartography and data handling (geographic information science, or GIS) that are used in the investigation and solution of many environmental and social problems. Opportunities for graduates with GIS training are growing rapidly in both private and governmental organizations.

Courses in geography are commonly required of students preparing to teach at the elementary and secondary school levels and those who want to pursue careers in urban and regional planning. They also provide a background for many related professions, including law, health care, environmental or transportation engineering, and international business.

GIS Laboratory

The University's Geographic Information System Instructional Lab (GISIL) is located in the Department of Geography. GISIL is a center for teaching GIS as well as a place where students conduct geographic and GIS-related research. The laboratory houses a networked system of student workstations.

Undergraduate Programs

The Department of Geography offers a Bachelor of Science and a Bachelor of Arts in Geography, as well as a minor.

The geography faculty has developed an undergraduate instructional program that serves students majoring or minoring in geography as well as students in other disciplines who are interested in taking geography courses as part of a liberal education. The department also participates in a number of University interdisciplinary programs that have international, area studies, urban, or environmental components. Undergraduate students have access to the Geographic Information System Instructional Lab for GIC instruction and research.

Bachelor of Science, Bachelor of Arts

The Bachelor of Science in geography requires 46 s.h. in the major; the Bachelor of Arts in geography requires 38 s.h. Transfer students must earn at least 15 s.h. in geography course work taken in residence at The University of Iowa.

Either the B.S. or B.A. is appropriate preparation for advanced training or careers in geography. Students with interests in quantitative analysis and model building should choose the B.S. degree and are encouraged to master an appropriate computer programming language.

Each student majoring in geography selects one of three tracks: geography and social change, environmental studies, or geographic information science.

Common Requirements

All geography majors must complete the following courses.

All of these:

044:001 Introduction to Human Geography	4 s.h.
044:003 Introduction to Earth Systems Science	4 s.h.
044:005 Foundations of GIS	3 s.h.

One of these:

044:011 Population Geography	3 s.h.
044:015 Introduction to Political Geography	3 s.h.
044:030 The Global Economy	3 s.h.
044:035 World Cities	3 s.h.
044:094 International Development	3 s.h.

One of these:

044:110 GIS for Environmental Studies: Introduction	3 s.h.
044:112 Mapping American Cities and Regions	3 s.h.
044:180 Field Methods in Physical Geography	3 s.h.
044:181 Field Methods in Social/Environmental Geography	3 s.h.

One of these:

044:150 Senior Project Seminar	3 s.h.
044:151 Senior Thesis	3 s.h.

All majors must complete one 3 s.h. course offered by the Department of Statistics and Actuarial Science numbered 22S:025 or above. The following are recommended.

22S:025 Elementary Statistics and Inference	3 s.h.
22S:102 Introduction to Statistical Methods	3 s.h.

Bachelor of Science students must satisfy a mathematics requirement consisting of one of the following sequences.

22M:015-22M:016 Mathematics for the Biological Sciences/Calculus for the Biological Sciences	8 s.h.
22M:025-22M:026 Calculus I-II	8 s.h.
22M:031-22M:032 Engineering Mathematics I-II: Single Variable Calculus/Multivariable Calculus	8 s.h.

Tracks

All geography majors must complete one of the three tracks described below: geography and social change, environmental studies, or geographic information science. Students should pay close attention to prerequisites for the upper-level courses in each track so that they can develop a study plan that allows them to complete their major in a timely way. Students in the environmental studies or geography and social change tracks who wish to gain additional experience in theory and application of geographic information systems (GIS) should take 044:113 Principles of Geographic Information Systems and at least an additional 6 s.h. in GIS-based courses offered by the Department of Geography.

GEOGRAPHY AND SOCIAL CHANGE TRACK

The geography and social change track is designed for students preparing for positions in government, nongovernment organizations, international development agencies, and business. It also provides preparation for graduate study in geography or planning, or for professional programs such as law, business, or policy analysis. The track provides an understanding of increasing globalization, including processes of urban and regional development or underdevelopment; the roles of elites, classes, institutions, and social movements; the role of the natural environment in effecting social change in different parts of the world; and the processes through which policy decisions are reached. Course work in the track covers social and economic theories of location and regional formation, methods of spatial analysis and geographic modeling, global and regional political economy, and theories of community conflict and social change.

Students develop requisite skills in quantitative analysis and the development, management, and application of geographic information systems and computer methods. They have opportunities to work on applied problems, such as assessing sites for their growth potential, identifying the best locations for service facilities, evaluating the impact of major projects, and forecasting the populations of small areas. The geography and social change track also provides opportunities for students interested in international development to examine competing theories intended to explain international and regional inequalities, and to investigate and evaluate the patterns and practice of development worldwide.

In addition to satisfying the common requirements for all geography majors, students in the geography and social change track must complete the following.

044:010 The Contemporary Global System	4 s.h.
Upper-level geography courses	11 s.h.

Students choose the upper-level courses (11 s.h.) in consultation with their advisors. They may not count 044:150 Senior Project Seminar or the independent study courses 044:151, 044:195, 044:198, and 044:199 toward this requirement. Students in the geography and social change track who wish to gain additional experience in theory and application of geographic information systems (GIS) should take 044:113 Principles of Geographic Information Systems and at least an additional 6 s.h. in GIS-based geography courses.

The following upper-level courses are recommended.

044:100 Readings for Undergraduates	arr.
044:104 Environment and Development	3 s.h.
044:115 Cultural Geographies of North America	3 s.h.
044:124 Gender and the Environment	3 s.h.
044:131 Geography of Health	2-3 s.h.
044:133 Introduction to Economics of Transportation	3 s.h.
044:135 Urban Geography	3 s.h.
044:137 Health and Environment: GIS Applications	3 s.h.
044:139 Location Models and Spatial Decision Support Systems	3 s.h.
044:162 Work, Gender, and Development	3 s.h.
044:164 The Middle East	3 s.h.
044:170 Geography of Justice	3 s.h.
044:172 Development Planning and Policy	3 s.h.
044:176 Social Consequences of Global Change	3 s.h.

044:178 Consequences of Global Environmental Change	3 s.h.
*044:181 Field Methods in Social/Environmental Geography	3 s.h.
044:194 Geographic Perspectives on Development	3 s.h.

*A course chosen to fulfill one requirement cannot be used to fulfill a second.

ENVIRONMENTAL STUDIES TRACK

The environmental studies track is designed for students interested in the interrelationships among social and natural processes that affect the environment. The track prepares students for careers or pursuit of personal interests in resource management, physical geography, climatology, environmental policy or law, global environmental change, sustainable development, or other complex environmental issues. Graduates may find employment in an environmental profession such as landscape ecology or climatology; environmental planning and regulation; or environmental law, policy, and politics.

The environmental studies track offers training in field observation, remote sensing, geographical information systems, quantitative analysis/computing, and cartographic representation. It also provides a sound foundation or graduate or professional-level studies in the natural or social aspects of the environment.

In addition to satisfying the common requirements for all geography majors, students in environmental studies track must complete the following.

044:019 Contemporary Environmental Issues	3 s.h.
Upper-level geography courses	12 s.h.

Students choose the upper-level courses (12 s.h.) in consultation with their advisors. They may not count 044:150 Senior Project Seminar or the independent study courses 044:151, 044:195, 044:198, and 044:199 toward this requirement. Students in the environmental studies track who wish to gain additional experience in theory and application of geographic information systems (GIS) should take 044:113 Principles of Geographic Information Systems and at least an additional 6 s.h. in GIS-based geography courses.

The following upper-level courses are recommended.

044:100 Readings for Undergraduates	arr.
044:101 Climatology	3 s.h.
044:103 Biogeography	3 s.h.

044:104 Environment and Development	3 s.h.
044:105 Introduction to Environmental Remote Sensing	3 s.h.
044:122 Environmental Conservation in the U.S.	3 s.h.
044:123 Landscape Ecology	3 s.h.
044:124 Gender and the Environment	3 s.h.
044:125 Environmental Impact Analysis	4 s.h.
044:126 Wetlands: Function, Geography, and Management	3 s.h.
044:127 Environmental Quality: Science, Technology, and Policy	3 s.h.
044:128 GIS for Environmental Studies: Applications	3 s.h.
044:129 Water Resources Management	3 s.h.
044:131 Geography of Health	2-3 s.h.
044:137 Health and Environment: GIS Applications	3 s.h.
044:170 Geography of Justice	3 s.h.
044:178 Consequences of Global Environmental Change	3 s.h.
*044:180 Field Methods in Physical Geography	2-4 s.h.
044:205 Advanced Geographic Remote Sensing	4 s.h.

*A course chosen to fulfill one requirement cannot be used to fulfill a second.

GEOGRAPHIC INFORMATION SCIENCE TRACK

The geographic information science track is designed for students preparing for positions in government agencies, nongovernment organizations, international development agencies, and business. It also provides preparation for graduate study in geography, planning, and other disciplines. The track focuses on the design, implementation, and use of geographic information systems. Courses address how geographic data are acquired, stored, accessed, displayed, managed, and analyzed.

Students in the geographic information science track learn to address problems involved in modeling environmental systems, identifying the best locations for service facilities, assessing environmental impacts, and forecasting the populations of small areas. They use the department’s Geographic Information Systems Instructional Lab (GISIL) extensively to develop expertise in using GIS software.

Course work in the track covers methods of spatial analysis and geographical modeling and involves database management and computer programming.

In addition to the common requirements for all geography majors, students in the geographic information science track must complete the following.

22C:016 Computer Science I	4 s.h.
Upper-level geography courses	11 s.h.

Students choose the upper-level courses (11 s.h.) in consultation with their advisors. They may not count 044:150 Senior Project Seminar or the independent study courses 044:151, 044:195, 044:198, and 044:199 toward this requirement. Students in the GIScience track are encouraged to add breadth to their degree by taking additional upper-level courses in the department. Students interested in the application of GIS to environmental issues should select courses from the department’s environmental studies area; those interested in socioeconomic issues should select courses from the department’s geography and social change area.

The following upper-level courses are recommended.

044:105 Introduction to Environmental Remote Sensing	3 s.h.
044:110 GIS for Environmental Studies: Introduction	3 s.h.
044:112 Mapping American Cities and Regions	3 s.h.
044:113 Principles of Geographic Information Systems	3 s.h.
044:125 Environmental Impact Analysis	4 s.h.
044:128 GIS for Environmental Studies: Applications	3 s.h.
044:136 Planning Livable Cities	3 s.h.
044:137 Health and Environment: GIS Applications	3 s.h.
044:139 Location Models and Spatial Decision Support Systems	3 s.h.
044:205 Advanced Geographic Remote Sensing	4 s.h.

Students may count no more than 50 s.h. of credit earned in their major department toward their degree.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

The B.A. degree requires 38 s.h. in the major.

Before the third semester begins: one of the introductory courses in the major and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: five courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins:

11 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins:

14 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

The B.S. degree requires 46 s.h. in the major.

Before the third semester begins: two of the introductory courses in the major and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: six courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: 12 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins:

15 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Honors in geography is for students of superior ability who want to pursue studies beyond the typical undergraduate level. To graduate with honors, students must become a member of the University Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). They must be admitted to the honors program in geography by the first semester of the senior year and must maintain a g.p.a. of at least 3.33 in geography. They also must prepare and present an honors thesis, which consists of original research under the direction of a faculty member. The thesis is reviewed by a three-member faculty committee.

Students complete the thesis through the year-long 044:198 Honors Tutorial and 044:199 Honors Thesis. The senior course 044:150 Senior Project Seminar may be substituted for 044:199 Honors Thesis, as long as the student continues work on the thesis under the direction of a faculty member.

Minor

To minor in geography, a student must complete at least 15 s.h. in geography courses with a g.p.a. of at least 2.00; 12 of the 15 s.h. must be taken at The University of Iowa in 100-level courses. Minors are encouraged to concentrate their course work in tracks—geography and social change, environmental studies, or geographic information science. Students who wish assistance in selecting courses may contact the department secretary to request assignment of a minor advisor.

Internships

The Department of Geography is a participant in the University's internship program, which provides opportunities for both undergraduate and graduate students to participate in paid and unpaid activities related to their academic programs. The Pomerantz Career Center works with students to develop appropriate internships.

Courses for Nonmajors

Students in the College of Liberal Arts and Sciences as well as other academic units at the University may find geography courses useful to their own study programs. The beginning-level courses 044:001 Introduction to Human Geography, 044:011 Population Geography, 044:019 Contemporary Environmental Issues, and 044:030 The Global Economy are approved for the social sciences component of the College of Liberal Arts and Sciences General Education Program; 044:010 The Contemporary Global System and 044:161 African Development are approved for the social sciences and foreign civilization and culture components of the General Education Program; and 044:003 Introduction to Earth Systems Science is approved for the natural sciences component of the General Education Program. These courses serve as part of a liberal education.

Other courses may be taken as electives, including 044:015 Introduction to Political Geography, 044:035 World Cities, and 044:124 Gender and the Environment.

Graduate Programs

Graduate programs in the Department of Geography focuses on investigating the environmental consequences of human decisions on local, regional, and global scales. Geographical information science and the theories and models of environmental and social sciences are central to the department's studies. Within this broad domain, the department is developing strengths in environmental justice, environmental modeling, land use and its environmental consequences, health geography, and information technology and development.

The department offers a Master of Arts and a Doctor of Philosophy. Both programs prepare students to carry on creative and productive research in selected areas of geography. University of Iowa graduates hold positions on college and university faculties, in private research organizations, and in business and government.

The department provides opportunities for graduate students to gain practical teaching experience through service as departmental teaching assistants or graduate instructors.

Graduate students present research papers at conferences and have regularly won awards. Students are involved in faculty research that leads to coauthored publications; they also publish their own. Graduate students compete successfully for intramural and extramural funding for graduate education and research.

Master of Arts

The M.A. in geography is designed to be completed in four semesters. It requires a minimum of 30 s.h. of graduate credit, but students accumulate 40-48 s.h. in completing the degree. Students use the additional work to increase their breadth of knowledge in geography and to tailor their study programs to their individual interests. A maximum of 6 s.h. may be earned for thesis work.

Graduate students demonstrate competence by completing appropriate course work; and completing an M.A. exam, or completing and defending an M.A. thesis, or completing the Ph.D. comprehensive exams.

For detailed information about requirements, see the *Manual for Graduate Degree Requirements, Department of Geography*; contact the Department of Geography.

Doctor of Philosophy

The Doctor of Philosophy in geography prepares students for college and university teaching and for advanced research. It provides programs of study that lead to broad knowledge of a field of geography and its literature and to special expertise in a subfield.

The Ph.D. requires 72 s.h. of graduate credit and is designed to be completed in four or five years. Students can enter the program upon completing an undergraduate degree or with advanced standing corresponding to previous graduate education.

All Ph.D. students take the following courses.

044:210 Fundamentals of Geography	3 s.h.
044:211 Research and Writing in Geography	3 s.h.
Six modules chosen from	
044:215-044:219 (any two may be taken twice)	6 s.h.
Two research seminars chosen from	
044:315-044:319 (3 s.h. each)	6 s.h.

Before students can be admitted to candidacy for the Ph.D., they must submit an original research paper to a faculty committee for approval. Students who complete an M.A. or M.S. thesis can submit it to fulfill this requirement. Before taking the comprehensive examination, which consists of both written and oral components, each student must submit an area review paper to his or her Ph.D. committee. This paper, which must be approved by the student's Ph.D. advisor, consists of a critical review of research in the student's concentration area.

The comprehensive examination covers the student's concentration area and his or her general field in the discipline. After obtaining the dissertation supervisor's approval, the student submits a dissertation proposal to the dissertation committee for critical comments and approval. The student then must complete and defend the dissertation.

For detailed information about requirements, see the *Manual for Graduate Degree Requirements, Department of Geography*; contact the Department of Geography.

Admission

Applicants to graduate programs in geography must meet the admission requirements of the Graduate College. For detailed information about Graduate College policies, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

A bachelor's degree in geography is not required for admission to graduate study in geography, but applicants must have an undergraduate background relevant to the field. Strength in social or environmental science and interest in exploring the regional and spatial perspectives that characterize modern geography are important in admission decisions. Depending on their prior training, graduate students may be required to take courses that are prerequisites for course work in their chosen area of graduate study; credit earned in prerequisites does not count toward the graduate degree.

Application materials include the undergraduate transcript with grade-point average, scores on the Graduate Record Examination (GRE) General Test, three letters of recommendation, and an essay in which the applicant states his or her reasons for wanting to study geography at The University of Iowa.

International applicants whose first language is not English must take the Test of English as a Foreign Language (TOEFL) and have their official scores sent to the University's Office of Admissions.

Financial Support

A number of graduate appointments as teaching or research assistants are available. In addition, there are several fellowships for outstanding applicants and underrepresented minorities. Awards are based on merit. In making awards, the department pays particular attention to grade-point average, especially for the junior and senior years; score on the Graduate Record Examination (GRE) General Test; letters of recommendation; and fit of the student's objectives with department specializations. Applications for graduate appointments must be received by February 1. Applications for fellowships are due by January 15.

Facilities, Centers

The department houses three geographic information computational laboratories, which support a variety of GIS software packages, including the latest software from ESRI (ArcGIS), Erdas (Imagine), and Caliper (Transcad).

The Geographic Information Systems Instructional Lab (GISIL) is equipped with 20 networked workstations, instructional support technology (e.g., CRT projection), and a suite of peripherals.

Environmental modeling and GIS research laboratories contain state-of-the-art machines. The department provides Windows and Linux platforms, digitizers, scanners, plotters, and printers. Projects requiring massive storage have access to the advanced GIS and modeling facility in the Center for Global and Regional Environmental Research. The University of Iowa is a charter member of Internet2, with a high-performance network link to the Department of Geography. The University also is a member of the University Consortium on Geographic Information Science.

To aid studies of water resources and physical geography, the department has a laboratory for analysis of vegetation, sediment, soil, water quality, and tree rings, and a variety of field equipment, including portable meteorological stations and data loggers.

Faculty and graduate students participate in multidisciplinary working groups through the University's Program in Applied Mathematical and Computational Sciences, Center for Global and Regional Environmental Research, Center for Health Effects of Environmental Contamination, International Programs, Institute for Rural and Environmental Health, Iowa Quaternary Studies Group, and Public Policy Center.

The University's Main Library has a collection of more than 115,500 maps, 3,600 atlases and reference works, and around 100,000 aerial photographs, primarily of Iowa.

Courses

Primarily for Undergraduates

044:001 Introduction to Human Geography 4 s.h.

Application of geographic principles to contemporary social, economic, and political problems; urban growth; problems of the ghetto; diffusion of innovations; territoriality and perception. GE: social sciences.

044:003 Introduction to Earth Systems Science 4 s.h.

Elementary principles of physical geography: physics of weather and climate, hydrological systems, geomorphological and geological forces, pedological processes, and ecological processes and patterns; geographic explanation of physical environment, with principles applied to the human use system; environmental pollution and natural hazards. GE: natural sciences.

044:005 Foundations of GIS 3 s.h.

Cartography, map analysis, and geographic information systems; map projections and scale; data collection, remote sensing, and GPS; data structures and organization; cartometry; symbolization and visualization.

044:010 The Contemporary Global System 4 s.h.

Problems of the global system and ways to address them; global economy and environment, state and security, social justice and human rights. GE: foreign civilization and culture or social sciences.

044:011 Population Geography 3 s.h.

Spatial considerations of population growth and distribution; minorities within a population; poverty; housing; social organization and disorganization; social systems, including education, religion, recreation, medical and social services; diffusion of ideas and traits over space. GE: social sciences.

044:015 Introduction to Political Geography 3 s.h.

Emphasis on application of geographical and economic theory in understanding historical development and restructuring of political economies at global, national, and local levels; development of nation states, nationalism, imperialism, geopolitics, economic restructuring, electoral geography.

044:019 Contemporary Environmental Issues 3 s.h.

Political, economic, cultural, technologic, ecological, and ethical issues associated with natural resource and environmental problems, including population, global climate change, food production, tropical deforestation, soil erosion, waste management. GE: social sciences.

044:029 First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

044:030 The Global Economy 3 s.h.

Location and spatial organization of the world's major types of economies; agriculture, energy and minerals, manufacturing, transportation; trade and service centers. GE: social sciences.

044:035 World Cities 3 s.h.

Urbanization as a process; specific concepts and theories of urbanization through global patterns, regional urban systems, individual metropolitan areas.

044:094 International Development 3 s.h.

Theories of international development, political economy, development policy and planning; empirical analysis of conditions, policies, experiences of selected Third World countries. Prerequisite: social science GE.

044:100 Readings for Undergraduates arr.

Supervised readings in geography. Prerequisite: consent of instructor.

For Undergraduate and Graduate Students

044:101 Climatology 3 s.h.

Boundary layer processes that drive atmospheric dynamics; exchanges of energy and water at simple and complex surfaces; global climate change records, theories, models; impacts of climate on society. Prerequisite: 044:003 or consent of instructor. Same as 012:104.

044:103 Biogeography 2-3 s.h.

Distribution and abundance of plants and animals, spatial patterns and processes, and temporal dynamics of succession, response to climate change, and evolution; methods applied to the study of vegetation and plant community patterns. Prerequisite: 044:003 or 002:001 or consent of instructor. Same as 002:103.

044:104 Environment and Development 3 s.h.

Environmental impacts of industrial and rural development explored through Third World case studies (Latin America, Africa, South and East Asia); environmental degradation from perspectives of political economy and ecology; class, gender, and indigenous peoples' issues; industry-agriculture linkages.

044:105 Introduction to Environmental Remote Sensing 3 s.h.

Basic concepts and principles of remote sensing; sources of data; georegistration; digital processing and classification of remotely sensed images for extraction of environmental information; linkage of remote sensing techniques with GIS analysis.

044:106 Foundations of GIS 3 s.h.

Cartography, map analysis, and geographic information systems; map projections and scale; data collection, remote sensing, GPS; data structures and organization; cartometry; symbolization and visualization.

044:110 GIS for Environmental Studies: Introduction 3 s.h.

Methods of managing and processing geographic information for environmental analysis; basic concepts, structures, theories of Geographic Information System (GIS), basic analytical techniques, and hands-on experience in GIS operations. Prerequisite: 044:005 or consent of instructor.

044:112 Mapping American Cities and Regions 3 s.h.

Foundation concepts for GIS-based analysis of urban, social, and economic data for the United States; geo-referenced sources of U.S. national and state data; application to contemporary social issues. Prerequisite: 044:005 or consent of instructor.

044:113 Principles of Geographic Information Systems 3 s.h.

Issues in establishment of geographic information systems: spatial data encoding, raster-vector options, spatial and attribute resolution, cartographic data models, linkages to spatial analysis procedures, display techniques for decision support, institutional setting. Prerequisite: 044:005 or consent of instructor.

044:115 Cultural Geographies of North America 3 s.h.

Historical and contemporary perspectives on the contested cultural geographies of North America; processes underlying the social construction and reproduction of place, region, and place-based identities. Same as 045:116.

044:122 Environmental Conservation in the U.S. 3 s.h.

Varied natural environments of the United States; problems arising from conflicting land uses; consideration of public land use policy, environmental impacts of different land uses, problems of habitat preservation and endangered species. Prerequisite: 044:003 or 044:019 or consent of instructor.

044:123 Landscape Ecology 3 s.h.

Effects of spatial pattern on spatial processes in ecology; characteristics of matrix, patch, corridor; fragmentation, deforestation, habitat loss; spatial flows of energy, matter, genetic information; relationship to human impact, global climate change. Prerequisite: 044:103 or a 100-level course in ecology.

044:124 Gender and the Environment 3 s.h.

Relationships between gendered human activities and environmental problems in developed and less-developed regional contexts; women's work, environment, development, role of women's activism in environmental movements; science, gender, knowledge of the environment; ecofeminist perspectives. Prerequisite: an introductory environmental studies or women's studies course. Same as 131:124.

044:125 Environmental Impact Analysis 4 s.h.

Environmental impact assessment methodologies; emphasis on cost-benefit-risk, cost-effectiveness and incremental analysis, and overlay and graphic techniques; optimal resource use, system simulation; field trips to local environmental control facilities. Prerequisites: 044:019, and 029:005 or equivalent. Same as 102:125.

044:126 Wetlands: Function, Geography, and Management 3 s.h.

Biotic aspects of water resources production; geographical basis of biophysical processes in drainage basins; spatial aspects of stream ecology; regional characterization of wetland structure and process. Prerequisite: 044:101 or 044:103. Same as 012:126.

044:127 Environmental Quality: Science, Technology, and Policy 3 s.h.

Geographical perspectives in the study and interpretation of chemicals in the environment; environmental standards under existing laws; local, regional, national, international case studies

in environment and health; socioeconomic and institutional considerations in designing environmental protection strategies. Prerequisite: 22S:025 or equivalent or consent of instructor.

044:128 GIS for Environmental Studies: Applications 3 s.h.
Applications of Geographic Information System (GIS) techniques in environmental change analysis (especially land use/cover change), environmental assessment, hazard/risk analysis, environmental decision making. Prerequisite: 044:110 or consent of instructor.

044:129 Water Resources Management 3 s.h.
Application of hydrological information in water resources management; aspects of water quantity and quality, groundwater availability, water use and treatment, resource development, political and administrative issues; basin management problems—forestry, agriculture, urbanization, floods, droughts. Prerequisite: 044:122 or equivalent.

044:131 Geography of Health 1-3 s.h.
Provision of health care in selected countries, with particular reference to the Third World; focus on problems of geographical, economic, cultural accessibility to health services; disease ecology, prospective payment systems, privatization, medical pluralism. Same as 152:131.

044:133 Introduction to Economics of Transportation 3 s.h.
Overview of transportation markets (intercity, rural, urban) and transportation modes (railroads, highways, air carriage, waterways); regulation, finance, physical distribution issues. Same as 06E:145, 102:133.

044:134 Health and Environment: GIS and Spatial 3 s.h.
Use of GIS and spatial analysis methods to focus on three areas: handling spatial data, exploratory spatial data analysis, and causality analysis of geographic phenomena.

044:135 Urban Geography 3 s.h.
Central ideas of modern urban geography, their links to social theory; focus on interrelation between social change, urban environment; evolution of urban systems, emergence of the capitalist city, urban social and residential differentiation, local politics of uneven development.

044:136 Planning Livable Cities 3 s.h.
Same as 102:101.

044:137 Health and Environment: GIS Applications 3 s.h.
Applications of GIS and spatial analysis for studying health outcomes and exposure to environmental contaminants at different geographical scales. Prerequisite: 044:131 or 044:134 or consent of instructor.

044:139 Location Models and Spatial Decision Support Systems 3 s.h.
Application of location models within GIS environments to support decision making; small area demographic forecasting, location-allocation models, regionalization problems, shortest path models, other spatial analysis methods used to support spatial decisions. Prerequisite: 044:005.

044:150 Senior Project Seminar 3 s.h.
Development of a research project and preparation of a research report. Offered spring semesters. Prerequisite: senior standing.

044:151 Senior Thesis 3 s.h.
Original research. Prerequisites: senior standing and consent of instructor.

044:161 African Development 3 s.h.
Problems of economic, political, spatial integration in Africa; patterns and processes of economic development and nation building. GE: foreign civilization and culture or social sciences. Prerequisite: 044:094. Same as 030:146.

044:162 Work, Gender, and Development 3 s.h.
Gender and class considered through political economy, gender-development theory, and institutional economics; global processes of First/Third World development analyzed; focus on class, gender, and collective action in cooperative enterprises, factory workplaces, and social movements. Prerequisite: 044:094 or graduate standing.

044:164 The Middle East 3 s.h.
Middle East cultures, political economy, conflict; significance of the Middle East in world affairs, vice versa.

044:170 Geography of Justice 3 s.h.
Geographical analysis of social and environmental justice; justice from various cultural perspectives; cultural struggles over human rights.

044:172 Development Planning and Policy 3 s.h.
Explicit and implicit strategies for economic and social development: origins, goals, formulation, execution, results; policy analysis methods. Prerequisites: 22S:025 and 044:094.

044:174 Health, Work, and Environment 3 s.h.
Same as 175:101.

044:176 Social Consequences of Global Change 3 s.h.
Social consequences of economic, political transformation; urbanization, technological change, and penetration of global capital, their impacts on gender relations, ethnic identity and significance, other social structures.

044:178 Consequences of Global Environmental Change 3 s.h.
Physical components of global change, their relationship to environmental policy concerns; consequences manifested on local, regional, international scales. Prerequisites: 044:003 or 159:008, and 044:019; or consent of instructor.

044:180 Field Methods in Physical Geography 2-4 s.h.
Methods of measuring climate, vegetation, soil, landforms, water; projects in areas including field meteorology, tree-ring sampling, topographic surveying, vegetation sampling, water quality sampling, use of global positioning systems; introduction to research design.

044:181 Field Methods in Social/Environmental Geography 3 s.h.

044:183 Quaternary Environments 3 s.h.
Same as 012:173.

044:186 Soil Genesis and Geomorphology 3 s.h.
Same as 012:136.

044:188 Applied Geostatistics 3 s.h.
Same as 012:178.

044:194 Geographic Perspectives on Development 3 s.h.
Theoretical and empirical studies of the regional development process, with emphasis on developing countries; alternative regional development theories and changes in development theories in the literature of geography, related disciplines. Prerequisites: satisfaction of introductory geography and social change requirements, or consent of instructor.

044:195 Undergraduate Research arr.
Supervised research in geography. Prerequisite: consent of instructor.

044:197 Special Topics arr.
Contemporary fields of inquiry, such as political economy, regional/African development, biophysical systems, GIS, locational analysis, water resources, economic geography, demographic analysis, environment, urbanization, transportation.

044:198 Honors Tutorial arr.
Individual study.

044:199 Honors Thesis arr.
Original research. Prerequisite: honors standing.

044:286 Crossing Borders Seminar 2-3 s.h.
Repeatable. Same as 01H:247, 008:231, 013:262, 016:247, 030:242, 035:273, 048:247, 113:247, 129:231.

For Graduate Students

044:200 Readings arr.
Supervised readings by graduate students in topics of their choice. Prerequisite: consent of instructor.

044:287 Crossing Borders Proseminar 1 s.h.
Same as 01H:330, 013:260, 016:244, 030:243, 035:271, 048:244, 113:248.

044:205 Advanced Geographic Remote Sensing 4 s.h.
Theory and practice of remote sensing and digital image processing; practical applications to human-environment interactions. Prerequisite: 044:105.

044:296 Topics in Geographic Information Science 3 s.h.
Current theoretical research issues in geographic information science; intensive readings. Repeatable. Prerequisite: 044:113 or consent of instructor.

044:210 Fundamentals of Geography 3 s.h.
Geography as an academic discipline; history, advances, epistemology, common themes.

044:297 Special Topics arr.
Contemporary fields of inquiry, such as political economy, regional/African development, biophysical systems, GIS, locational analysis, water resources, economic geography, demographic analysis, environment, urbanization, transportation.

044:211 Research and Writing in Geography 3 s.h.
Identification of research areas; research questions and hypotheses; methodological decisions; research proposal and paper writing.

044:315 Seminar in Spatial Analysis and Modeling 3 s.h.
Research themes in spatial analysis, GIScience, simulation, remote sensing.

044:215 Module in Spatial Analysis and Modeling 1 s.h.
Research themes in spatial analysis; GIScience, simulation, remote sensing.

044:316 Seminar in Rural Land Use 3 s.h.
Research on land use, water resources, conservation.

044:216 Module in Rural Land Use 1 s.h.
Research themes in land use, water resources, conservation.

044:317 Seminar in Environmental Policy 3 s.h.
Research on environmental justice and policy.

044:217 Module in Environmental Policy 1 s.h.
Research themes in environmental justice and policy.

044:318 Seminar in Health and Environment 3 s.h.
Research on health and environment.

044:218 Module in Health and Environment 1 s.h.
Research themes in health and environment.

044:319 Seminar in International Development 3 s.h.
Research on GIScience and development.

044:219 Module in International Development 1 s.h.
Research themes in GIScience and development.

044:350 Geography Colloquium arr.

044:225 Environmental/Social Systems Analysis 3 s.h.
Linear optimization and related models; recent applications in water resources management, pollution control, economics, public policy; potential future applications in designing water quality monitoring networks. Prerequisite: consent of instructor.

044:415 Research in Spatial Analysis and Modeling 3 s.h.
Directed research in spatial analysis, GIScience, simulation.

044:227 Environmental Quality: Science, Technology, and Policy 3 s.h.
Geographical perspectives in the study and interpretation of chemicals in the environment; environmental standards under existing laws; local, regional, national, international case studies in environment and health; socioeconomic and institutional considerations in designing environmental protection strategies.

044:416 Research in Rural Land Use 3 s.h.
Directed research in land use, water resources, conservation.

044:246 Advanced Landscape Ecology 3 s.h.
Current questions of effects of spatial structure on ecological processes; ecotones and boundaries, metapopulations, pattern metrics.

044:417 Research in Environmental Policy 3 s.h.
Directed research in environmental justice and policy.

044:265 Transportation Regulation and Finance 1-3 s.h.
Public policy options for improving passenger and commodity movements within and between cities; air, water, land-based transportation modes. Same as 102:265.

044:418 Research in Health and Environment 3 s.h.
Directed research in health and environment.

044:275 Development Policy and Planning in the Third World 3 s.h.

Development policies and planning in Third World countries; important development problems and alternative perspectives on problems and proposed solutions; interdisciplinary seminar. Same as 07B:275, 034:275, 042:275, 102:275, 113:275.

044:419 Research in International Development 3 s.h.
Directed research in GIScience and development.

044:285 Crossing Borders Seminar: Introductory 3-4 s.h.
Repeatable. Same as 01H:230, 008:230, 013:264, 016:293, 030:241, 035:272, 048:230, 113:230.

044:441 Research: Locational Analysis arr.

044:450 Thesis arr.

Geoscience

Chair: C. Thomas Foster Jr.

Professors: Ann F. Budd, C. Thomas Foster Jr., Philip H. Heckel

Professors emeriti: Richard G. Baker, Robert S. Carmichael, Lon D. Drake, William M. Furnish, Brian F. Glenister, Richard A. Hoppin, Gilbert Klapper, George R. McCormick, Holmes A. Semken, Keene Swett

Adjunct professor: David L. Campbell

Associate professors: Jonathan M. Adrain, E. Arthur Bettis III, Robert L. Brenner, Jane A. Gilotti, Mark K. Reagan, Frank H. Weirich, You-Kuan Zhang

Adjunct associate professors: Scott J. Carpenter, Gregory A. Ludvigson, Brian J. Witzke

Assistant professors: Christopher A. Brochu, Jeffrey A. Dorale, Walter A. Illman, David W. Peate, Hallie J. Sims

Adjunct assistant professors: Ray Anderson,

Rhawn F. Denniston, James Huber, Ingrid U. Peate, Doug Schnoebelen

Adjunct instructor: Tiffany Adrain

Undergraduate degrees: B.A., B.S. in Geoscience

Undergraduate nondegree program: Minor in Geoscience

Graduate degrees: M.S., Ph.D. in Geoscience

Web site: <http://www.uiowa.edu/~geology>

Geoscience faculty and students study the many physical, chemical, and biological systems that compose the earth. Using modern observational, analytical, and computational methods, they examine how the planet's interior, surface, hydrosphere, and atmosphere have evolved since the earth was born in the solar system 4.6 billion years ago. Topics commonly studied in the department include how plate movements cause earthquakes, volcanoes, and mountain building; how global climate change and catastrophic events cause changes in biodiversity; how and where economic resources are generated in the earth; and how these resources are located and used in modern society.

The geoscience curriculum provides students with hands-on experience analyzing rocks, minerals, fossils, soils, and waters, generally in a small classroom setting. Much of this experience is obtained in laboratory and field courses. Field courses include travel to other states or countries to view earth materials and fossils in the context of their natural surroundings.

The master's degree is regarded by most hiring agencies as the working degree. The doctoral degree is required for college and university teaching positions. However, an undergraduate

degree is fully satisfactory in certain teaching, government, and industrial situations.

Many of The University of Iowa's geoscience graduates find employment with resource companies, environmental corporations, and educational institutions. Others continue in graduate school or take jobs with government or conservation agencies. Some intend to enter law, business, or fields such as urban planning, environmental studies, engineering, archaeology, science education, or oceanography as advanced areas. Geoscience provides skills useful for all of these.

Each year more than 1,500 students enroll in 012:003 Earth History and Resources, 012:004 Evolution and the History of Life, 012:005 Introduction to Geology, 012:007 Age of Dinosaurs, 012:008 Introduction to Environmental Science, and 012:114 Energy and the Environment. All of these courses approved by the College of Liberal Arts and Sciences for the natural sciences component of the General Education Program.

For nonmajors, the department offers a lecture sequence featuring a general survey of geoscience: 012:001 Lectures in Earth History and Resources, 012:006 Lectures in Evolution and the History of Life, and 012:008 Introduction to Environmental Science. It also offers several intermediate courses with few prerequisites: 012:102 Earth Surface Processes, 012:108 Introduction to Oceanography, 012:110 Introduction to Applied Remote Sensing, 012:114 Energy and the Environment, and 012:121 Principles of Paleontology.

Many of the department's faculty members are involved in the interdisciplinary Environmental Sciences Program (see Environmental Sciences in the Catalog).

Undergraduate Programs

The department offers programs leading to the Bachelor of Science and the Bachelor of Arts. Geoscience majors receive at least an academic year's work in three allied scientific areas—physics, chemistry, and mathematics—and a semester of biological

sciences in addition to a course in each major area of geology.

Students majoring in geoscience must complete the College of Liberal Arts and Sciences General Education Program. It is recommended that they complete the foreign language component with French, German, Spanish, or Russian, and the social sciences component with an approved course in economics, geography, or anthropology.

Transfer students must complete a minimum of 15 s.h. of course work in the Department of Geoscience for either the B.S. or the B.A.

Bachelor of Science

The Bachelor of Science in geoscience is designed to prepare students for immediate employment after graduation or for entering a graduate program in geology. The B.S. requires a minimum of 69 s.h. in the major (18 courses), including 38 s.h. of Department of Geoscience work. B.S. students must complete the following course work.

One of these:

012:003 Earth History and Resources	4 s.h.
012:005 Introduction to Geology (preferred)	4 s.h.

All of these:

012:004 Evolution and the History of Life	4 s.h.
012:041 Mineralogy	4 s.h.
012:052 Petrology	4 s.h.
012:092 Structural Geology	4 s.h.
012:093 Geologic Field Methods	2 s.h.
012:113 Summer Field Course	6 s.h.
012:121 Principles of Paleontology	3 s.h.
At least two geoscience electives	6-7 s.h.

At least 8 s.h. of calculus, including one of these:

22M:026 Calculus II	4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus	4 s.h.

An additional course in mathematics (numbered 22M:027 and above), computer science (numbered 22C:005 and above), or statistics (numbered 22S:030 and above) also is required.

B.S. students must complete the following course work in chemistry, physics, and biological sciences (these are minimum requirements).

At least 8 s.h. of college-level chemistry is required, including the following, equivalent courses, or more advanced courses; chemistry courses numbered below 004:011 cannot be used to satisfy the chemistry requirement for the B.S. in geoscience.

004:011-004:012 Principles of Chemistry I-II	8 s.h.
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At least 8 s.h. of college-level physics is required, as follows; physics courses numbered below 029:011 cannot be used to satisfy the physics requirement for the B.S. in geoscience.

One of these sequences:

029:011-029:012 College Physics I-II	8 s.h.
029:081-029:082 Introductory Physics I-II	8 s.h.

At least one biological science course that includes a laboratory (4 s.h.) is required. Students with an interest in paleontology are encouraged to take 002:010-002:011 Principles of Biology I-II.

RECOMMENDED OPTIONS

All B.S. students should take elective courses from the following groups in order to broaden their undergraduate experience and prepare themselves for graduate study or professional employment. Students who have clear career goals are advised to take three or more elective courses from the group that fits their needs most closely. Students also may seek a broad education in geoscience by choosing elective courses from a number of groups.

Quaternary Geology

012:102 Earth Surface Processes	3 s.h.
012:110 Introduction to Applied Remote Sensing	4 s.h.
012:130 Sedimentary Geology	3 s.h.
012:136 Soil Genesis and Geomorphology	3 s.h.
012:138 Fluvial Geomorphology	3 s.h.
012:149 Elements of Geochemistry	3 s.h.
012:152 Isotope Geochemistry	3 s.h.
012:153 Geocomputing	1-3 s.h.
012:166 Hydrogeology	3 s.h.
012:172 Glacial and Pleistocene Geology	3 s.h.
012:173 Quaternary Environments	3 s.h.
012:178 Applied Geostatistics	3 s.h.
012:179 Engineering Geology	3 s.h.
012:185 Approaches to Geoarchaeology	3 s.h.
012:186 Contaminant Hydrogeology	3 s.h.
012:187 Vadose Zone Hydrology	3 s.h.

Environmental Geology

012:108 Introduction to Oceanography	2 s.h.
012:110 Introduction to Applied Remote Sensing	4 s.h.
012:138 Fluvial Geomorphology	3 s.h.
012:139 Integrated Watershed Analysis	3 s.h.
012:140 Natural Hazards	3 s.h.
012:149 Elements of Geochemistry	3 s.h.

012:152 Isotope Geochemistry	3 s.h.
012:153 Geocomputing	1-3 s.h.
012:166 Hydrogeology	3 s.h.
012:178 Applied Geostatistics	3 s.h.
012:179 Engineering Geology	3 s.h.
012:180 Principles of Geophysics	3 s.h.
012:184 Groundwater Modeling	3 s.h.
012:186 Contaminant Hydrogeology	3 s.h.
012:187 Vadose Zone Hydrology	3 s.h.

Geochemistry

012:141 Analytical Methods	2 s.h.
012:149 Elements of Geochemistry	3 s.h.
012:152 Isotope Geochemistry	3 s.h.
012:153 Geocomputing	1-3 s.h.
012:166 Hydrogeology	3 s.h.
012:178 Applied Geostatistics	3 s.h.
012:186 Contaminant Hydrogeology	3 s.h.
012:187 Vadose Zone Hydrology	3 s.h.

Tectonics/Petrology

012:140 Natural Hazards	3 s.h.
012:141 Analytical Methods	2 s.h.
012:149 Elements of Geochemistry	3 s.h.
012:152 Isotope Geochemistry	3 s.h.
012:153 Geocomputing	1-3 s.h.
012:180 Principles of Geophysics	3 s.h.
012:181 Exploration Geophysics	3 s.h.
012:191 Geotectonics	3 s.h.

Sedimentary Geology

012:108 Introduction to Oceanography	2 s.h.
012:130 Sedimentary Geology	3 s.h.
012:138 Fluvial Geomorphology	3 s.h.
012:149 Elements of Geochemistry	3 s.h.
012:152 Isotope Geochemistry	3 s.h.
012:153 Geocomputing	1-3 s.h.
012:161 Stratigraphy	3 s.h.
012:181 Exploration Geophysics	3 s.h.
012:191 Geotectonics	3 s.h.

Paleobiology

012:108 Introduction to Oceanography	2 s.h.
012:121 Principles of Paleontology	3 s.h.
012:122 Evolution of the Vertebrates	3 s.h.
012:130 Sedimentary Geology	3 s.h.
012:144 Phylogenetics and Biodiversity	3 s.h.
012:149 Elements of Geochemistry	3 s.h.
012:152 Isotope Geochemistry	3 s.h.
012:153 Geocomputing	1-3 s.h.
012:161 Stratigraphy	3 s.h.
012:191 Geotectonics	3 s.h.

Bachelor of Arts

The B.A. in geoscience is designed to provide students with a varied background in geology

and a broader choice of electives than is practical in the B.S. program. The B.A. is intended for students who are interested in the fundamentals of geology or earth science teaching (see College of Education in the Catalog). Completing the minimum requirements for this degree may not adequately prepare a student for an entry-level professional job in geology.

The B.A. requires a minimum of 51 s.h. in the major (17-18 courses), including 35 s.h. of Department of Geoscience work. B.A. students must complete the following course work.

One of these:

012:003 Earth History and Resources	4 s.h.
012:005 Introduction to Geology	4 s.h.

Both of these:

012:041 Mineralogy	4 s.h.
012:052 Petrology	4 s.h.

One or both of these:

012:004 Evolution and the History of Life	4 s.h.
012:121 Principles of Paleontology	3 s.h.

One to four of these:

012:092 Structural Geology	4 s.h.
012:130 Sedimentary Geology	3 s.h.
012:136 Soil Genesis and Geomorphology	3 s.h.
012:138 Fluvial Geomorphology	3 s.h.
012:161 Stratigraphy	3 s.h.
012:166 Hydrogeology	3 s.h.

B.A. students must complete the following course work in mathematics and chemistry (these are minimum requirements).

College-level mathematics (may include computer science and statistics) 10 s.h.

At least two college-level chemistry courses (either Option 1 or Option 2) are required; chemistry courses numbered below 004:007 cannot be used to satisfy the chemistry requirement for the B.A. in geoscience.

Option 1:

004:007-004:008 General Chemistry I-II	6 s.h.
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Option 2:

004:011-004:012 Principles of Chemistry I-II	8 s.h.
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FIELD REQUIREMENT

To complete the major, students must have field experience. They may take two semesters of 012:018 or 012:116, or one semester of each of these courses (total of 4 s.h.). Or they may take one semester of 012:093, 012:113, 012:195, or the Iowa Lakeside Laboratory session.

012:018 Geology Field Trip: Selected National Parks	2, 4 s.h.
012:116 Field Trip	2, 4 s.h.
012:093 Geologic Field Methods	2 s.h.
012:113 Summer Field Course	6 s.h.
012:195 Field Methods: Environmental Processes	2-4 s.h.
One natural science session at Iowa Lakeside Laboratory	

University of Iowa g.p.a. of at least 3.33 in order to graduate with honors (contact the University Honors Program for more information). Undergraduate Geoscience Colloquium (012:190) is highly recommended.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: These checkpoints show the range of required course work; the B.A. program requires 17-18 courses, and the B.S. requires 18.

The geoscience major requires field trip experiences, many of which take place during vacation periods during or between semesters, or during the summer session. These checkpoints do not include the field trip requirements.

Before the third semester begins: competence in math through trigonometry, first required chemistry course, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: three to five courses in the major (including the remainder of the chemistry requirement and continuation of the mathematics requirement) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: 7-11 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 10-14 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Qualified students may earn a degree with honors in geoscience. Honors program students must complete a senior thesis (012:010 Honors Thesis in Geoscience) and maintain a cumulative

National Honor Society

The department sponsors a chapter of Sigma Gamma Epsilon National Earth Science Honor Society. Students with an overall g.p.a. of at least 2.80 and at least 3.20 in geoscience courses are considered for membership after they have completed a minimum of 16 s.h. of course work in geoscience. Consult the departmental honors advisor for more information.

Minor

A minor requires at least 15 s.h. of geoscience courses with a g.p.a. of 2.00 or higher. At least 12 of the 15 s.h. must be earned in advanced geoscience courses taken at The University of Iowa. All geoscience courses numbered 100 and above may be taken as advanced courses. In addition, 012:041 Mineralogy, 012:052 Petrology, and 012:092 Structural Geology are considered advanced courses for the minor.

College-level courses in mathematics, physics, chemistry, and biological sciences usually are required as collateral work for geology students. Those seeking a minor in geoscience should be sufficiently prepared in the areas of supporting sciences before they take advanced courses in geoscience.

Recommended advanced courses in geoscience that deal with important areas of earth materials and earth processes are as follows.

012:041 Mineralogy	4 s.h.
012:052 Petrology	4 s.h.
012:092 Structural Geology	4 s.h.
012:102 Earth Surface Processes	3 s.h.
012:108 Introduction to Oceanography	2 s.h.
012:114 Energy and the Environment	3 s.h.
012:121 Principles of Paleontology	3 s.h.
012:130 Sedimentary Geology	3 s.h.
012:136 Soil Genesis and Geomorphology	3 s.h.
012:138 Fluvial Geomorphology	3 s.h.
012:139 Integrated Watershed Analysis	3 s.h.
012:149 Elements of Geochemistry	3 s.h.
012:161 Stratigraphy	3 s.h.
012:180 Principles of Geophysics	3 s.h.
012:191 Geotectonics	3 s.h.

Joint Programs

Joint programs can be arranged, usually with chemistry, physics, biological sciences, environmental engineering, environmental science, and anthropology.

Independent Research

A junior or senior who is ready to pursue independent research for credit in geoscience may assist a faculty member or graduate student with a current research project (012:019 Directed Study) or may initiate a small-scale project involving a combination of field, laboratory, and library investigation (012:119 Directed Study). Independent study is encouraged and may result in honors or senior theses that subsequently are published.

Graduate Programs

The Department of Geoscience offers the M.S. in geoscience, with or without thesis, and the Ph.D. in geoscience.

All geoscience graduate students are responsible for meeting requirements and deadlines. They should acquaint themselves with the Manual of Rules and Regulations of the Graduate College—particularly sections IX, X, and XII (see Graduate College in the Catalog)—and with the University calendar (for deadline dates and so forth).

New graduate students receive a handout that provides detailed information about graduate degree requirements. See Graduate Programs in Geoscience on the department's web site.

Entering graduate students are required to enroll in 012:207 Geologic Orientation. By the first month of their second semester in residence, they must select an advisor. Also during their second semester in residence, they must consult with faculty members and arrange for an advisory committee.

Throughout their graduate study, all M.S. and Ph.D. students must maintain a g.p.a. of at least 3.00 on all course work required for their degree and on all graduate-level geoscience course work. Students whose g.p.a. drops below 3.00 are placed on academic probation.

Geoscience graduate students are encouraged to present their research at local, regional, national, or international meetings. The department provides partial funding for travel to such meetings.

Master of Science

The M.S. program is designed primarily to prepare students for professional careers in geoscience, or for more advanced studies. It requires a minimum of 30 s.h. of graduate credit. No more than 8 of the 30 s.h. can be earned in research. At least 24 s.h. must be completed in residence at The University of Iowa.

M.S. students are responsible for obtaining their advisory committee's approval of a suitable program of course work and for satisfactory development of research plans as outlined in a thesis proposal, which should be completed before the end of the second semester of full-time study.

Master's students are required to deliver a half-hour public presentation of the thesis, followed by an oral defense, supporting research, and related topics. They also must take a final examination, for which members of their advisory committee act as examiners.

Nonthesis Option

The M.S. without thesis is designed for students with extensive geological background and experience. Individuals interested in pursuing the nonthesis option must obtain the department chair's permission.

Requirements for the nonthesis option are similar to those for the M.S. with thesis, except that in place of the thesis, the student must submit a manuscript that his or her thesis committee deems acceptable for submission for publication. The student may choose to submit a previously published manuscript. Nonthesis students also must take a final examination that covers course work and the work done in place of the thesis.

Doctor of Philosophy

The Ph.D. program is designed primarily to train students to be independent researchers and/or teachers, and to bring students to the forefront of a specialized area of geoscience. It requires a minimum of 72 s.h. of graduate credit. At least two semesters beyond the first 24 s.h. earned in graduate work must be spent in full-time study (9 s.h. per semester) in residence at The University of Iowa.

Ph.D. students usually enter the program with established fields of interest and a research advisor already selected. Under exceptional circumstances, a student may be admitted to the Ph.D. program without an established field of interest.

During the first semester of study, students consult with faculty members and their advisor to select course work and to choose a faculty committee for the comprehensive examination. Students should complete most of their course work before taking the comprehensive examination, which consists of both written and oral portions and which must be passed before the end of the second year of doctoral study.

Once candidates have passed the comprehensive examination, they are required to register each semester until they receive the Ph.D. Candidates who have completed their plan of study may register for 000:002 Doctoral Continuous Registration or 000:003 Doctoral Final Registration.

Doctoral candidates, in consultation with their advisor and other faculty members, prepare a formal dissertation proposal, which must be submitted to the chair of the geoscience department by the beginning of the fifth semester of the candidate's full-time doctoral study and before the bulk of his or her research is completed. The proposal must receive the dissertation committee's unanimous approval. The written dissertation must be available to the committee at least two weeks before the final examination. All Ph.D. candidates must deliver a one-hour public presentation associated with the dissertation defense.

Admission

Applicants to graduate programs in geoscience must:

- hold a bachelor's degree from a college or university accredited by a regional accrediting association, and

- have a g.p.a. of at least 3.00 (for M.S. applicants) or at least 3.20 (for Ph.D. applicants), or a combined verbal and quantitative score of at least 1100 and an analytical writing score of at least 4.5 on the Graduate Record Exam (taken since October 1, 2002).

Students may be admitted on conditional status with a g.p.a. of at least 2.30 (for M.S. applicants) or at least 2.70 (for Ph.D. applicants). Graduate students admitted on conditional status must enroll in at least 8 s.h. of graduate course work during each session and must attain regular status at the end of the second session of registration.

The department also admits students who are not candidates for a degree. Such students, called professional improvement students, must meet

the same standards as applicants to the master's program.

International applicants whose first language is not English must score at least 550 (paper-based) or 213 (computer-based) on the Test of English as a Foreign Language (TOEFL).

Financial Support

The Department of Geoscience offers merit-based graduate assistantships. All admitted graduate students are eligible for assistantships.

M.S. students may hold an assistantship for two academic years and Ph.D. students for up to five, depending on whether and where they earned an M.S. In order to retain their appointments from semester to semester, students must perform satisfactorily in the assistantship and must continue to make satisfactory progress toward completion of their degree. Students who begin graduate study without an assistantship may become eligible for one as appointments become available.

Students must demonstrate proficiency in English before they can be considered for a teaching assistantship. Teaching assistants are evaluated each semester for teaching proficiency and communication skills, through student evaluations and observation by a supervising instructor. Research assistantships are typically funded by individual faculty grants and vary depending on the nature of the funded project. Duties often involve activities such as sample collection and preparation; collection, analysis, and interpretation of analytical or measurement data; preparation of maps and diagrams; and assistance with fieldwork.

Outstanding students who are entering their first year of graduate school and are enrolled in doctoral programs may apply for Presidential Graduate Fellowships, which provide two academic years and all summers without formal work assignments, freeing students to pursue their own research.

The department also awards a significant number of tuition scholarships based on merit.

Facilities

Resources and equipment available for research in the Department of Geoscience include the following.

Computer facilities: five networked PC teaching classrooms; a high-end SGI-UNIX teaching classroom with GIS, GMS, remote

sensing, image analysis, and computational software packages; a number of multiprocessor SUN and SGI workstations, IBM RISC-6000 workstations; and high-end SGI servers.

Environmental and Hydrogeology

Laboratory: permeameters and tensionometers; pumping and slug/bail test units with transducers and data-loggers; water-quality analysis facility; advanced groundwater modeling and geostatistics software; advanced data logging systems for field research; 3-D sensor arrays (wind and water systems); and facilities for field instrumentation design and construction.

Environmental Instrumentation

Laboratories: storage, testing, and teaching facility focusing on field instrumentation; assembly, housing, and testing of climatic, meteorological, fluvial, water quality and associated environmental instrumentation data recording systems and sampling systems.

Geomorphic Computing Laboratory:

high-end SGI visualization systems (SGI onyx reality engine); high-end digitizing remote sensing and GIS systems; and high-end SGI and SUN multiprocessors workstations.

Geoscience Library: a branch of University of Iowa Libraries that serves the University community, the Iowa Geological Survey Bureau, and the public; more than 55,000 volumes to support research, study, and teaching, including publications of state, federal, and international geological surveys and field trip guidebooks; more than 73,000 geological maps, including the newest versions of U.S. topographic quadrangle maps.

Morphometric laboratories: reflex microscope for capturing 3-D data; high-resolution digital cameras and microscopes for 2-D image analysis; and laboratories for micro- and macro-fossil preparation.

Paleontological Repository: more than a million specimens, including some 25,000 type and referred specimens, with 6,000-7,000 primary types; invertebrate, vertebrate, and plant fossils of all geologic ages, and more than 90 percent Paleozoic invertebrates; the fifth-largest university collection in North America (CONARIP 1977); editorial office of the *Journal of Paleontology*.

Petrology laboratories: clean laboratory for preparation of samples for elemental and isotopic analysis; alpha-spectrometry laboratory; image analysis; heating freezing stage; petrographic microscopes; photo microscopy; wet-chemistry facilities; rock preparation and mineral

separation; and UNIX, Windows, and Mac workstations for data analysis and modeling.

Quaternary Materials Laboratory: pipette grain-size analysis apparatus; chittick apparatus; Sedigraph 5100 X-ray particle-size analyzer; wet-chemistry facilities; a Flotech flotation system; and a Giddings drill rig.

Sedimentary geology laboratories: water ion chromatograph; image analysis; sedigraph X-ray particle-size analyzer; and a soil/sediment characterization laboratory.

Stable Isotope Laboratory: Finnigan MAT 252 IRMS; Kiel III carbonate reaction device; H/device; Gasbench II; IsoCarp automated microsampling device; and a Costech CHNS Analyzer.

Thin-section and rock preparation

laboratory: diamond saws and specialized grinding equipment used to prepare ultrathin slices (30 microns thick) of rocks and fossils for microscopic and electron microprobe analysis.

Cooperative Activities

The department does collaborative work with the Iowa Geological Survey Bureau and the Office of the State Archaeologist of Iowa. Geoscience students sometimes work on projects for the survey.

The Departments of Geoscience, Geography, Anthropology, Chemistry, Civil and Environmental Engineering, and Biological Sciences share services, expertise, joint instruction, and equipment. The geoscience department is an important participant in the Iowa Quaternary Studies group, an interdisciplinary program that promotes projects combining work in geology, geography, biological sciences, anthropology, and statistics. Course work, degree programs, and facilities are shared among departments. The geoscience department and its faculty also support and actively participate in the interdisciplinary Environmental Sciences Program, which offers a Bachelor of Science degree.

Field Trips

Field trips are integral parts of several courses in geoscience, with frequent weekend general-interest events. The geology of the Iowa City region is characterized by Quaternary glacial sediments on a largely Paleozoic sedimentary section a few hundred meters thick, overlying a

Precambrian crystalline basement. Marine and terrestrial fossil assemblages, extensive reefs, and unique geode sites are located within a few hours' drive. Numerous Pleistocene glaciations are represented in Iowa, and field studies of landforms, exposures, and cores continue to yield information on sedimentology, stratigraphy, soil formation, paleopedology, and fossil biotas from both glacial and interglacial deposits.

Spring break provides time for longer trips, which are open to all geoscience students. In recent years, students have traveled to Hawaii, Puerto Rico, Death Valley, the Florida Keys, the southern Appalachians, Arizona, New Mexico, Texas, and the Ozarks. Advanced classes have visited Colorado, Kansas, Oklahoma, Wisconsin, California, and Ontario, Canada.

Courses

Not all courses are offered every year.

Primarily for Undergraduates

012:001 Lectures in Earth History and Resources 2 s.h.
Same as 012:003 without lab.

012:003 Earth History and Resources 4 s.h.
Relationships between plate tectonics, geologic time, and the rock cycle with volcanoes and igneous, sedimentary, metamorphic rocks; fossils; radioactive isotopes; landscape evolution; mountain building; natural resources; their impacts on civilization. GE: natural sciences.

012:004 Evolution and the History of Life 3-4 s.h.
Fossils over the past 3.5 billion years, origin and evolution of life, evolutionary radiations and mass extinctions, the invasion of land, dinosaurs, the age of mammals, human origins and evolution, ice ages and Quaternary extinctions. Offered spring semesters. GE: natural sciences.

012:005 Introduction to Geology 4 s.h.
Minerals, rocks, and rock-forming processes (including volcanoes and sedimentary environments); surface processes (rivers, groundwater, glaciers, deserts, ocean shorelines), major earth processes (continental drift, plate tectonics, earthquakes, mountain building); impact on civilization. Offered fall semesters. GE: natural sciences.

012:007 Age of Dinosaurs 4 s.h.
Origin and evolutionary history of dinosaurs; diversity of dinosaurian groups, their geographic distributions and paleoecology; origins of flight among dinosaurs; environmental context, including other animals and plants that lived alongside dinosaurs; the so-called extinction of dinosaurs and radiation of modern forms; the role dinosaurs play in the interaction between science and the popular media. Offered fall semesters. GE: natural sciences.

012:008 Introduction to Environmental Science 3-4 s.h.
Biological and physical character of the Earth; interaction of humans with the environment, including impacts on ecosystems, climate, natural processes, resources; alternative options, including sustainability, waste management, energy, land reform. GE: natural sciences. Same as 159:008.

012:009 Introduction to Environmental Sciences Laboratory 1 s.h.

Laboratory component of 012:008. Open only to environmental sciences and geoscience majors who have taken 012:008/159:008 for 3 s.h. or equivalent course work without a laboratory component. GE: natural sciences. Prerequisite: 012:008 or 159:008 or consent of instructor. Same as 159:009.

012:010 Honors Thesis in Geoscience arr.
Independent research resulting in an honors thesis. Prerequisite: honors standing.

012:011 Senior Thesis in Geoscience arr.
Independent research resulting in a senior thesis. Prerequisite: senior standing.

012:017 Geology of the U.S. National Parks 2 s.h.
Geologic features, geologic history, important biological and archaeological characteristics, with emphasis on features that caused certain areas to be included in national park system. Offered spring semesters. Prerequisite: introductory geology course or consent of instructor.

012:018 Geology Field Trip: Selected National Parks 2 s.h.
Observation, interpretation of prominent geologic, geomorphic, biological features; semester-break or semester-end visits to different parks or groups of parks each year. Offered spring semesters. Prerequisite: consent of instructor.

012:019 Directed Study arr.
Special topics, independent research. Prerequisite: consent of instructor.

012:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

012:041 Mineralogy 4 s.h.
Minerals: crystallography; physical, chemical, and optical properties; phase relations, structures, diagnostic features for identification. Offered fall semesters. Prerequisites: 012:003 or 012:005; and a math course through 22M:005 or equivalent, or consent of instructor. Pre- or corequisite: introductory chemistry.

012:052 Petrology 4 s.h.
Nature, origin, and petrography of igneous, sedimentary, and metamorphic rocks in hand specimen and thin-section. Offered spring semesters. Prerequisite: 012:041.

012:092 Structural Geology 4 s.h.
Rock deformation; description, classification of geologic structures such as faults and folds; processes that generate geologic structures; solution of structural problems; interpretation of geologic maps; weekend field trip to Baraboo, Wisconsin. Prerequisites: 012:052 and 22M:005.

012:093 Geologic Field Methods 2 s.h.
Principles and techniques of basic geologic mapping in the fold-and-thrust belt of Southwestern Montana. Offered during three-week summer session. Prerequisite: 012:052.

012:094 Nature Writing for Interdisciplinary Audiences 3 s.h.
Same as 08N:094.

For Undergraduate and Graduate Students

012:100 Geologic Training Assignment 1-3 s.h.
Practical experience. Prerequisites: grade of C or higher in 012:052, geology g.p.a. of at least 3.00, and consent of instructor.

012:102 Earth Surface Processes 3 s.h.
 Basic geomorphic and environmental processes that shape the earth's surface; emphasis on erosion, transport, deposition by land mass movement (creep, landslides, earth flow), fluid agents (wind, water, ice); methods used to study these processes. Prerequisite: 012:005 or 012:008 or 044:003 or 159:008 or consent of instructor. Same as 159:102.

012:104 Climatology 3 s.h.
 Same as 044:101.

012:108 Introduction to Oceanography 2 s.h.
 Descriptive, chemical, physical, biological, geological aspects of oceans; impact on weather, climate, shorelines, food supply, other aspects of civilization. Offered spring semesters. Recommended: knowledge of basic chemistry, biology, physics, earth science.

012:110 Introduction to Applied Remote Sensing 4 s.h.
 Remote sensing of the earth's surface from aircraft, satellites; aerial photograph interpretation; remote sensing systems, methods, data analysis using electromagnetic spectrum and digital processing techniques, including visible, infrared, microwave radiation; remote sensing applied to geologic and environmental problems. Prerequisite: college physics or physical geology or equivalent. Same as 159:110.

012:113 Summer Field Course 6 s.h.
 Description and mapping of rock units and geologic structures in the Wasatch and Uinta Mountains, Park City, Utah. Offered summer sessions. Prerequisites: 012:041, 012:052, 012:092, and 012:093.

012:114 Energy and the Environment 3 s.h.
 Scientific concepts related to potentially significant energy sources of the 21st century; environmental impacts, positive and negative, of each energy source as well as geologic and geographical distributions and applications. GE: natural sciences. Prerequisite: college earth science course or graduate standing or consent of instructor.

012:116 Field Trip 2 s.h.
 Field trip to an area of geologic interest, such as carbonate area of Florida, Grand Canyon (Arizona), Rio Grande Rift (New Mexico), Death Valley (California, Nevada), Appalachian Mountains (Virginia); preceded by weekly discussions of destination's geology. Offered spring semester. Prerequisite: consent of instructor.

012:119 Directed Study arr.
 Special topics, independent research. Prerequisite: consent of instructor.

012:120 Collection Care and Management 3 s.h.
 Same as 024:120.

012:121 Principles of Paleontology 3 s.h.
 Patterns of evolution in fossil record; species and analysis of their evolutionary relationships; paleoecology, paleoecology evolution; evolutionary radiation and mass extinctions; large-scale relationships between biodiversity and climatic change. Offered fall semesters.

012:122 Evolution of the Vertebrates 3 s.h.
 Evolutionary history of vertebrates revealed by fossils and information from living animals; biogeographic, stratigraphic, paleoecological aspects of selected groups, especially mammals and dinosaurs; transitions from aquatic to terrestrial life, origins of flight, major events in vertebrate history (including mass extinctions and explosive radiations). Prerequisite: introductory course in geoscience or bioscience.

012:126 Wetlands: Function, Geography, and Management 3 s.h.
 Same as 044:126.

012:130 Sedimentary Geology 3 s.h.
 Basic concepts of sedimentology, stratigraphy, depositional environments, sedimentary petrology; hands-on analyses of

sediments and sedimentary rocks, including thin-section petrography; lecture/laboratory. Offered spring semesters. Corequisite: 012:052.

012:136 Soil Genesis and Geomorphology 3 s.h.
 Principles of soil classification, soil profile description; influences of geologic materials, climate, biota, geomorphic processes on soil development; labs, weekend field trip. Prerequisites: college earth science and chemistry. Same as 044:186.

012:138 Fluvial Geomorphology 3 s.h.
 Hydrologic principles, stream channel processes, and fluvial geomorphology within drainage basin systems; spatial and temporal variations in water distribution, analysis of hydrological data, flow mechanisms, sediment transport, forecasting procedures, hydrograph construction, modeling. Prerequisite: 012:102 or another 100-level geology or hydraulics course; or consent of instructor. Same as 053:128.

012:139 Integrated Watershed Analysis 3 s.h.
 Integration of existing knowledge of physical, hydrological, and environmental processes with management issues and challenges in water resources and environmental management; aspects of water quantity and quality, water use and treatment; basin management issues related to forestry, agriculture, urbanization, floods, droughts.

012:140 Natural Hazards 3 s.h.
 Causes, effects, occurrence patterns, predictabilities, and mitigation efforts relevant to geological and other natural hazards; background and case studies. GE: natural sciences. Prerequisite: 012:003 or 012:005 or 012:008 or 044:003 or 159:008.

012:141 Analytical Methods 2 s.h.
 Theory and practice of analyzing the chemical, isotopic, and mineralogical compositions of rocks, organic materials, and waters; use of modern analytical instruments. Offered spring semesters. Prerequisites: 004:007, 012:052, and 029:012 or 029:082.

012:144 Phylogenetics and Biodiversity 3 s.h.
 Methods available for reconstructing evolutionary history and measuring biodiversity, including distance, parsimony, likelihood, and taxic approaches; applications to molecular and morphological systematics, historical biogeography, study of diversity through time. Prerequisites: 012:004 or 012:121, or 002:010 and 002:011, or consent of instructor.

012:145 Morphometrics 3 s.h.
 Quantitative methods for collection and analysis of morphologic data, including 2-D and 3-D geometric morphometrics and application of multivariate statistical methods to study of size and shape; applications of morphometric techniques to study of development and its evolution, variation within and among species, morphologic disparity, related topics in paleontology and evolutionary biology. Prerequisite: 012:004 or 012:121 or consent of instructor.

012:146 Techniques in Paleontology 3 s.h.
 Paleontological data acquisition and analysis, including Fossil collection, preparation, imaging, description; computerized data compilation, manipulation, analysis. Prerequisites: 002:010, and 002:011 or 012:004 or 012:121; or consent of instructor.

012:149 Elements of Geochemistry 3 s.h.
 Introduction to application of chemical principles to solution of geologic problems concerning earth and environmental processes; origin of elements, chemical differentiation of Earth and the solar system, geochronology, application of radiogenic and stable isotopes, chemical equilibrium, elementary thermodynamics and kinetics, carbonate and silicate stability relationships, chemical weathering, adsorption, trace element behavior, oxidation-reduction reactions, characterization of surface and ground waters, and ocean chemistry. Prerequisites: 004:008 and 012:005, or consent of instructor.

- 012:152 Isotope Geochemistry** 3 s.h.
Radiogenic and stable isotope systematics, applications to geological, cosmological, and environmental problems. Prerequisite: consent of instructor.
- 012:153 Geocomputing** 1-3 s.h.
Computer applications in geoscience; visualization, data management, interactive modeling, computer graphics. Same as 159:153.
- 012:154 Advanced Geocomputing** 2 s.h.
Design of programs with applications in geology; emphasis on interactive modeling, data visualization. Prerequisite: geology major or graduate standing or consent of instructor.
- 012:156 Scanning Electron Microscopy and X-ray Microanalysis** arr.
Theory, operation, application of scanning electron microscopy and X-ray microanalysis for advanced students, staff, investigators. Same as 052:156, 060:156.
- 012:158 Biogeochemical Cycles and Modeling** 3 s.h.
Fundamental processes and reactions that control elemental distribution on the earth's surface; major biogeochemical cycles from global to microscopic scales, and their modeling at different time scales. Prerequisite: consent of instructor.
- 012:161 Stratigraphy** 3 s.h.
Genesis of sedimentary rocks, geologic time, stratigraphic nomenclature, biostratigraphic and physical correlation methods, mass extinctions, seismic and sequence stratigraphy, basin analysis and modeling, stratigraphic field methods. Offered fall semesters. Prerequisite: 012:052 or consent of instructor.
- 012:162 Seismic Stratigraphy** 1 s.h.
Display, processing, and interpretation of a 3-D reflection seismic data set from the Permian Basin, Tex., via standard petroleum-industry computer programs; advantages, drawbacks, and pitfalls of seismic data; how successful interpretation depends on integrating properly processed seismic data with well-log information and up-to-date geologic concepts of sedimentology and stratigraphy. Corequisite: 012:161 or consent of instructor.
- 012:166 Hydrogeology** 3 s.h.
Groundwater hydrology; well hydraulics, regional aquifer systems, groundwater contamination and remediation, principles of groundwater flow and contaminant transport, slug/bail and pumping tests and analysis. Prerequisite: senior or graduate standing.
- 012:170 Paleoecology** 3 s.h.
Evolutionary history of terrestrial and marine ecosystems; ecological processes from population to ecosystem levels; community assembly, trophic levels, networks, biodiversity dynamics; practical aspects of paleoecological data collection, statistical analysis, modeling. Prerequisite: 002:010 or 002:011 or 012:004 or 012:121 or consent of instructor.
- 012:172 Glacial and Pleistocene Geology** 3 s.h.
Interactions among glaciers, oceans, and climate; glacier dynamics; evolution of Earth's Pleistocene and landscapes; Pleistocene stratigraphy. Prerequisite: physical geology or physical geography or anthropology.
- 012:173 Quaternary Environments** 3 s.h.
Archaeological, botanical, zoological, physical, chemical means of reconstructing ice-age environments; techniques, results; interdisciplinary approach; field trips. Prerequisite: consent of instructor. Same as 044:183.
- 012:178 Applied Geostatistics** 3 s.h.
Applications of geostatistical methods to geology, geography, hydrology, environmental sciences, and engineering; variogram, Kriging, analysis of spatial-varied data with varied computer software in participants' specialties. Same as 044:188.
- 012:179 Engineering Geology** 3 s.h.
Basic concepts in geology focusing on rock and soil, including material properties, spatial variability in properties, geological processes, external factors such as stress, evaluation of engineering design adequacy; site investigation and characterization techniques used to define and characterize geotechnical and hydrological properties of geological materials; case studies to illustrate the importance of geology on engineering designs. Recommended: 012:005. Same as 053:105.
- 012:180 Principles of Geophysics** 3 s.h.
What we know about the physics of the Earth and how we know it: geophysical measurement and data processing methods, earthquakes and seismology, gravity and isostasy, magnetic fields and paleomagnetism, heat flow, internal structure, radioactivity and age dating, geophysical evidence for plate tectonics. Prerequisite: introductory geology or physics.
- 012:181 Exploration Geophysics** 3 s.h.
Techniques used in exploration for oil and gas, minerals, groundwater, and subsurface structure: gravity, magnetic, seismic, electrical, and electromagnetic methods. Offered spring semesters. Prerequisite: 012:180; or college geology, physics, and mathematics; or consent of instructor.
- 012:184 Groundwater Modeling** 3 s.h.
Groundwater flow and contaminant transport in modeling; numerical methods, applications of groundwater modeling to water supply, groundwater resources evaluation, remediation design using software; GMS (MODFLOW, MODPATH, and MT3D). Prerequisites: 012:166 or 053:103, and 22M:026. Same as 053:104.
- 012:185 Approaches to Geoarchaeology** 3 s.h.
Geoarchaeology as multidisciplinary contextual framework for human paleoecology; natural processes that create the archaeological record, approaches to reconstructing landscapes of the past as a context for archaeological deposits. Prerequisite: 012:136 or 012:172 or 113:161 or 113:164 or consent of instructor. Same as 113:189.
- 012:186 Contaminant Hydrogeology** 3 s.h.
Physical and chemical processes that govern mass transport, transformations, retardation, and attenuation of contaminants in groundwater; survey of sampling, monitoring, and groundwater remediation techniques; analytical and numerical solutions of equations using spreadsheets, computers. Same as 053:186.
- 012:187 Vadose Zone Hydrology** 3 s.h.
Introduction to vadose zone hydrology; development and application of equations describing flow and transport in vadose zone, including multiphase flow; field and laboratory methods for vadose zone characterization, vadose zone processes that cause groundwater contamination; case studies to illustrate vadose zone hydrology's importance in engineering design, groundwater contamination. Prerequisite: 012:166 or equivalent. Same as 053:181.
- 012:188 Environmental Seminar** 1 s.h.
Lectures on the environment by faculty members from the University, other colleges and universities, researchers and professionals from state and federal agencies.
- 012:190 Undergraduate Geoscience Colloquium** 1-2 s.h.
Presentation, discussion of undergraduate research projects. Prerequisite: consent of department chair.
- 012:191 Geotectonics** 3 s.h.
Dynamic processes responsible for crustal genesis, plate movements, mountain building; plate boundary zones; sedimentologic, structural, petrologic, geophysical characteristics of major tectonic settings; multidisciplinary approach; week-long field trip. Prerequisite: 012:092.
- 012:194 Environmental Field Methods** 3 s.h.
Integrated, comprehensive, field-based overview of environmental sampling concepts and methods for geoscience and hydroscience. Three weeks. Same as 159:194.

012:195 Field Methods: Environmental Processes 2-4 s.h.
 Problem definition and research design in a field setting; sampling theory and procedures; collection of primary data using different sensor and recording methods; data analysis and interpretation of processes in geomorphic, climatic, environmental research.
 Prerequisite: 12 s.h. of geoscience or environmental science or equivalent or consent of instructor. Same as 053:180.

012:293 Advanced Structural Geology 3 s.h.
 Kinematic and dynamic analysis of deformed rocks; microstructural analysis; strain analysis, field investigations of highly deformed rocks. Repeatable. Prerequisite: 012:092 or consent of instructor.

012:196 Advanced Subsurface Hydrology 3 s.h.
 Basic and advanced concepts in subsurface fluid mechanics, well hydraulics, methods to characterize and model spatial variability, numerical modeling, and mathematical methods in hydrogeology.
 Prerequisite: 012:166 or engineering equivalent. Corequisites: 012:187 or 053:181, and 012:186 or 053:186. Same as 053:196.

012:310 Research: Geoscience arr.
 Independent research related to theses or dissertations in geoscience. Repeatable.

Primarily for Graduate Students

012:201 Geoscience Seminar Series 1 s.h.
 Scholarly work and research in geoscience. Repeatable.

012:207 Geologic Orientation 1 s.h.
 Department degree requirements, programs; field survey of local geology; tips for TAs; introduction to specialized facilities; for new graduate students.

012:225 Paleontology Seminar 1-3 s.h.
 Current controversial issues in paleontology. Repeatable.
 Recommended: 012:121.

012:233 Sedimentary Petrology 4 s.h.
 Identification of constituents and interpretation of provenance/genesis, structures, environments of formation, patterns and processes of diagenesis in sandstones and limestones; laboratory-based. Prerequisite: familiarity with optical microscope and sedimentation principles.

012:235 Depositional Environments 3-4 s.h.
 Modern patterns of sedimentation; emphasis on interpreting depositional environments of ancient sedimentary rocks and deciphering resulting stratigraphic patterns. Prerequisite: knowledge of basic sedimentary geology and paleontology.

012:238 Process Geomorphology arr.
 Topics in process geomorphology ranging from fluvial dynamics to mass movement to sediment transport and related environmental processes. Repeatable. Prerequisite: consent of instructor.

012:239 Advanced Watershed Analysis Seminar arr.
 Integration of existing knowledge of physical, hydrological, and environmental processes with management issues and challenges in water resources and environmental management; aspects of water quantity and quality, water use and treatment, and basin management issues related to forestry, agriculture, urbanization, floods, droughts. Repeatable.

012:251 Igneous Petrology 3 s.h.
 Phase equilibria, isotope and trace element geochemistry, geochemical modeling; generation, differentiation of magmas in context of plate tectonic theory. Prerequisite: 012:052 or consent of instructor.

012:255 Metamorphic Petrology 3 s.h.
 Nature and origin of metamorphic rocks examined through thermodynamics, experimental data, geologic observations.
 Prerequisite: 012:052 or consent of instructor.

012:257 Tectonics and Petrology Seminar 1-2 s.h.
 Topics in tectonics, structural geology, petrology. Repeatable.
 Prerequisite: consent of instructor.

German

Chair: James P. Pusack

Professors: Judith P. Aikin, Sarah M.B. Fagan

Professors emeriti: Edward Dvoretzky, Wolfgang Ertl, James P. Sandrock, Ingeborg H. Solbrig

Associate professors: Glenn Ehrstine, Waltraud Maierhofer, Astrid Oesmann, James P. Pusack

Associate professors emeriti: Ford B. Parkes, Richard M. Runge

Assistant professor: Bruce Spencer

Undergraduate degree: B.A. in German

Undergraduate nondegree program: minor in German

Graduate degrees: M.A., Ph.D. in German

Web site: <http://www.uiowa.edu/~german>

The Department of German provides education in the language, literature, and culture traditionally designated as German, as expressed in the language and cultural heritage of Germany, Austria, and Switzerland. Its faculty members engage in research and teaching activities focused on German language, literature, and culture from both disciplinary and interdisciplinary perspectives.

Undergraduate German majors pursue one of three tracks: humanities, applied areas of language study, or both (comprehensive). The graduate programs build on the department's strengths and those of other departments to provide strong, individualized graduate training. The department is committed to helping students identify and pursue their own historical and theoretical interests in the study of German language and literature. The Master of Arts provides for comprehensive study with a concentration in German literature or Germanic linguistics. The Doctor of Philosophy is highly flexible, allowing students to create their own program of literary, cultural, and linguistic studies.

The department also offers courses approved for General Education in foreign languages, humanities, and foreign civilization and culture; language training for students in other graduate programs; and courses that meet the interdisciplinary needs of undergraduate and graduate students throughout the University.

University graduates with degrees in German frequently enter the teaching profession. They also find positions in government, foreign service, and commercial enterprise.

Undergraduate Program

The department offers the Bachelor of Arts in German.

Bachelor of Arts

The B.A. in German requires a minimum of 30 s.h. in the major. Students choose one of three tracks: the humanities track, the applied German track, or the comprehensive track. Students who plan to complete the undergraduate teaching major in German in conjunction with the College of Education are encouraged to choose the comprehensive track; see "Teaching Licensure in German" below.

Students who begin a German major with no previous German language experience must complete the following course sequences or their equivalents (the basic program).

013:011 Elementary German I	4 s.h.
013:012 Elementary German II	4 s.h.
013:021 Intermediate German I	4 s.h.
013:022 Intermediate German II	4 s.h.

The basic program also may be satisfied by various combinations of 013:013 Intensive Elementary German, 013:014 First-Year German Review, and 013:025 Intensive Intermediate German.

The required 30 s.h. for the major must include at least five upper-level German courses taken at The University of Iowa. Students who have taken upper-level course work at other institutions should consult the Department of German director of undergraduate studies to determine how much work remains for completion of the major.

German majors, both graduate and undergraduate, are urged to supplement their degree programs with relevant courses in areas such as German history, philosophy, and business.

HUMANITIES TRACK

The humanities track enables students to concentrate on German language, literature, and culture, both past and present. It is recommended for students who want to explore

the world of German ideas and their influence through the ages. The following courses are required.

- 013:101 Introduction to German Literature 3 s.h.
- 013:103-013:104 Composition and Conversation I-II 6 s.h.
- 013:105 German Cultural History 3 s.h.
- 013:116 Advanced Composition and Conversation 3 s.h.
- Three literature courses chosen from 013:140 through 013:159 9 s.h.
- *Two 100-level electives offered by the Department of German 6 s.h.

*Students may count Department of German courses taught in English (prefix 13E) toward the humanities track requirements if they enroll in a section that includes a German language component.

The language courses 013:013 Intensive Elementary German and 013:025 Intensive Intermediate German (formerly 013:113 and 013:125) do not count toward the German major.

Introduction to German Literature (013:101) is prerequisite for all other literature courses.

APPLIED GERMAN TRACK

The applied German track gives students practical skills and proficiency in German for business and government. It is especially useful when combined with a business-oriented curriculum. The College of Liberal Arts and Sciences and the Tippie College of Business offer a joint program leading to the Certificate in International Business; see International Business in the Catalog.

The applied German track requires the following.

- All of these:
- 013:103-013:104 Composition and Conversation I-II 6 s.h.
- 013:115 Contemporary German Civilization 3 s.h.
- 013:116 Advanced Composition and Conversation 3 s.h.

- One of these:
- 013:107 Introduction to German Linguistics 3 s.h.
- A linguistics course numbered between 013:160 and 013:169 3 s.h.

- Two of these:
- 013:108 The German Media 3 s.h.
- 013:114 Business German 3 s.h.
- 013:117 Current Issues 3 s.h.

- One of these:
- 013:101 Introduction to German Literature 3 s.h.
- 013:105 German Cultural History 3 s.h.
- *Two 100-level electives offered by the Department of German 6 s.h.

*Students may count Department of German courses taught in English (prefix 13E) toward the applied track requirements if they enroll in a section that includes a German language component.

The language courses 013:013 Intensive Elementary German and 013:025 Intensive Intermediate German (formerly 013:113 and 013:125) do not count toward the German major.

COMPREHENSIVE TRACK

The comprehensive track provides a foundation in both literature and linguistics as well as a sound basis in speaking, reading, oral comprehension, and writing skills in German. It is recommended for students seeking teaching licensure and for those intending to pursue graduate studies in German. The following courses are required.

- All of these:
- 013:101 Introduction to German Literature 3 s.h.
- 013:103 Composition and Conversation I 3 s.h.
- 013:104 Composition and Conversation II 3 s.h.
- 013:107 Introduction to German Linguistics (or a linguistics course numbered between 013:160 and 013:169) 3 s.h.
- 013:116 Advanced Composition and Conversation 3 s.h.

- One of these:
- 013:105 German Cultural History 3 s.h.
- 013:115 Contemporary German Civilization 3 s.h.

- One literature course numbered between 013:140 and 013:159 3 s.h.
- *Three 100-level electives offered by the Department of German 9 s.h.

*Students may count up to two Department of German courses taught in English (prefix 13E) toward the comprehensive track requirements if they enroll in a section that includes a German language component.

The language courses 013:013 Intensive Elementary German and 013:025 Intensive Intermediate German (formerly 013:113 and 013:125) do not count toward the German major.

Combined B.A./M.A.

The department offers the combined Bachelor of Arts/Master of Arts in German. The combined degree, which is designed to be completed in five years, is appropriate for students who enter The University of Iowa from high school with advanced German language preparation. Students in the program receive a B.A. in German when they have met all bachelor's degree requirements, and they receive an M.A. in German when they have completed all master's degree requirements.

The program is attractive to highly motivated students who plan to study abroad and who plan to pursue a Ph.D. in German or second language acquisition. It may serve as preparation for other programs, such as those related to international studies, library science, business with an international focus, or international relations. Students seeking careers in teaching or other fields may pursue the combined degree as a credential.

Applicants to the joint program must:

- be University of Iowa undergraduate students;

- have completed 80 s.h. or be in the process of completing at least 90 s.h. of undergraduate work;

- have completed or be in the process of completing at least 21 s.h. of 100-level courses in the German major;

- have a g.p.a. of at least 3.50 at the time of application, or have a letter from a Department of German faculty member recommending an exception; and

- have completed or be in the process of completing at the time of application a study abroad program in a German-speaking country, or have satisfied this requirement another way.

Applicants must be admitted to the combined program before the beginning of their seventh semester (senior year).

Students in the program must meet the usual requirements for the comprehensive track of the B.A. in German as well as those for the M.A. They ordinarily spend two semesters in their junior year enrolled in the study abroad program at the University of Freiburg, in Germany (see "Study Abroad" below) unless they have met this expectation another way (e.g., a year abroad during high school or a study abroad program with similar content).

During the last two semesters of their senior year, they may take up to 12 s.h. of graduate-level

courses, which may be counted toward both degrees, as follows: 6 s.h. may be counted toward the course requirements for the undergraduate German major, and 6 s.h. may be counted as undergraduate electives.

Students must maintain an undergraduate German g.p.a. of at least 3.50; if they fail to meet this standard for more than one semester, they may be required to leave the program.

After completing the B.A. requirements, students complete the remaining M.A. requirements. They must have an undergraduate g.p.a. of at least 3.00 when they achieve graduate standing.

Students pay undergraduate tuition and fees during their first semester in the combined program enrollment (normally their seventh semester); beginning with their second semester in the program (normally their eighth semester), they begin paying graduate tuition and fees. Students may hold a graduate appointment beginning with their second semester in the combined program.

Teaching Licensure in German

German majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in German and must be admitted to the College of Education's foreign language teacher education program. Several courses in the College of Education also are required, as is one semester of student teaching in the senior year. Contact the Department of Teaching and Learning for more details.

Students who plan to use a German minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins: language competency equal to first-year German and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: language competency equal to second-year German and at least one-half of the semester hours required for graduation

Before the seventh semester begins: four courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester: two to three additional courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Honors in German is open to exceptional students who are members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). To participate in honors in German, students must have completed three years of college-level German, or the equivalent, with a g.p.a. of at least 3.50 in upper-division German courses.

Participating students register for the following courses.

013:190 Honors Program in German 3 s.h.

013:191 Honors Research and Thesis 3 s.h.

Honors students are expected to engage in readings and discussions in German literature and culture and to write essays in German and English. Students meet with their faculty director of studies on a regular basis.

The program concludes with presentation of an honors thesis to a faculty committee of at least three members.

Minor

A minor in German requires 15 s.h. of course work in college-level German with a g.p.a. of at least 2.00; 12 of the 15 s.h. must be in advanced courses (numbered 100 and above) at The University of Iowa, although students may count 6 s.h. earned in study abroad at a university in a German-speaking country toward the minor. All courses numbered 100 and above count toward the minor except courses in which works in German are taught in English translation (prefix 13E); however, students may count one 13E course toward the minor if they enroll in a section that includes a German language component.

Language for Nonmajors

The department offers a number of opportunities for students who wish to study German. Students

who have had experience with the language should take the Foreign Language Placement Test in German online, offered by Evaluation and Examination Service. The test helps determine the level at which a student should begin German language study at The University of Iowa.

Students with no background in German should begin their study with 013:011 Elementary German I.

Students who wish to use German to complete the foreign language component of the General Education Program can choose from a number of course sequences. All of the following satisfy the requirement. Students are encouraged to talk with departmental advisors about the varied sequences.

013:013, 013:021, 013:022

013:011, 013:012, 013:021, 013:022

013:014, 013:021, 013:022

013:011, 013:012, 013:025

013:013, 013:025

013:014, 013:025

Graduate Programs

The department offers the Master of Arts in German with a literature or linguistics concentration, and a Doctor of Philosophy in German, with a literature, linguistics, or combined literature and linguistics concentration. It also offers a combined Bachelor of Arts/Master of Arts for advanced undergraduates; see “Combined B.A./M.A.” above.

Courses in the department are offered in two broad categories: German literature (e.g., 013:227 German Novelle, 013:295 German Literature from Naturalism to Expressionism), and Germanic linguistics (e.g., 013:241 History of the German Language, 013:255 Semantics).

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Master of Arts

The Master of Arts in German requires a minimum of 33 s.h. of graduate credit and is offered with and without thesis.

M.A. students choose one of two concentrations: German literature and Germanic linguistics. The German literature concentration requires seven literature courses (21 s.h.) and four linguistics

courses (12 s.h.). The Germanic linguistics concentration requires seven linguistics courses (21 s.h.) and four literature courses (12 s.h.).

M.A. students are expected to complete at least 24 s.h. in the Department of German. All M.A. course work taken outside the department requires the graduate advisor's approval.

Doctor of Philosophy

The Doctor of Philosophy in German requires a minimum of 75 s.h. of graduate credit, including at least 27 s.h. in post-M.A. courses and a dissertation. No more than 12 s.h. of post-course-work dissertation credit may be counted toward the degree.

Ph.D. students choose one of three concentrations: German literature, Germanic linguistics, or combined literature and linguistics. In addition to satisfying the course requirements of their concentration, students must develop an independent research program that combines core and specialty areas within their concentration. These areas form the basis for the student's qualifying exam, comprehensive exam, and dissertation.

German literature students must complete five literature courses (15 s.h.) and must earn 12 s.h. of the required 27 s.h. in post-M.A. courses in the Department of German.

Germanic linguistics students must complete at least five linguistics courses (15 s.h.) and must earn 12 s.h. of the required 27 s.h. in post-M.A. courses in the Department of German.

Combined literature and linguistics students must complete at least five concentration area courses (15 s.h.) and must earn 21 s.h. of the required 27 s.h. in post-M.A. courses in the Department of German. They plan the balance of their courses with their advisory committee, generally taking four courses in their dissertation area.

All Ph.D. course work taken outside the department requires the graduate advisor's consent.

CORE AND SPECIALTY READING LISTS

By the end of their second semester in the Ph.D. program, students must have compiled a core area reading list and a specialty area reading list. The expectations for each list vary by concentration.

German Literature Concentration

The core area reading list for the literature concentration comprises 70-100 works that

cover at least three genres from a distinct historical period of German literature. For sample reading lists, contact the Department of German.

The specialty area reading list for the literature concentration comprises approximately 40 works from a specific field of literary research: a genre, body of theory, major author(s), or second historical period.

Germanic Linguistics Concentration

The core area reading list for the linguistics concentration comprises lists one and two in all six areas of the Department of German linguistics reading list. Students also select one of the six areas as a specialty concentration for the qualifying exam and assemble a reading list of 10-20 titles from the relevant list three of the linguistics reading list. The linguistics reading list is available from the department's linguistics faculty members.

The specialty area reading list for the linguistics concentration comprises 10-20 titles from list three in one of the six areas of the Department of German linguistics reading list. The specialty list for the comprehensive exam must be in an area different from that for the core area of the qualifying exam.

Literature and Linguistics Concentration

The core area reading list for the combined literature and linguistics concentration comprises 35-50 works of literature in at least two genres from a specific literary period, and all titles from lists one and two in these areas of the Department of German linguistics reading list.

The specialty area reading list for the combined literature and linguistics concentration follows the guidelines for the linguistics or literature specialty area list, depending on the student's preference. The specialty area concentration must be distinct from that of the research paper: students who choose literature as the specialty area write a research paper that concerns linguistics, and those who choose linguistics as the specialty area write a research paper that concerns literature.

QUALIFYING AND COMPREHENSIVE EXAMS

Students prepare five essay questions on the basis of their core area reading list, in consultation with their qualifying exam committee, which approves the final list. The committee selects three of the questions for the student to answer in writing on the exam. Approximately one week after the written exam, the committee and student convene for a one-hour oral exam based on the core area reading list and the student's written exam responses.

No later than two weeks before the oral exam, the student must submit two essays to the comprehensive exam committee. One is a review essay (10-15 pages) that analyzes key issues in a selection of works from the student's specialty area reading list, together with an annotated bibliography that covers titles from the reading list not addressed in the essay. The other is a research essay (25-35 pages) of publishable quality written in consultation with the comprehensive exam committee chair; the essay may be based on a seminar paper of exceptional quality or a potential chapter of the student's dissertation. The student takes a final two-hour oral examination focusing on the review essay and research paper, ordinarily during finals week. After the oral exam, the student produces a written dissertation prospectus for approval by the dissertation committee.

Graduate Degree Language Tools

Master of Arts

Before taking the M.A. exam, students must demonstrate reading knowledge of a foreign language other than German, at a level equivalent to two years of college study or four years of high school study.

Students may demonstrate competence by submitting proof that they have taken the required course work with a g.p.a. of at least 3.00, or by passing an exam at the fourth-semester college level as determined by the appropriate language department.

Doctor of Philosophy

Students must demonstrate a reading knowledge of two languages determined by the advisor to be pertinent to the student's research interests.

Students may demonstrate competence by submitting proof that they have taken the required course work with a g.p.a. of at least 3.00, or by passing an exam at the fourth-semester college level as determined by the appropriate language department.

Financial Support

Teaching assistantships, research assistantships, and partial tuition scholarships are available for qualified graduate students. The department awards the Wilson and the Funke prizes to students of distinction.

Study Abroad

The Department of German participates in an academic year abroad program for undergraduates at the Albert-Ludwigs Universität in Freiburg, Germany. The Freiburg program is offered by a consortium made up of Michigan State University, The University of Iowa, The University of Michigan, and The University of Wisconsin-Madison.

Students arrive during the first week of September and participate in a four-week intensive language program. Then they take a blend of special program classes and regular German university courses. Organized field trips are designed to give students a broader perspective of German culture. Vacation periods permit extensive travel throughout Europe, and students are encouraged to use weekends for shorter trips in the region.

To apply, students must have reached at least junior standing by the beginning of the program, must have completed at least the first four semesters of college German or the equivalent, and must be in good academic standing at a U.S. college or university.

Students earn resident credit in all courses successfully completed in the program. They may count up to 21 s.h. earned at Freiburg toward the major in German. Credit also counts toward the minor in German. Students in other majors should consult with their advisor or their department's undergraduate director.

Contact the Department of German or the Office for Study Abroad for more information.

Special Facilities

Students have the opportunity to improve their comprehension and command of German by working with recorded materials in the Language Media Center. They also may benefit from the multimedia courseware and digital video recordings from German television.

An extensive collection of works and periodicals in the University of Iowa Libraries facilitates research in all major areas of German literature and Germanic linguistics and at all levels of study.

The International Crossroads Community is an on-campus housing option for undergraduate and graduate students.

Courses

Primarily for Undergraduates

- 013:011 Elementary German I** 4 s.h.
Understanding and speaking "everyday German"; reading and writing skills; acquaintance with the German-speaking world through discussion, readings, videos. GE: foreign language.
- 013:012 Elementary German II** 4 s.h.
Continuation of 013:011. GE: foreign language. Prerequisite: 013:011 or equivalent.
- 013:013 Intensive Elementary German** 4, 6 s.h.
Elementary German I and II combined in one intensive course. GE: foreign language.
- 013:014 First-Year German Review** 5 s.h.
Accelerated course in preparation for third-semester German. GE: foreign language. Prerequisite: at least two years of high-school German.
- 013:021 Intermediate German I** 4 s.h.
Proficiency in spoken and written German; German-speaking cultures of central Europe, their historical background; emphasis on refinement of reading skills. GE: foreign language. Prerequisite: 013:012 or 013:014 or equivalent.
- 013:022 Intermediate German II** 4 s.h.
Continuation of 013:021. GE: foreign language. Prerequisite: 013:021 or equivalent.
- 013:025 Intensive Intermediate German** 4-6 s.h.
Intermediate German I and II combined in one intensive course. GE: foreign language. Prerequisite: 013:012 or 013:013 or 013:014 or equivalent.

For Undergraduate and Graduate Students

- 013:100 Individual German** arr.
Prerequisite: German major or minor or consent of instructor.
- 013:101 Introduction to German Literature** 3 s.h.
Literary works from various genres. Taught in German. Prerequisite: 013:022 or equivalent.
- 013:103 Composition and Conversation I** 3 s.h.
Active command of German in reading, speaking, writing. Taught in German. Prerequisite: 013:022 or equivalent.
- 013:104 Composition and Conversation II** 3 s.h.
Taught in German. Prerequisite: 013:103 or equivalent.
- 013:105 German Cultural History** 3 s.h.
Emphasis on development of arts, philosophy, literature. Taught in German. GE: foreign civilization and culture. Prerequisite: 013:101 or 013:103 or equivalent.
- 013:107 Introduction to German Linguistics** 3 s.h.
Phonology, morphology, syntax, semantics, historical development. Taught in German. Offered spring semesters of even years. Prerequisite: 013:101 or 013:103 or equivalent.
- 013:108 The German Media** 3 s.h.
Reading and listening skills; German culture as portrayed by print media, the web, television. Taught in German. Offered fall semesters of odd years. Prerequisite: 013:101 or 013:103 or equivalent.
- 013:110 Eighteenth-Century German Literature** 3 s.h.
- 013:111 Nineteenth-Century German Literature** 3 s.h.

- 013:112 Twentieth-Century German Literature** 3 s.h.
- 013:114 Business German** 3 s.h.
World of German business, role of German-speaking countries in world trade; emphasis on German business protocol, correspondence. Taught in German. Offered fall semesters of even years. Prerequisite: 013:101 or 013:103 or equivalent.
- 013:115 Contemporary German Civilization** 3 s.h.
Government and political structure, economy, mass media, education, social and cultural life of Germany, Austria, Switzerland from the end of World War II to present. Taught in German. Offered spring semesters of odd years. GE: foreign civilization and culture. Prerequisites: 013:101 or 013:103 or equivalent.
- 013:116 Advanced Composition and Conversation** 3 s.h.
Speaking and writing. Taught in German. Prerequisites: 013:103 and 013:104, or equivalents; and German undergraduate standing or consent of instructor.
- 013:117 Current Issues** 3 s.h.
Current issues in German-speaking countries; topics such as postunification politics, environmental concerns, xenophobia, the cultural scene; readings from contemporary literature and/or media, with focus on expanding students' cultural and linguistic fluency. Taught in German. Prerequisite: 013:101 or 013:103 or equivalent.
- 013:130 Internship Abroad** arr.
Work experience related to student's major field of study; must require significant use of German language in a German-speaking country; must be arranged in collaboration with University of Iowa Office of Cooperative Education.
- 013:140 Literature in Film** 3 s.h.
Representative texts of German literature with film adaptations as specific readings. Taught in German. Pre- or corequisite: 013:101.
- 013:141 Introduction to German Poetry** 3 s.h.
Introduction to the genre of lyric poetry; how to define what poetry is, how to locate the historicity of lyric poems. Taught in German. Prerequisite: 013:101 or equivalent.
- 013:142 Twentieth-Century Children's Literature** 3 s.h.
Introduction to literary epochs and genres in 20th-century German literature, through texts written primarily for children. Prerequisite: 013:101.
- 013:143 Witch Trials: Fact and Fiction** 3 s.h.
Historical construction and fictional representation of women and men persecuted as witches and witchmasters in German-speaking countries. Prerequisite: 013:101.
- 013:165 History of the German Language** 3 s.h.
History of the German language; its Indo-European roots, important characteristics of the language's major periods. Prerequisite: 013:101 or 013:103 or equivalent.
- 013:190 Honors Program in German** 3 s.h.
Individual work in literature, linguistics, and culture. Prerequisites: three years of college-level German or equivalent, and a g.p.a. of at least 3.50 in German.
- 013:191 Honors Research and Thesis** 3 s.h.
Prerequisites: 013:190, honors standing, and consent of instructor.
- 013:198 Undergraduate Special Topics** 3 s.h.

German for Graduate Nonmajors

Graduate students not pursuing a degree in German also may take 013:013 Intensive Elementary German and 013:025 Intensive

Intermediate German; see “For Undergraduate and Graduate Students,” above.

013:128 German Reading for Graduate Students 4 s.h.
Grammar review, vocabulary building, extensive reading of sophisticated texts. Offered spring semesters. Prerequisites: 013:012 or 013:013 or 013:014 or equivalent, and non-German graduate standing.

For Graduate Students

013:200 Advanced Studies arr.
Special problems in German literature and linguistics. Repeatable. Prerequisite: German graduate standing.

013:220 The German Novel 3 s.h.
Representative works of German fiction from 17th century to present; historical development of the genre, importance of each work for its period.

013:221 Principles of Teaching and Learning Foreign Languages 3 s.h.
Theoretical foundations of teaching and learning a foreign language; emphasis on practical applications of theories to a language classroom. Same as 009:234, 039:234, 041:234.

013:224 The German Drama 3 s.h.
Repeatable.

013:227 German Novelle 3 s.h.

013:241 History of the German Language 3 s.h.
Same as 103:231.

013:253 Multimedia and Second Language Acquisition 3 s.h.
Same as 009:238, 035:212, 164:211.

013:254 Advanced CALL Curriculum Development 3 s.h.
Same as 009:239, 035:214, 164:214.

013:255 Semantics 3 s.h.
Meaning in natural language, with focus on German; lexical semantics (sense relations, semantic fields, componential analysis), modality, temporal and spatial deixis, aspect.

013:256 Modern German Syntax 3 s.h.
Analysis of syntax within a generative framework.

013:257 Morphology 3 s.h.
Word structure and formation in Modern German; inflection, derivation, compounding.

013:258 Modern German Phonetics and Phonology 3 s.h.
The sounds and sound system of Modern Standard German.

013:260 Crossing Borders Proseminar 1 s.h.
Same as 01H:330, 016:244, 030:243, 035:271, 044:287, 048:244, 113:248.

013:262 Crossing Borders Seminar 2-3 s.h.
Same as 01H:247, 008:231, 016:247, 030:242, 035:273, 044:286, 048:247, 113:247, 129:231.

013:264 Crossing Borders Seminar: Introductory 3-4 s.h.
Same as 01H:230, 008:230, 016:293, 030:241, 035:272, 044:285, 048:230, 113:230.

013:271 German Literature of the Baroque 3 s.h.

013:283 The Age of Goethe 3 s.h.
Storm and Stress (Goethe, Schiller, Klingler, Lenz) and the Weimar classicism (1794-1805) of Goethe and Schiller; interdependence of movements and their theoretical basis (Herder, Winckelmann) vis-à-vis representative works.

013:295 German Literature from Naturalism to Expressionism 3 s.h.

013:298 Special Topics in German Literature arr.
Repeatable. Prerequisite: German graduate standing.

013:299 Special Topics in German Linguistics 3 s.h.
Repeatable. Same as 103:232, 164:299.

013:300 Master's Thesis arr.

013:350 Pre-Comprehensive Registration 0 s.h.

013:371 Seminar in Early German Literature 3 s.h.
Repeatable.

013:400 Ph.D. Dissertation arr.
Repeatable.

German in Translation

13E:017 Medieval German Literature: Heroic and Erotic 3 s.h.

Interaction of Christian and Germanic culture in heroic epic, Arthurian romance, courtly and Goliardic love poetry; *Song of the Nibelungs*, *Parzival*, and *Tristan* (in English translation). Taught in English. GE: foreign civilization and culture or humanities. Prerequisite: completion of rhetoric requirement.

13E:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Taught in English. Prerequisite: first- or second-semester standing.

13E:066 Pact with the Devil 3 s.h.
Works from German literature and culture whose theme is the pact with the devil—a metaphor for humankind's desire to surpass the limits of knowledge and power; the *Faust* legend, Goethe's *Faust*, Carl Maria von Weber's opera *Freischütz* (Sharpshooter). Taught in English.

13E:068 German Folk and Fairy Tales 3 s.h.
German fairy tales; cultural topics such as identity, life goals and decisions, class, gender, religion, reality, imagination. Taught in English.

13E:117 Medieval German Literature: Heroic and Erotic 4 s.h.

Masterpieces of medieval German literature. Taught in English with some German discussion. GE: foreign civilization and culture or humanities. Prerequisites: undergraduate standing and proficiency in German.

13E:118 The Third Reich and Literature 3 s.h.
Nazi literature, literature of the Holocaust and the Opposition, exile literature, in English translation. Taught in English. GE: foreign civilization and culture or humanities.

13E:119 German Film 3 s.h.
Overview 1925-1987; examples of avant-garde films of the Weimar Republic, propagandist filmmaking from the Third Reich, filmmaking traditions of the GDR and FRG. Taught in English. GE: foreign civilization and culture or humanities.

13E:120 Germany in the World 3 s.h.
The Federal Republic of Germany's increasing prominence in post-Cold War international affairs, against backdrop of 20th-century history. Taught in English. Same as 033:125.

Health and Sport Studies

Chair: Susan Birrell

Professors: Susan Birrell (Health and Sport Studies/Women's Studies/American Studies), Kathleen F. Janz (Health and Sport Studies/Epidemiology)

Professors emeriti: Donald R. Casady, Margaret G. Fox

Associate professors: Christine H.B. Grant, Michael Lomax, Catriona Parratt, Elizabeth Pelton, Bonnie Slatton, Dawn E. Stephens

Associate professors emeriti: N. Peggy Burke, Carolyn Lara-Braud, David K. Leslie, Jeannette L. Scahill

Assistant professor: Kerry McGannon

Undergraduate degree: B.A. in Health and Sport Studies

Undergraduate nondegree program: Minor in Health and Sport Studies

Graduate degrees: M.A., Ph.D. in Health and Sport Studies

Web site: <http://www.uiowa.edu/~hss>

The Department of Health and Sport Studies offers programs of study at the undergraduate and graduate level that focus on health, sport, and physical activity as they are influenced by cultural, psychological, and behavioral factors. Graduates work in teaching, research, coaching, health promotion, and administration of athletic programs.

The department also houses the Physical Education Skills Program, which offers courses providing instruction and practice in various sports and fitness activities aimed at enhancing physical health and well-being. Physical Education Skills courses are approved in the health and physical activity area of the General Education Program.

Undergraduate Program

Bachelor of Arts

Requirements for the major in health and sport studies have changed. Students who entered the college summer 2005 or later, or who declared or entered the major on or after the first day of fall semester 2005, must complete the program described below. Students who declared or entered the major before the first day of fall semester 2005 may choose to complete the old requirements, but they must complete all requirements and graduate by August 2009.

The B.A. in health and sport studies requires 43-50 s.h. in the major. Students choose one of two tracks: health promotion (43-50 s.h.) or sport studies (47 s.h.). They may enter the sport studies track at any time; there is a selective admission process for the health promotion track.

HSS FOUNDATION COURSES

All health and sport studies majors should complete the following three foundation courses as early as possible.

028:036 Physical Activity Through the Life Span	3 s.h.
028:074 Inequality in Sport	3 s.h.
028:076 Psychological Aspects of Sport and Physical Activity	3 s.h.

Guided Independent Study or transfer courses may not be used to fulfill HSS foundation course requirements after a student has declared a health and sport studies major. Students who transfer to The University of Iowa and wish to substitute courses they completed at other institutions, before they declared an HSS major, for any of the foundation course requirements must complete a Request For Substitution of Courses form, available at the department office. Substitutions are granted only on the basis of course content duplication. At least half of all credit in the major must be earned in residence at The University of Iowa.

Health Promotion

The health promotion program integrates theoretical and applied study of health education with biological, behavioral, and social processes that affect individual and community health. It encourages students to envision health promotion as a multidisciplinary tool for building healthy communities and empowering individuals at greater risk for disease and premature death. Lifestyle interventions, community health education, and environmental health supports are central tenets of this program.

Health promotion prepares students for employment opportunities in hospital-based and corporate-based wellness programs, nonprofit health agencies, commercial fitness enterprises, and federal and state health promotion agencies. Employment opportunities in these sectors have been good to excellent and are expected to increase, according to U.S. Department of Labor projections.

The undergraduate curriculum provides opportunities to develop introductory and advanced skills in physical activity promotion and exercise prescription, dietary assessment and planning, stress management, health communication, health education, and facility-based management.

Health promotion courses address certification competencies for the American College of Sports Medicine (ACSM) Health Fitness Instructor, ACSM Personal Trainer, the National Commission for Health Education Credentialing Certified Health Education Specialist (CHES), and the National Strength and Conditioning Association (NSCA)—National Strength and Conditioning Specialist.

Community and clinical practicum experiences give students the opportunity to apply health promotion concepts and skills. As a capstone experience, supervised internships are available in a variety of organizational settings, both nationally and internationally.

To be admitted to the health promotion program, students must complete a minimum of 24 s.h. at The University of Iowa, including 002:002 Introductory Animal Biology (or 002:021 Human Biology), 004:007 General Chemistry I (or one year of high school chemistry), 004:008 General Chemistry II, 22S:025 Elementary Statistics and Inference, and 027:053 Human Anatomy (or 060:110 Principles of Human Anatomy). Equivalent or more advanced courses that address the same content areas may be substituted with the department's approval. Applicants must have a g.p.a. of at least 2.70 in all University of Iowa course work and a cumulative g.p.a. of at least 2.70.

Transfer students must meet the same requirements (including the same chemistry, biology, anatomy, and statistics courses), except that they must have completed a minimum of 12 s.h. at The University of Iowa.

Students who have a University of Iowa or cumulative g.p.a. lower than 2.70 may apply under an exceptional admission policy.

Once admitted to the health promotion program, students should plan on a course of study of at least two years. Applications must be submitted to the department's undergraduate director by October 15 for spring admission and March 15 for fall admission. For health promotion program admission forms, see Programs on the Department of Health and Sport Studies web site.

Students in health promotion must complete the 9 s.h. of HSS foundation courses and the following course work.

Health Promotion Core

These are required (22 s.h.).

027:140 Exercise Physiology for Practitioners	3 s.h.
028:038 Understanding Food and Nutrition	3 s.h.
028:075 Health in Everyday Life	3 s.h.
028:138 Exercise Testing and Prescription	4 s.h.
028:141 Health Promotion Theory and Practice	3 s.h.
028:142 Worksite Health Promotion	3 s.h.
028:145 Health Promotion Processes	3 s.h.

Health Promotion Electives

Students must complete 12 s.h. of electives or the internship option, which consists of 6 s.h. chosen from the list of electives plus 028:190 Preinternship Seminar and 028:191 Internship. In order to be eligible for an internship, students must earn a grade of C-minus or higher in each of their health promotion core and elective courses.

Electives:

No more than one of these:

06A:001 Introduction to Financial Accounting	3 s.h.
06A:020 Accounting for Nonbusiness Students	3 s.h.
06T:113 Basics of Small Business Accounting	1 s.h.
06T:120 Entrepreneurship and New Business Formation	3 s.h.
07C:112 Human Sexuality	3 s.h.
07C:185 Introduction to Substance Abuse	3 s.h.
028:020 Alcohol and Your College Experience	1 s.h.
028:021 Tobacco and Your College Experience	1 s.h.
028:022 Resiliency and Your College Experience	1 s.h.
028:030 Principles of an Exercise Class	2 s.h.
028:031 Health-Related Muscular Fitness	2 s.h.
028:032 First Aid and CPR	2 s.h.
028:034 First Aid and CPR for Instructors	2 s.h.
028:035 Stress Management	2 s.h.
028:077 Understanding Peak Performance in Sport	2 s.h.
028:132 Fitness/Sport Nutrition	3 s.h.
028:133 Nutrition through the Life Span	3 s.h.
028:134 Nutrition Intervention	3 s.h.
028:143 Health Communications Programming	3 s.h.
028:144 Peer Health Education	2 s.h.
028:146 Seminar: Health Education Specialist	2 s.h.

028:147 Promoting Health Globally	2 s.h.
028:148 Practicum in Health Promotion	1 s.h.
028:166 Exercise for Special Populations	1 s.h.
028:190 Preinternship Seminar (may be taken as an elective if not completing the internship option)	1 s.h.
028:194 Honors Readings	1-2 s.h.
028:195 Honors Problems	3-4 s.h.
071:120 Drugs: Their Nature, Action, and Use	2 s.h.
071:130 Drug Mechanisms and Action	3 s.h.
152:150 Global Health Seminar	2 s.h.
152:152 Global Health Conference	1 s.h.

Internship option:

Courses chosen from the preceding list of electives	6 s.h.
028:190 Preinternship Seminar	1 s.h.
028:191 Internship	6, 12 s.h.

Sport Studies

This program is for students who want to examine sport in its historical and contemporary cultural contexts. Course work in history, sociology, and psychology of sport and physical activity provides students with the critical skills necessary to understand sport as a significant aspect of cultural life. Sport's interactions with educational institutions, the media, the economy, and the political system are examined critically. Race, class, and gender differences in the sport experience are explored.

Many students use their experience in the program to prepare for graduate school. For others, the required second concentration area or minor serves as an introduction to careers in a number of fields, such as sport journalism and athletic administration.

Students enrolled in the sport studies program must complete the 9 s.h of HSS foundation courses, the sport studies core, selected electives, and a second concentration area or minor.

Sport Studies Core

These are required (12 s.h.).

One of these:	
028:078 Women, Sport, and Culture	3 s.h.
028:079 Race and Ethnicity in Sport	3 s.h.

One of these:	
028:175 Sport and the Media	3 s.h.
028:188 Twentieth-Century U.S. Sport	3 s.h.

One of these:	
028:176 Sport and Nationalism	3 s.h.
028:177 Western World Sport: Greeks to Present	3 s.h.

One of these:	
028:178 Sport in the U.S. to 1900	3 s.h.
028:179 The American Vacation	3 s.h.

Sport Studies Electives

Students must complete at least 11 s.h. of course work from courses offered by the Department of Health and Sport Studies. Courses that have not been used to fulfill the "Sports Studies Core" above and the following are recommended.

028:032 First Aid and CPR	2 s.h.
028:035 Stress Management	2 s.h.
028:077 Understanding Peak Performance in Sport	2 s.h.
028:147 Promoting Health Globally	2 s.h.
028:180 Theory and Ethics of Coaching	3 s.h.
028:193 Independent Study	1-3 s.h.
028:194 Honors Readings	1-2 s.h.
028:195 Honors Problems	3-4 s.h.
028:198 Topics	1-3 s.h.

Concentration or Minor

Sport studies students also must complete a concentration or minor of 15 s.h. in an area, program, or department outside health and sports studies—for example, American studies, business administration, journalism, or women's studies. They must choose the area in consultation with their advisor. Of the 15 s.h., 6 must be earned in 100-level courses or in courses designated as advanced by the offering unit. No course counted for the concentration or minor may be taken pass/nonpass.

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available for the B.A. in health and sport studies. Students are encouraged to work with their advisors to develop an individual graduation plan.

Honors

The honors program in health and sports studies is designed for superior students. It gives participants research experience and a perspective on graduate study. To be eligible for honors study in the Department of Health and Sport Studies, a student must have declared a major in the department and be a member of the University Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Visit the Department of Health and Sport Studies web site for details.

Minor

A minor in health and sports studies requires at least 15 s.h. of course work in the department with a g.p.a. of at least 2.00. Of the 15 s.h., 6 must be taken in advanced (100-level) courses at The University of Iowa. Students choose courses according to their interests and the recommendations of the undergraduate director.

No courses accepted toward the minor may be taken pass/nonpass.

Coaching Endorsement

Any student in a teaching licensure program may receive a coaching endorsement on his or her license by completing the following courses and applying through the College of Education Office of Teacher Education and Student Services.

027:053 Human Anatomy	3 s.h.
027:057 Basic Athletic Training	3 s.h.
027:117 Human Growth and Motor Development	3 s.h.
028:180 Theory and Ethics of Coaching	3 s.h.

The following courses are highly recommended, but not required.

027:140 Exercise Physiology for Practitioner	3 s.h.
028:032 First Aid and CPR	2 s.h.

Coaching Authorization

Any student in a nonteaching program may receive coaching authorization by completing the following courses and applying directly to the Iowa Department of Public Instruction. For coaching authorization application forms, contact the Department of Health and Sport Studies.

027:053 Human Anatomy	3 s.h.
*027:057 Basic Athletic Training	3 s.h.
027:117 Human Growth and Motor Development	3 s.h.
028:180 Theory and Ethics of Coaching	3 s.h.

*Students should take 027:053 and obtain first aid certification before taking 027:057.

In addition, it is highly recommended that students obtain practical coaching experience. Such experience may be available through local public and private schools, recreation departments, and community groups. Students eligible for coaching endorsement (those who plan to be licensed as teachers) may earn credit by registering for 07S:198 Coaching Practicum.

Graduate Programs

The department offers the Master of Arts and the Doctor of Philosophy, both with two specialization areas.

Master of Arts

The M.A. offers specialization areas in psychology of sport and physical activity, and sport studies. Students in psychology of sport and physical activity may choose an emphasis on sport psychology or health promotion. Students in sport studies may choose an emphasis on cultural studies of sport or athletic administration.

The degree is awarded upon completion of at least 33 s.h. of graduate course work including thesis, or 36 s.h. without thesis. All M.A. students must complete a group of foundation courses, supplemented with work in their specialization area.

FOUNDATION COURSES

028:202 Critical Perspectives	3 s.h.
028:204 Research Methodologies	3 s.h.
028:300 Research Colloquium	1 s.h.
A graduate-level course in statistics or cultural analysis	3 s.h.

Specialization Areas

PSYCHOLOGY OF SPORT AND PHYSICAL ACTIVITY

The psychology of sport and physical activity specialization focuses on the dynamic interaction of psychological, cultural, and behavioral processes that inform and explain behavior in sport, health, and physical activity. The curriculum integrates the psychosocial aspects of participation in sport and physical activity with an analysis of the health consequences of a sedentary lifestyle. In addition to providing a theoretical framework for understanding sport and health-related behavior, the specialization provides students with an opportunity to develop skills in exercise prescription and assessment, dietary assessment, and stress management. Practicums are available at the University of Iowa Student Health Service, University of Iowa Hospitals and Clinics, Johnson County Public Health, and local community agencies. Graduates go on to doctoral programs in sport, health, or associated fields, or they enter health promotion, athletic, or sport professions in government, nonprofit organizations, and business.

SPORT STUDIES

Sport studies is an interdisciplinary program that draws on the insights of sociology, history, philosophy, and psychology to produce analyses of health, sport, and physical activity. Graduates go on to doctoral study in cultural studies of sport or to entry-level positions in athletic administration. Students supplement departmental course work with courses in other departments, such as American studies, communication studies, women’s studies, history, psychology, sociology, and business. Internships are available in The University of Iowa Athletic Department.

Assistantships

A number of teaching and research assistantships are available. Teaching assistants teach physical education skills courses or support general education courses offered by the department. Research assistants work directly with faculty members to support research programs. Apply to the Department of Health and Sport Studies chair.

Doctor of Philosophy

The Ph.D. program offers two areas of specialization: psychology of sport and physical activity, and sport studies. Students in the sport studies concentration may choose an emphasis in either athletic administration or cultural studies. Most students enter the doctoral program after completing a master’s degree.

The Ph.D. entails 60 s.h. of course work beyond the master’s degree. All doctoral students must complete a total of at least 72 s.h. of graduate work, including general requirements for the M.A. and credit for the dissertation. They also must satisfy the residency requirement by enrolling as full-time students (minimum of 9 s.h.) for two semesters, or by enrolling in 6 s.h. for three semesters while holding an assistantship of one-third-time or more.

FOUNDATION COURSES

Ph.D. students must take these.

028:202 Critical Perspectives	3 s.h.
028:204 Research Methodologies	3 s.h.
028:300 Research Colloquium	1 s.h.

In addition, all doctoral students must complete a dissertation and take at least 3 s.h. of advanced research methodologies.

Specialization Areas

PSYCHOLOGY OF SPORT AND PHYSICAL ACTIVITY

The psychology of sport and physical activity program focuses on psychological processes as they interact with social and cultural forces. Scholarship in this program advances understanding of behavior in sport and physical activity through evaluation of theories that predict behavior and through testing interventions that promote sport and physical activity. Interdepartmental study is central to the program; students may draw from course work in psychology, epidemiology, counselor education, and women’s studies. The program provides students with the analytical and research skills necessary for teaching and scholarship at the university level.

SPORT STUDIES

The sport studies specialization is an interdisciplinary program that explores sport with insights from sociology, history, and the humanities as well as interdisciplinary fields such as communication studies and women’s studies. Students develop analytical skills in order to produce research and cultural criticism of sport, leisure, dance, and physical activity. Careers in scholarship and teaching are the usual outcomes of such a curriculum.

The sport studies curriculum also provides a foundation for an athletic administration emphasis. Students usually pursue this emphasis to prepare for administrative work at all levels within collegiate sport, including Division I. Opportunities to work in The University of Iowa Athletic Department are available.

Assistantships

Teaching assistantships and research assistantships are available. Teaching assistants teach throughout the undergraduate program, including physical education skills courses. Research assistants work directly with faculty members to support research programs. Apply to the Department of Health and Sport Studies chair.

Courses

028:020 Alcohol and Your College Experience 1 s.h.
 Patterns of alcohol, drug use focused on college years; strategies for monitoring use, behavioral change plans for implementing lower-risk drinking practices; for drinkers and non-drinkers. GE: health and physical activity.

028:021 Tobacco and Your College Experience 1 s.h.

Current behavior change theories related to tobacco use, cessation; nicotine replacement therapies (NRT), non-NRT methods; triggers, relapse prevention, cognitive behavioral skills, support systems; for smokers and non-smokers. GE: health and physical activity.

028:022 Resiliency and Your College Experience 1 s.h.

Resiliency and psychological hardness theories relevant to college life; resiliency and ability to cope with challenges; components of psychological fitness; skills for personal growth and emotional well-being.

028:029 First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

028:030 Principles of an Exercise Class 2 s.h.

Exercise standards, guidelines for aerobic/exercise instructors; aerobic workout components, contraindicated exercises, injury prevention and treatment.

028:031 Health-Related Muscular Fitness 2 s.h.

Educational and practical experience for designing resistance training and flexibility programs; competencies for certification with National Strength and Conditioning Association.

028:032 First Aid and CPR 2 s.h.

Leads to American Red Cross first aid and adult CPR certifications.

028:034 First Aid and CPR for Instructors 2 s.h.

Preparation for American Red Cross first aid and adult CPR instructor certification. Prerequisite: first aid and CPR certificate.

028:035 Stress Management 2 s.h.

Stress, the stress response; causes and consequences, management. GE: health and physical activity.

028:036 Physical Activity Through the Life Span 3 s.h.

Physical activity determinants in society; school, workplace, community-based health promotion interventions to improve activity levels; practicum experiences. GE: health and physical activity.

028:038 Understanding Food and Nutrition 3 s.h.

Physiology, biochemistry of human nutrition; appropriate food sources; qualitative and quantitative evaluation of diets using standard references. Prerequisite: health and sport studies major.

028:074 Inequality in Sport 3 s.h.

Sport experiences, barriers to participation based on sexism, racism, classism, ageism, heterosexuality. Prerequisite: health and sport studies major.

028:075 Health in Everyday Life 3 s.h.

Personal health strategies; focus on disease prevention, wellness.

028:076 Psychological Aspects of Sport and Physical Activity 3 s.h.

Psychological theory and research related to sport and physical activity; motivation, aggression, attribution, socialization, competitive anxiety, leadership.

028:077 Understanding Peak Performance in Sport 2 s.h.

Concepts that underlie peak performance; hands-on experience through lecture/discussion, overnight assignments, activities; understanding of how to achieve peak performance in sport and physical activity, other areas of life.

028:078 Women, Sport, and Culture 3 s.h.

Feminist analysis of girls' and women's sport experiences; reproduction of gender through sport, recent changes in women's intercollegiate athletics, media representations of women in sport, feminist critiques, alternatives to sport. Same as 131:078.

028:079 Race and Ethnicity in Sport 3 s.h.

Structural and ideological barriers to racial and ethnic equality in sport, with focus on African American sport experiences; historical and contemporary issues, media representations.

028:132 Fitness/Sport Nutrition 3 s.h.

Relationship between nutrition, fitness and sport performance; basic nutrition, physiology, chemistry, psychology, food preparation. Prerequisites: 028:038 and health and sport studies major.

028:133 Nutrition Through the Life Span 3 s.h.

How body processes and nutritional needs change with age and the physiological state; effects of food-drug-medication interactions, anorexia, bulimia, and adolescent pregnancy; emphasis on food and health habits that minimize nutrition-related problems. Prerequisites: 028:038 and health and sport studies major. Same as 153:133.

028:134 Nutrition Intervention 3 s.h.

Strategies for meeting unique nutritional needs of individuals with limitations imposed by genetics, trauma, aging, medications, and so forth. Prerequisites: 028:038 and health and sport studies major.

028:138 Exercise Testing and Prescription 4 s.h.

Basic techniques in physical fitness assessment, prescription of exercise for healthy and unhealthy adults, promotion of physical activity within communities; provides knowledge and skill competencies required for certification as American College of Sports Medicine health fitness instructor. Prerequisites: 027:140 and admission to health promotion program.

028:141 Health Promotion Theory and Practice 3 s.h.

Principles of epidemiology and health behavior theories applied to multilevel frameworks for health promotion. Prerequisite: 028:075.

028:142 Worksite Health Promotion 3 s.h.

Management and organizational theories; assessment, planning, implementation, and evaluation of clinical and work-setting (targeted) health promotion programs.

028:143 Health Communications Programming 3 s.h.

Development, implementation, evaluation of effective health communication interventions; identification of health education resources for targeted groups. Prerequisite: 028:075.

028:144 Peer Health Education 2 s.h.

Experience acting as a peer educator, assisting students in their residential areas, presenting educational outreach programs on health topics, making referrals to campus and area agencies. Prerequisite: consent of instructor.

028:145 Health Promotion Processes 3 s.h.

Assessment, planning, implementation, and evaluation of health promotion programs. Prerequisite: 028:141.

028:146 Seminar: Health Education Specialist 2 s.h.

Development or refinement of competencies related to the seven professional responsibility areas of health educators; preparation for attainment of Certified Health Education Specialist (C.H.E.S.) credentials.

028:147 Promoting Health Globally 2 s.h.

Major global health threats in the United States and abroad; impact of culture, history, economics on health disparities; approaches, programs, policies to remedy them. Same as 152:158.

028:148 Practicum in Health Promotion 1-2 s.h.

Experience in planning, implementing clinical and community health promotion strategies including nutrition, physical fitness, cardiac rehabilitation, respiratory rehabilitation. Prerequisite: consent of instructor.

- 028:166 Exercise for Special Populations** 1 s.h.
Laboratory experiences in development and implementation of exercise testing and prescription for special populations, including children, elders, and individuals with chronic diseases. Pre- or corequisite: 028:138. Same as 153:166.
- 028:175 Sport and the Media** 3 s.h.
Representations of sport in television, the press, fiction, films, biographies, adolescent fiction.
- 028:176 Sport and Nationalism** 3 s.h.
Role of sport in the phenomenon of nationalism; selected theories; case studies on Ireland, Australia, British West Indies, Cold War U.S., fascist Europe.
- 028:177 Western World Sport: Greeks to Present** 3 s.h.
Development of Western sport; relation to social, political, economic, intellectual factors.
- 028:178 Sport in the U.S. to 1900** 3 s.h.
Growth and institutionalization of sport from colonial times to 1900.
- 028:179 The American Vacation** 3 s.h.
Social history of vacations; cultural significance of contemporary patterns; focus on how experiences and meanings are shaped by race, class, gender. Same as 045:174.
- 028:180 Theory and Ethics of Coaching** 3 s.h.
Philosophical bases, ethical issues; theoretical, practical applications.
- 028:188 Twentieth-Century U.S. Sport** 3 s.h.
Historic development of sport in the United States since 1900; economic forces, professional football and baseball. Prerequisite: 028:178.
- 028:190 Preinternship Seminar** 1 s.h.
Preparation for internship experience.
- 028:191 Internship** arr.
Directed practical field experience; program planning, implementation, evaluation, administrative procedures. Prerequisites: 028:190 and consent of instructor.
- 028:193 Independent Study** arr.
Problem in a specific area. Prerequisite: consent of instructor.
- 028:194 Honors Readings** 1-2 s.h.
Prerequisite: consent of instructor.
- 028:195 Honors Problems** 3-4 s.h.
Prerequisite: consent of instructor.
- 028:198 Topics** 1-3 s.h.
Sport studies or health promotion topics.
- 028:202 Critical Perspectives** 3 s.h.
Application of critical theories to cultural meanings and issues of sport, health, physical activity.
- 028:204 Research Methodologies** 3 s.h.
Design, interpretation of research; emphasis on quantitative approaches.
- 028:235 Stress Management** 2-3 s.h.
Stress and the stress response; causes and consequences; management strategies.
- 028:243 Planning and Evaluating Health Interventions** 3 s.h.
Theoretical and applied aspects of planning and evaluating health interventions in multiple settings, including culturally relevant programming.
- 028:244 Seminar in Health and Physical Activity Behavior** 3 s.h.
Health behavior theories and their relevance to individual, interpersonal, and community-wide health promotion interventions.
- 028:249 Epidemiology of Physical Activity** 3 s.h.
Physical activity/disease relationships examined through application of epidemiologic methods, including research design, interpretation of studies, selection of measures to fit research questions. Same as 173:245.
- 028:250 Marketing, Finance, and Entrepreneurship** 3 s.h.
Economic practices, marketing research, promotional programs, financing strategies, entrepreneurship related to collegiate athletics.
- 028:256 Governance and Policy Issues in Sport** 3 s.h.
Institutional, conference, national, and international issues in sport and sport governance; focus on gender equity, Title IX.
- 028:257 Nonprofit Organizational Effectiveness I** 3 s.h.
Same as 06J:247, 021:263, 024:247, 032:227, 042:247, 091:320, 174:247.
- 028:258 Nonprofit Organizational Effectiveness II** 3 s.h.
Same as 06J:248, 021:265, 024:248, 032:228, 042:248, 091:322, 174:248.
- 028:270 Social Psychology of Sport and Physical Activity** 3 s.h.
Theoretical and applied bases of social psychology of sport and exercise; motivation, arousal, group processes related to sport, physical activity.
- 028:274 Philosophy of Sport** 3 s.h.
The meaning of sport as human experience; ethical, aesthetic dimensions.
- 028:276 Sport in U.S. Culture** 3 s.h.
Sport as cultural form; relationship to ideology and practice in economics, politics, education, the family, the media.
- 028:278 History of Women in Sports** 3 s.h.
Women's sport involvement from ancient times to present; focus on social class, attitudes, religion, race, ethnicity, medical opinion, economic considerations, political events, educational philosophies that have influenced women's sport participation. Same as 131:254.
- 028:290 Graduate Internship** 1-4 s.h.
Prerequisite: consent of instructor.
- 028:291 Problems** arr.
Prerequisite: consent of instructor.
- 028:292 Practicum in College Teaching** arr.
- 028:294 Practicum: Athletics Administration** arr.
- 028:298 Graduate Topics** 1-3 s.h.
Sport studies or psychology of sport and physical activity topics.
- 028:299 Graduate Research Problems** arr.
Prerequisite: consent of instructor.
- 028:300 Research Colloquium** 0-1 s.h.
Research issues, current research projects of departmental faculty, graduate students. Repeatable.
- 028:370 Seminar in Sport Psychology** 3 s.h.
Current theory, research; applied sport psychology techniques. Repeatable. Prerequisite: 028:270.
- 028:372 Selected Issues in Sport Psychology** 3 s.h.
Current directions in theoretical and applied sport psychology literature. Repeatable. Prerequisite: 028:270.
- 028:374 Seminar in Sport History** 3 s.h.
Repeatable.
- 028:375 Cultural Analyses of Sport** 3 s.h.
Analytical strategies for studying sport; quantitative, qualitative techniques; materialist, feminist, cultural studies approaches. Repeatable. Prerequisite: 028:276 or consent of instructor.

028:378 Seminar in Cultural Studies of Sport	3 s.h.	28S:045 Racquetball I	1 s.h.
Current theoretical debates in sociology of sport; applications of cultural studies to critical analysis of sport. Repeatable. Prerequisite: 028:276 or consent of instructor.		GE: health and physical activity.	
028:386 Intercollegiate Athletics	3 s.h.	28S:047 Relaxation Techniques	1 s.h.
Organization and administration of a Division I intercollegiate athletic program; current issues, problems.		GE: health and physical activity.	
028:398 Thesis: M.A.	1-6 s.h.	28S:049 Sand Volleyball	1 s.h.
Repeatable. Prerequisite: consent of instructor.		GE: health and physical activity.	
028:399 Thesis: Ph.D.	arr.	28S:052 Self Defense	1 s.h.
Repeatable. Prerequisite: consent of instructor.		GE: health and physical activity.	

Physical Education Skills

All Physical Education Skills courses are approved as an option in the distributed general education portion of the General Education Program.

28S:006 Core Strengthening	1 s.h.	28S:055 Soccer I: Outdoor	1 s.h.
GE: health and physical activity.		GE: health and physical activity.	
28S:007 Aerobics: Low Impact	1 s.h.	28S:056 Soccer II: Outdoor	1 s.h.
GE: health and physical activity.		GE: health and physical activity. Prerequisite: 28S:055 or consent of instructor.	
28S:008 Aerobics: High Impact	1 s.h.	28S:057 Soccer: Indoor	1 s.h.
GE: health and physical activity.		GE: health and physical activity.	
28S:009 Aquatic Exercise	1 s.h.	28S:058 Speed Walking	1 s.h.
GE: health and physical activity.		GE: health and physical activity.	
28S:011 Badminton I	1 s.h.	28S:059 Spinning	1 s.h.
GE: health and physical activity.		GE: health and physical activity.	
28S:020 Fitness Walking	1 s.h.	28S:061 Resistance Training	1 s.h.
GE: health and physical activity.		GE: health and physical activity.	
28S:021 Flexibility	1 s.h.	28S:063 Swimming I	1 s.h.
GE: health and physical activity.		GE: health and physical activity.	
28S:023 Golf	1 s.h.	28S:064 Swimming II	1 s.h.
GE: health and physical activity.		GE: health and physical activity. Prerequisite: 28S:063 or consent of instructor.	
28S:025 Hatha Yoga	1 s.h.	28S:066 Table Tennis	1 s.h.
GE: health and physical activity.		GE: health and physical activity.	
28S:029 Jogging I: Beginners	1 s.h.	28S:071 Tennis I	1 s.h.
GE: health and physical activity.		GE: health and physical activity.	
28S:030 Jogging II	1 s.h.	28S:072 Tennis II	1 s.h.
GE: health and physical activity.		GE: health and physical activity. Prerequisite: 28S:071 or consent of instructor.	
28S:031 Karate I	1 s.h.	28S:075 Ultimate Frisbee	1 s.h.
GE: health and physical activity.		GE: health and physical activity.	
28S:032 Karate II	1 s.h.	28S:077 Volleyball I	1 s.h.
GE: health and physical activity. Prerequisite: 28S:031 or consent of instructor.		GE: health and physical activity.	
28S:033 Kick Boxing I	1 s.h.	28S:078 Volleyball II	1 s.h.
GE: health and physical activity.		GE: health and physical activity. Prerequisite: 28S:077 or consent of instructor.	
28S:037 Lap Swimming I	1 s.h.	28S:079 Weight Control	1 s.h.
GE: health and physical activity. Prerequisite: 28S:064 or consent of instructor.		GE: health and physical activity.	
28S:038 Lap Swimming II	1 s.h.	28S:081 Weight Training I	1 s.h.
GE: health and physical activity. Prerequisite: 28S:037 or consent of instructor.		GE: health and physical activity.	
28S:042 Personal Fitness	1 s.h.	28S:082 Weight Training II	1 s.h.
GE: health and physical activity.		GE: health and physical activity. Prerequisite: 28S:081 or consent of instructor.	
28S:043 Pilates	1 s.h.		
GE: health and physical activity.			

History

Chair: Colin Gordon

Professors: R. David Arkush, Constance A. Berman, T. Dwight Bozeman (Religious Studies/History), Jeffrey L. Cox, James L. Gibling, Paul Greenough, Colin Gordon, Sarah Hanley, Linda K. Kerber (May Brodbeck Professor in the Liberal Arts and Sciences), Malcolm J. Rohrbaugh, David Schoenbaum, H. Shelton Stromquist, Katherine Tachau, Stephen Vlastos

Professors emeriti: Lawrence E. Gelfand, Ralph E. Giesey, Charles A. Hale, Ellis W. Hawley, Henry G. Horwitz, Jaroslaw Pelenski, Alan B. Spitzer

Associate professors: Douglas Baynton (History/Speech Pathology and Audiology), Elizabeth Heineman, Susan C. Lawrence (History/Anatomy and Cell Biology), Paula Michaels, H. Glenn Penny, Mark Peterson, Johanna Schoen (History/Women's Studies), Leslie A. Schwalm, Allen Steinberg

Assistant professors: Michel Gobat, Laura Gotkowitz, Rosemary Moore (Classics/History), Kevin Mumford, Jacki T. Rand (History/American Indian and Native Studies), Shira Robinson, Jennifer E. Sessions

Lecturer: Kathleen Kamerick

Undergraduate degree: B.A. in History

Undergraduate nondegree program: Minor in History

Graduate degrees: M.A., Ph.D. in History

Web site: <http://www.uiowa.edu/~history>

The Department of History's purpose is to increase knowledge of human experience and provide students with opportunities to gain information about and learn methods for understanding their world in light of its past. In addition to offering these essential elements of a liberal education, the department trains professional historians and teachers of history and serves those who require knowledge of a period or aspect of history as background for their own specialized interests in other fields. Faculty and students in the department participate in many of the University's interdisciplinary departments and programs, including American studies, African American studies, ancient civilizations, Asian studies, international studies, Latin American studies, and women's studies.

Undergraduate Program

Baccalaureate graduates in history work in a variety of positions in business, education, public service, advertising, and journalism. Many plan further training in history, law, religion, library and information science, or social work.

History majors are encouraged to take courses in other fields that illuminate and expand the meaning of history courses and that introduce information and a variety of approaches to understanding how societies and cultures work.

For example, students majoring in history are encouraged to complete the College of Liberal Arts and Sciences General Education Program foreign language component by choosing a language that fits their interests in history. The history faculty particularly encourages study abroad programs that complement students' foreign area interests. Majors also are encouraged to improve their writing and speaking skills.

Bachelor of Arts

The Bachelor of Arts in history requires 36 s.h. in the major. The program is designed for students with a general interest in history. Course requirements include a colloquium, which usually is taken during the sophomore year or the semester after the student elects a major in history. The required portfolio, which should consist of at least three papers the student has written while enrolled in history classes, is submitted to the student's advisor during the semester before graduation.

College Level Equivalency Program (CLEP) and Advanced Placement Program credit cannot be used as part of the history major. Transfer work that is equivalent to University of Iowa course work can be accepted toward the major, but at least 18 s.h., including the colloquium, must be earned at The University of Iowa.

Undergraduate courses are divided into four areas: American history (prefix 16A), European history (16E), non-western world history (16W), and courses that have no area designation (016).

Students must complete 36 s.h. in history courses, as follows.

Colloquium

One of these:

- 16A:051 Colloquium for History Majors (American) 3 s.h.
- 16E:051 Colloquium for History Majors (European) 3 s.h.
- 16W:051 Colloquium for History Majors (World) 3 s.h.

History majors take the colloquium as soon as possible after declaring their major. Every colloquium includes assigned papers; students must include in their history portfolio at least one paper from their colloquium.

Other Required Courses

At least 6 s.h. of American history, including at least one course numbered 16A:100 or above

At least 6 s.h. of European history, including at least one course numbered 16E:100 or above

At least 6 s.h. of non-western world history, including at least one course numbered 16W:100 or above

*At least 3 s.h. of pre-1700 history (see “Pre-1700 Courses”)

*A course taken to fill the pre-1700 history requirement also may be counted toward the requirement in American, European, or non-western world history.

History Electives

In addition to the requirements listed above, the major requires 15 s.h. of elective courses in history (the total may include the colloquium). History electives may include no more than two of the following: 016:001 Western Civilization I, 016:002 Western Civilization II, 016:003 Western Civilization III, 016:005 Civilizations of Asia: China, 016:006 Civilizations of Asia: Japan, and 016:007 Civilizations of Asia: South Asia. Electives also may include all other courses offered by the department numbered above 016:040, 16A:040, 16E:040, and 16W:040. No more than 18 s.h. of American history (prefix 16A) may be counted toward the major.

Pre-1700 Courses

The following courses fulfill the 3 s.h. requirement for pre-1700 history.

- 016:001 Western Civilization I 3-4 s.h.
- 016:002 Western Civilization II 3-4 s.h.
- 016:005 Civilizations of Asia: China 3 s.h.
- 016:006 Civilizations of Asia: Japan 3-4 s.h.

- 016:007 Civilizations of Asia: South Asia 3-4 s.h.
- 016:045 Middle East and Mediterranean, Alexander to Suleiman 3 s.h.
- 016:160 The Atlantic World 1500-1800 3 s.h.
- 16A:115 Native North America I: Precontact-1789 3 s.h.
- 16A:121 The Puritan Experience 2-3 s.h.
- 16A:131 The Frontier in American History to 1840 3 s.h.
- 16A:161 The Colonial Period in America 3 s.h.
- 16E:101 Ancient Egypt and the Ancient Near East 3 s.h.
- 16E:103 Ancient Slavery and Modern Ideology 3 s.h.
- 16E:104 The World of Ancient Greece 3 s.h.
- 16E:105 Women in the Ancient World 3 s.h.
- 16E:106 Warfare in Ancient Mediterranean Society 3 s.h.
- 16E:107 The Hellenistic World and Rome 3 s.h.
- 16E:108 Rise of the Roman Empire 264 BCE-14 CE 3 s.h.
- 16E:110 Medieval Civilization 3 s.h.
- 16E:111 Medieval Intellectual History 300-1150 3 s.h.
- 16E:112 Medieval Intellectual History 1150-1500 3 s.h.
- 16E:113 Economic and Social History of Medieval Europe 3 s.h.
- 16E:115 Twelfth-Century Renaissance 3 s.h.
- 16E:117 History of the Medieval Church 3 s.h.
- 16E:118 The Transition from Manuscript to Print 3 s.h.
- 16E:119 Women, Power, and Society in Medieval Europe 3 s.h.
- 16E:120 The Book in the Middle Ages 3 s.h.
- 16E:122 European Religious Reformations 1250-1750 3 s.h.
- 16E:125 Society and Gender in Europe 1200-1789 3 s.h.
- 16E:126 The French Revolutions and Human Rights 3 s.h.
- 16E:128 The Age of Religious Wars 3 s.h.
- 16E:131 England: Reformation to the Civil War 1509-1649 3 s.h.
- 16E:133 Early Modern Europe 3 s.h.
- 16E:139 Ancient and Medieval Science 3 s.h.
- 16E:176 Imperial Russia 1598-1801 3 s.h.
- 16W:111 Colonial Latin America 3 s.h.
- 16W:120 Pre-Colonial African History 3 s.h.
- 16W:172 Japan—Age of the Samurai 3 s.h.
- 16W:177 Monks, Merchants, and Samurai 3 s.h.
- 16W:184 History of Central Asia 3 s.h.
- 16W:192 Globalization in History 1500-1800 3 s.h.

Teacher Licensure

Students who wish to qualify for teaching licensure in secondary social studies education must complete their history major, at least 15 s.h. in U.S. history (16A), at least 15 s.h. in non-U.S. history (16E and 16W), and 15 s.h. in a related area chosen from economics, geography, anthropology, psychology, sociology, or American government. Courses taken as part of the history major, including Colloquium for History Majors (numbered 16A:051, 16E:051, or 16W:051) may be counted as part of the 15 s.h. in U.S. history and the 15 s.h. in non-U.S. history required for certification.

Students also must complete College of Education professional education courses required for teaching licensure. Not all political science courses count toward certification to teach American government. Course content must center around the American political system or American political issues.

For information about the Teacher Education Program (TEP) or the secondary social studies education program, consult the social studies program coordinator at the College of Education.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: three courses in the major (including Colloquium for History Majors) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: three more courses in the major and submission of the portfolio of written work to the student's advisor

During the eighth semester: enrollment in all remaining course work in the major (two courses), all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The requirement for entry into the history department's honors program is the same as that for entry into the University Honors Program: a cumulative University of Iowa g.p.a. of at least 3.33. Through its honors program, the department provides outstanding students with opportunities to enhance their history major in several ways.

The most significant part of the honors program in history is the honors thesis. The thesis is an extended research paper (30-50 pages), usually completed during the spring semester of the junior year, or fall semester of the senior year. Research for the thesis is done under the supervision of a faculty member who specializes in the field in which the student undertakes his or her research. Students register for 3 s.h. of 016:091 Honors Seminar and 3 s.h. of 016:092 Honors Thesis in each of two semesters. The 6 s.h. count toward the total number of hours needed for the history major.

Minor

Any student who completes at least 15 s.h. in history with a g.p.a. of 2.00 may earn a minor. Of the 15 s.h., 12 must be in advanced courses taken at The University of Iowa. For the minor, all courses numbered above 016:080, 16A:080, 16E:080, and 16W:080 are considered advanced.

Graduate Programs

The graduate programs in history prepare students for occupations such as high school or college teaching, publishing, commercial research, foundations and nongovernmental organizations, and government or other public service. With additional specialized training, students of history become qualified for careers in archival work, library work, museum work, or historical site preparation and display. Some students enter the joint program leading to degrees in both law and history (see "Joint Law and Graduate Degree Programs" in the College of Law section of the Catalog).

Students interested in graduate work should obtain a copy of the current *Guide to Graduate Study at The University of Iowa* from the Department of History office. The guide is revised every spring to include the latest faculty listing, research interests of faculty members, detailed regulations on study toward advanced degrees, and other information for prospective students.

Master of Arts

The department offers two M.A. programs. The first is for students who plan to work toward the Ph.D. It requires a minimum of 30 s.h. of credit, including the completion of a research essay. The student must earn at least 24 s.h. of credit in the history department, including at least two seminars or one seminar and one readings course. One seminar or readings course must be taken in each of the first two semesters of residence. Students must earn 12 s.h. in the area of their essay topic and at least 6 s.h. in a second division, including either a seminar or a readings course.

The essay in the major division must be based on original research and should be approximately 10,000 to 15,000 words long. It usually begins as a term paper for the seminar in the major division and is completed the following semester under the supervisor's guidance. The finished product should emulate the character of articles in learned journals, just as the Ph.D. dissertation takes the form of a full-length scholarly monograph.

The second M.A. program is designed for students who do not intend to pursue a doctorate in history. The basic course requirements are much the same as those for the Ph.D.-track program. Students must earn 30 s.h. overall, including 24 s.h. in history. Of the 24 s.h., 12 are earned in one major division and must include at least one readings or seminar course. The two plans differ mainly in their concentration in fields: the Ph.D. track emphasizes development of research capabilities culminating in the essay; the non-Ph.D. track stresses breadth of learning. Students in the non-Ph.D. track must take at least 6 s.h. in each of two other divisions in history, or 6 s.h. in one other division in history and 6 s.h. in a related department. Included in these 12 s.h. must be at least one readings or seminar course in history.

After completing these requirements, or during the semester in which they are to be completed, M.A. students must take an oral and written comprehensive examination in their major division.

Doctor of Philosophy

Students who earn the M.A. with research essay are admitted to the Ph.D. program on the favorable recommendation of the examining committee. Students who earn an M.A. at another university must meet the admission requirements of the Graduate College (see

Graduate College in the Catalog) and of the Department of History. They must submit a writing sample, such as a seminar paper or an M.A. thesis. They must take a research seminar during their first two semesters in residence at Iowa.

The Ph.D. requires at least 72 s.h. of credit, including credit for work done toward the master's degree. The 72 s.h. must include at least eight 200-level courses of 4 s.h. each, taken in research seminars (not fewer than three) or graduate readings courses. At least five of the eight courses must be completed before the student takes the comprehensive examination. Courses taken at the M.A. level may be counted toward this requirement. The candidate also must take a graduate course in the philosophy of history, historiography, or methods of historical research.

The department has no general language requirement for the Ph.D., but the supervising faculty member may require the student to demonstrate a reading knowledge of one or more foreign languages and proficiency in the use of other study tools. Students may not complete the comprehensive examination until these requirements have been met.

The comprehensive written and oral examination covers three distinct fields, two of which must be in a major division that is chosen from the following divisions.

The ancient world
 Medieval Europe
 Europe, early modern
 Europe, modern
 Russia and the former Soviet Union
 United States
 Latin America
 China
 Japan
 India
 Africa

Students may construct another field, subject to approval by the comprehensive exam committee.

The third field must be a division outside the student's major division or in a related department outside history. The committee may define and delimit the individual fields for examination. It may also set, separately for each field, the character of the written portion of the comprehensive examination, which may take the form of a syllabus, a critical bibliography, a topical paper, or any other form or combination of forms that the committee deems suitable. The oral portion of the comprehensive examination focuses on issues and problems arising from the examination papers.

The candidate must submit to the dissertation committee a written prospectus for the dissertation no later than the semester following completion of the comprehensive exams. The committee consists of at least five members, including at least one member from outside the department. It considers the prospectus and may approve it, reject it, or require its revision. When the dissertation is completed in final form, the committee administers the final examination for the doctorate, a formal oral defense of the dissertation that usually lasts two hours.

Admission

Applicants for admission to the graduate program in history must meet the admission requirements of the Graduate College and must submit academic transcripts and Graduate Record Examination (GRE) General Test scores.

In addition, students must submit examples of original writing to the history department, such as a term paper, a seminar paper, or an honors thesis, letters of recommendation from three persons familiar with the student's past academic work, and a one- or two-page personal statement of the applicant's purpose in taking graduate work. All application materials are due by January 10 for entry the following August.

Special Facilities

The University of Iowa Libraries has unusual strength in all aspects of U.S. history. The Main Library houses the Henry A. Wallace papers and related collections, the Iowa Women's Archives, and other unique materials. In European history, special strengths include the fine collections of French and English materials. The State Historical Society of Iowa in Iowa City and the Herbert Hoover Presidential Library and Museum in West Branch also hold valuable research materials.

Courses

Courses numbered 016:001 through 016:040 are approved for General Education. Some other courses are approved in the foreign civilization and culture General Education area. They cannot be taken pass/nonpass, even when they are taken as electives. Majors should take 16A:051, 16E:051, or 16W:051 in the sophomore year or in the first semester after declaring the major. Other courses numbered below 200 are open to first-year students who already have completed the General Education Program historical

perspectives component. Courses numbered 200 and above are offered as occasion demands.

For Undergraduates

- 016:001 Western Civilization I** 3-4 s.h.
Ancient and medieval. GE: foreign civilization and culture or historical perspectives.
- 016:002 Western Civilization II** 3-4 s.h.
Early modern world. GE: foreign civilization and culture or historical perspectives.
- 016:003 Western Civilization III** 3-4 s.h.
The modern world. GE: foreign civilization and culture or historical perspectives.
- 016:005 Civilizations of Asia: China** 3 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 039:055.
- 016:006 Civilizations of Asia: Japan** 3-4 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 039:056.
- 016:007 Civilizations of Asia: South Asia** 3-4 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 039:057.
- 016:011 Issues in Human History: The Vietnam War in Historical Perspective** 3 s.h.
GE: historical perspectives.
- 016:012 Issues in Human History: Communities and Society in History** 3 s.h.
GE: historical perspectives.
- 016:014 Issues in Human History: Europe's Expansion Overseas** 3 s.h.
GE: historical perspectives.
- 016:015 Issues in Human History: Gender in Historical Perspective** 3 s.h.
GE: historical perspectives.
- 016:017 Issues: Twentieth-Century Crisis** 3 s.h.
GE: historical perspectives.
- 016:020 Issues in Medieval Society** 3 s.h.
GE: historical perspectives.
- 016:022 Issues: Nature and Society in Historical Perspective** 3 s.h.
GE: historical perspectives.
- 016:023 Issues in European Politics and Society** 3 s.h.
GE: historical perspectives.
- 016:035 Medieval Religion and Culture** 3 s.h.
GE: historical perspectives. Same as 032:025.
- 016:036 Modern Religion and Culture** 3 s.h.
GE: historical perspectives. Same as 032:026.
- 016:040 Perspectives: Diversity in American History** 3 s.h.
People, cultures, behaviors, and values that have shaped American society and its past. GE: cultural diversity.
- 016:045 Middle East and Mediterranean, Alexander to Suleiman** 3 s.h.
GE: foreign civilization and culture. Same as 20E:071, 032:061.

016:049 First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

16A:051 Colloquium for History Majors (American) 3 s.h.

Prerequisite: history major or consent of instructor.

16E:051 Colloquium for History Majors (European) 3 s.h.

Prerequisite: history major or consent of instructor.

16W:051 Colloquium for History Majors (World) 3 s.h.

Prerequisite: history major or consent of instructor.

16E:058 Liturgy and Devotion in Christian Tradition 3 s.h.

Same as 032:058.

16W:061 Africa and the Atlantic Slave Trade 3 s.h.

016:074 Popular Music in American Culture 3 s.h.

Same as 045:074.

016:082 The World Since 1945 3 s.h.

GE: foreign civilization and culture.

16E:085 Early Modern Catholicism 3 s.h.

Same as 032:085.

016:090 Individual Study: Undergraduate arr.

016:091 Honors Seminar 0-3 s.h.

016:092 Honors Thesis 3 s.h.

Individual research and writing under supervision of faculty member; occasional group sessions with other Honors Thesis students.

16W:120 Pre-Colonial African History 3 s.h.

Africa to 1880; oral tradition, other sources; political development, ecological change, slavery and slave trade. GE: foreign civilization and culture. Same as 129:163.

16W:121 African History Since 1880 3 s.h.

Africa in colonial, post-colonial period; economics, political structures of colonialism; social change, political life in the 20th century. GE: foreign civilization and culture. Same as 129:164.

16W:122 History and Environment in Africa 3 s.h.

Same as 129:132.

16W:127 Human Rights Politics, 1940-Present 3-4 s.h.

016:136 History of Medicine in Western Society 3 s.h.

Theories about the body, illness, medical practice in social, economic, intellectual contexts; role of healers, professionalization of practitioners; evolution of public, private medical institutions; interrelationships of science, medicine, technology. Same as 152:136.

16W:137 History of Public Health 3 s.h.

State-endorsed measures to avert or control disease in society. Same as 152:137.

16W:138 History of International Health 3 s.h.

Foremost problems of health and disease in colonial and postcolonial societies; topical approach. Same as 152:138.

16W:139 U.S. Health Care System Global Perspective 3 s.h.

Same as 152:155.

16W:140 Disease Politics and Health in South Asia 3 s.h.

South Asia's long-term success lengthening lives and stopping disease, weighed against its continuing burden of infection, violence, pollution, and class-based suffering.

16W:142 Palestine, Israel, and the World Since 1890 3 s.h.

016:144 War and Peace in the Twentieth Century 3 s.h.

016:151 Social History of the Violin 1-3 s.h.

The violin's place in world culture; violin as product, collectible, and icon; the player as artisan, artist, and professional. Same as 025:164.

16W:152 History of the Modern Middle East 3 s.h.

16W:153 Topics in the Modern Middle East 3 s.h.

016:160 The Atlantic World 1500-1800 3 s.h.

16W:161 History of the Modern Caribbean 3 s.h.

16W:172 Japan—Age of the Samurai 3 s.h.

Society, culture, and politics of feudal Japan; social class, gender, norms, and political and economic developments explored through cinema and literature. Same as 39:172.

16W:173 Modern Japan 3 s.h.

Political, social, and cultural developments of Japanese feudalism; feature films, fiction. Same as 39:173.

16W:175 Japan—U.S. Relations 3 s.h.

Political, social, economic, and cultural developments in Japan mid-19th to late-20th century. Same as 39:175.

16W:176 Japanese History in Cinema 3 s.h.

Same as 39:176.

16W:177 Monks, Merchants, and Samurai 3 s.h.

Same as 032:187, 39:187.

16W:178 Topics in Asian History 3 s.h.

Same as 039:175.

For Undergraduate and Graduate Students

World and General History

016:100 Historical Background of Contemporary Issues arr.

16W:110 Topics in Latin American History 3 s.h.

16W:111 Colonial Latin America 3 s.h.

Cultural, institutional continuity from 16th century to independence.

16W:112 Introduction to Modern Latin America 3 s.h.

Cultural, institutional continuity from independence to present.

16W:114 Latin America and the U.S.: The Historical Perspective 3 s.h.

16W:115 Latin American Revolution 3 s.h.

016:116 Libraries in Western Culture 3 s.h.

Same as 032:125, 108:184.

16W:119 African and African American Interactions 3 s.h.

The slave trade and its legacy in Africa and the Americas; cultural, political interaction between Africans and African Americans; images of Africa in African American thought; Afrocentrism and its African critics. Same as 129:138.

016:120 Museum Literacy and Historical Memory 3 s.h.

Same as 149:130.

- 016:180 Readings: International Security** 3-4 s.h.
16W:182 The Vietnam War in Historical Perspective 3 s.h.
 Same as 039:132.
16W:183 Vietnam War on Film 3-4 s.h.
16W:184 History of Central Asia 3 s.h.
16W:189 South Asia Social Science History 3 s.h.
 Key social science topics in South Asia. Prerequisite: 016:007 or equivalent. Same as 039:176.
016:192 Traditions of Religious Reform 3 s.h.
 Same as 032:192.
16W:192 Globalization in History 1500-1800 3 s.h.
16W:194 Imperialism and Modern India 3 s.h.
 India since 1500 A.D.; emphasis on Mughal and British imperial systems, nationalist movements, current socioeconomic trends. GE: foreign civilization and culture. Same as 039:134.
16W:196 Modern China 1600s to 1920s 3 s.h.
 End of the Ming; rise, flourishing of Manchu Qing dynasty; 19th-century internal and external troubles; social, cultural, political change in young Republic of China early 1900s. GE: foreign civilization and culture. Same as 039:154.
16W:198 China Since 1927 3 s.h.
 Communist revolution from 1920s to founding of People's Republic of China in 1949; Mao Zedong's radical policies, Cultural Revolution; Deng Xiaoping's economic reforms; China today. GE: foreign civilization and culture. Same as 039:196.
16W:199 Asia News Seminar 2-3 s.h.
 Contemporary political, social, and cultural developments in Asia examined through English-language media. Same as 039:194.
- ## American History
- 16A:061 American History 1492-1877** 3 s.h.
 Discovery through Civil War, Reconstruction; emphasis on social history of colonial era and social, economic, political developments of Revolutionary, antebellum periods.
16A:062 American History 1877-Present 3 s.h.
 Emphasis on social, political developments of Gilded Age, Progressive Era, Great Depression; the United States as a world power.
16A:065 Introduction to African American History 3 s.h.
 GE: cultural diversity. Same as 129:065.
16A:066 Civil War and Reconstruction 3 s.h.
16A:067 Survey of U.S. Women's History 3 s.h.
 Private lives and public roles of American women of different class, race, ethnic, religious backgrounds, colonial period to present; women's roles in American life, how women have shaped society, culture, politics; family life, work roles, political participation. Same as 131:067.
16A:104 History of the American Deaf Community 3-4 s.h.
 Creation of a distinct language and culture of deaf people in America during the 19th and 20th centuries. Taught in American Sign Language. Prerequisite: 158:014 or consent of instructor. Same as 158:100.
16A:106 Disability in American History 3 s.h.
16A:107 American Cultural History 1820-1920 3 s.h.
 Culture as contested terrain; creation of cultural hierarchy (high and popular culture); struggles over the cultural construction of meaning; competing stories of "America"; advent and significance of mass culture.
16A:108 The Image in America 3 s.h.
 Same as 024:108.
16A:114 American Southwest: A Historical Perspective 3 s.h.
 History of the American Southwest; political, environmental, cultural, and technological influences that help define the region. Same as 149:114.
16A:115 Native North America I: Precontact-1789 3 s.h.
 Same as 149:115.
16A:116 Native North America II: 1789-Present 3 s.h.
 Same as 149:116.
16A:117 U.S. Indian Policy in the American Indian Family 3 s.h.
16A:118 Ultraconservative and Radical Theologies in American History 2-3 s.h.
 Intellectual patterns of far right, left; single historical settings. Same as 032:145.
16A:121 The Puritan Experience 2-3 s.h.
 Concepts of the sacred book, redemption, world's end, church and state, family, women, Indians, sex. Same as 032:142.
16A:122 Varieties of American Religion 3 s.h.
 Survey of distinctive groups: Mormons, Christian Scientists, Scientologists, Black Muslims, Unification Church of Sun Myung Moon. Same as 032:141.
16A:124 Religious Thought in America 1860-Present 2-3 s.h.
 Focus on leaders of American thought. Same as 032:144.
16A:125 American Revolutionary Theologies 2-3 s.h.
 Same as 032:135.
16A:131 The Frontier in American History to 1840 3 s.h.
16A:132 The Frontier in American History 1840-Present 3 s.h.
16A:133 American West in Film 4 s.h.
16A:135 American West in the Twentieth Century 3-4 s.h.
 Focus on growth, redistribution of political power, exploitation of and competition for natural resources, intermingling of diverse cultural groups.
16A:137 History of Iowa 3 s.h.
16A:141 American Working Class to 1900 3 s.h.
 Industrialization, formation of an American working class; changing patterns of labor organization, strike activity, politics; impact of ethnic, racial, gender divisions on working class communities, culture.
16A:142 American Labor in the Twentieth Century 3 s.h.
 Competing philosophies and organizational strategies of workers in a maturing industrial economy; impact of world wars and Great Depression on American workers and their unions; rise of service sector, deindustrialization.
16A:144 American Economic History 3 s.h.
 Economic theory; emphasis on role of population, technology. Prerequisites: 06E:104 for economics majors; 06E:001 and 16A:061 for non-economics majors. Same as 06E:178.
16A:146 Immigrant America 1845-1925 3 s.h.
 Era of mass immigration in world context; formation, organization of immigrant communities; diverse processes of adaptation, assimilation; rural, urban contrasts; coercive Americanization, immigration restriction.

16A:147 History of Slavery in the U.S.A. 3-4 s.h.

Origins, development; focus on labor, family, gender, community, culture, resistance; South's defense of slavery; wartime collapse, destruction of slavery. Same as 129:137.

16A:151 United States in World Affairs to 1900 3 s.h.

Origins of modern diplomatic practices; security, territorial and commercial expansion; legal, constitutional problems.

16A:152 United States in World Affairs 3 s.h.

America's emergence as leader in world affairs; imperialism, international collaboration, participation in world wars, the Cold War.

16A:153 U.S.A. in a World at War 1931-1945 3 s.h.

Significance of World War II to the United States.

16A:154 Sexuality in the United States 3 s.h.

Same as 131:158.

16A:157 History of American Society 1776-1850 3 s.h.

Social foundation of Revolutionary America; structure of agriculture, slavery, immigration, family, manufacturing, urbanization, class formation, state formation, reform movements; their relationship to political events, ideology.

16A:158 American Society in Film and Text 1850-1920 3-4 s.h.

Social foundation of the Civil War, Reconstruction; emergence of industrial and urban society, immigration, agrarian and working class protest, segregation, social reform, progressivism, nationalism, roots of imperialism.

16A:161 The Colonial Period in America 3 s.h.

Foundation, growth of English colonies in North America; colonial, imperial political history before 1715; economic, cultural history 1607-1750.

16A:162 American Revolutionary Period 1740-1789 3 s.h.

Political, military history of colonies 1754-1776; imperial upheaval; building a new nation; creation of federal system.

16A:164 Civil War and Reconstruction 3 s.h.

Slavery, political and military conflict, emancipation, reconstruction; their impact on civilians and soldiers, men and women, blacks and whites, North and South.

16A:165 The Gilded Age in America 3 s.h.

Emergence of industrial, urban America, from Civil War through 1890s; emphasis on social, political developments.

16A:166 The Progressive Era in America 3 s.h.

Protest and reform, imperialism, World War I, from 1890s to 1920.

16A:167 The New Era and the New Deal 1920-1940 3 s.h.

United States between the wars; emphasis on New Era system, impact of the Great Depression and response by the Hoover administration, the New Deal.

16A:168 The Contemporary U.S. 1940-Present 3 s.h.

United States as a global power; emphasis on World War II and Cold War, recent patterns of social and economic change, politics of 1950s, 1960s.

16A:171 U.S. Women's History to 1870 3 s.h.

American history through women's eyes; interaction of biology, economics, politics, ideology; how traditional historical generalizations change when women's experience is considered; legal history and women's education. Same as 131:171.

16A:172 Women in America: 1870-Present 3 s.h.

From passage of Fourteenth Amendment to present; interaction of biology, economics, politics, ideology; emphasis on suffrage movement, second-wave feminist change. Same as 131:172.

16A:174 Gender and Society in the U.S. 1940-Present 3 s.h.

Same as 131:174.

16A:175 Gender and the Law 3 s.h.

Same as 091:252.

16A:184 Black Metropolis: Twentieth Century 3 s.h.

Black popular culture and the African American urban experience. Same as 129:184.

16A:185 Themes in African American History 3 s.h.

Same as 129:189.

16A:188 African American History 1865-Present 3 s.h.

African American history since Reconstruction; survey of African American politics and society from Reconstruction to present. Same as 129:187.

16A:189 African American History Since Reconstruction 3 s.h.

European History

16E:101 Ancient Egypt and the Ancient Near East 3 s.h.

Same as 20E:101.

16E:103 Ancient Slavery and Modern Ideology 3 s.h.

16E:104 The World of Ancient Greece 3 s.h.

16E:105 Women in the Ancient World 3 s.h.

Same as 20E:105.

16E:106 Warfare in Ancient Mediterranean Society 3 s.h.

Same as 20E:106.

16E:107 The Hellenistic World and Rome 3 s.h.

Social, economic, political, intellectual history of Graeco-Roman world, from fourth century B.C.E. to Justinian's reign. GE: foreign civilization and culture.

16E:108 Rise of the Roman Empire 264 BCE-14 CE 3 s.h.

16E:110 Medieval Civilization 3 s.h.

Europe from decline of Roman empire to Renaissance; cultural, political, economic foundations of Western civilization. GE: foreign civilization and culture. Same as 162:110.

16E:111 Medieval Intellectual History 300-1150 3 s.h.

Philosophy, art, literature, religious culture of Europe from waning of classical intellectual modes of culture in late antiquity, to their recovery in 12th century.

16E:112 Medieval Intellectual History 1150-1500 3 s.h.

European philosophy, religion, literature, art from 12th-century rise of scholasticism; their transformation in period of Copernicus, Luther.

16E:113 Economic and Social History of Medieval Europe 3 s.h.

Changes in western Europe from 300 to 1500 A.D.; feudalism, manorialism, revival of towns, heresy, women, monasticism, agricultural and commercial revolutions, Black Death. GE: foreign civilization and culture.

16E:114 Medieval Philosophy 3 s.h.

Same as 026:112.

16E:115 Twelfth-Century Renaissance 3 s.h.

16E:117 History of the Medieval Church 3 s.h.

Development of Christianity to end of great schism; rise of Roman primacy, development of monasticism, orthodox and heterodox groups. GE: foreign civilization and culture.

16E:118 The Transition from Manuscript to Print 3 s.h.

Same as 021:258, 108:183.

- 16E:119 Women, Power, and Society in Medieval Europe** 3 s.h.
- 16E:120 The Book in the Middle Ages** 3 s.h.
Prerequisite: 01H:005 or 16E:110 or consent of instructor. Same as 108:182.
- 16E:122 European Religious Reformations 1250-1750** 3 s.h.
Catholic, Lutheran, Anglican, Calvinist, and radical sects in France, Germany, England; focus on shifting intellectual foundations, civic repercussions.
- 16E:123 Religious Conflict/Early-Modern Period** 3 s.h.
Same as 032:154.
- 16E:125 Society and Gender in Europe 1200-1789** 3 s.h.
Social and gender ideologies as inscribed in patterns of authority (household, church, state); ranges of human endeavor (intellectual, psychological, biological); community organization (social, economic, legal, sexual); their influence on concept of community. GE: foreign civilization and culture. Same as 131:181.
- 16E:126 The French Revolutions and Human Rights** 3 s.h.
Worldwide issues of human rights posed by the French Revolution, Caribbean Slave revolution, Napoleonic regime; state governance, class status, religious freedoms, marital inequities, plantation economy, slave trade, citizenship. GE: foreign civilization and culture.
- 16E:127 European History in Text and Film** 4 s.h.
How community and identity are formed, what laws or customs prevail, who is included and excluded, choices between civic freedoms and obligations, consequences when civil rights are transgressed; case studies mid-16th through mid-20th centuries. GE: foreign civilization and culture.
- 16E:128 The Age of Religious Wars** 3 s.h.
Broad phenomena of the era, including the “confessionalization” of European society, the rise of absolutist government, the role of the nobility, social discipline, and popular culture, viewed in context of the series of bloody wars in France, The Netherlands, Germany, and England that resulted from the mix of religion and politics in 16th- and 17th-century Europe.
- 16E:131 England: Reformation to the Civil War 1509-1649** 3 s.h.
- 16E:132 England: Civil War to the American Revolution 1649-1776** 3 s.h.
Execution of King Charles I to American Revolution.
- 16E:133 Early Modern Europe** 3 s.h.
- 16E:134 Nineteenth-Century Europe** 3 s.h.
Political, social, economic, and cultural factors.
- 16E:135 Twentieth-Century Europe: The Nazi Era** 3 s.h.
- 16E:136 Twentieth-Century Europe: The Cold War and After** 3 s.h.
- 16E:139 Ancient and Medieval Science** 3 s.h.
Greeks’ initiation of scientific inquiry; developments in astronomy, cosmology, optics, mathematics, physics, medicine, psychology in ancient and medieval societies of Middle East, Europe.
- 16E:143 Modern France 1789-1871** 3 s.h.
- 16E:144 Modern France 1870-Present** 3 s.h.
- 16E:146 France from 1815-Present** 3 s.h.
- 16E:148 Society and Gender in Europe 1750-Present** 3 s.h.
Social structures, gender roles in modern Europe; changes in politics, social organization, social relationship of sexes

(education, sexuality, occupation), forms of social protest (feminism, socialism). Same as 131:182.

- 16E:151 Modern Britain 1760-1867** 3-4 s.h.
Industrial Revolution to mid-Victorian age.
- 16E:152 Modern Britain 1867-Present** 3-4 s.h.
Age of Gladstone and Disraeli to present.
- 16E:156 Germany Since 1914: Weimar, Hitler, and After** 3-4 s.h.
Continuity, change in 20th-century German politics, society, culture; creation, collapse of Weimar Republic; Nazism and Third Reich; East and West Germany since 1945; unification and its discontents. GE: foreign civilization and culture.
- 16E:161 Politics and Culture in Twentieth-Century Europe** 3 s.h.
- 16E:175 History of Soviet and Eastern European Film** 3 s.h.
- 16E:176 Imperial Russia 1598-1801** 3 s.h.
Political, social, economic, cultural, ideological developments in Imperial Russia.
- 16E:177 Imperial Russia 1801-1917** 3 s.h.
Political, social economic, cultural, and ideological developments in Imperial Russia. GE: foreign civilization and culture.
- 16E:178 Soviet Union 1917-1945** 3-4 s.h.
Revolution, foundation of Soviet Union; Leninism; major political, social, ideological developments during Stalinist period—collectivization, industrialization, terror; nationalities, foreign policy; World War II; Cold War; socialist state system. GE: foreign civilization and culture.
- 16E:179 Soviet Union 1945-1991** 3 s.h.
Selected topics in history of the Soviet Union: political system, ideology, socioeconomic developments, nationalities problems, foreign policy; period of second revolution from above, openness, restructuring; fall of Soviet empire, 1985-1991. GE: foreign civilization and culture.
- 16E:181 Russian Revolution** 3 s.h.
- 16E:185 First World War** 3-4 s.h.
Social, economic, political, technological, military aspects of causes, conduct, consequences of war of 1914-18; fiction, contemporary documents, historical works, films.
- ## For Graduate Students
- 016:201 First-Year Graduate Colloquium** 2 s.h.
Introduction to history graduate program.
- 016:203 Readings: American Slavery** arr.
- 016:204 Readings: Slavery and Emancipation** arr.
- 016:205 Gender and Race in Nineteenth-Century U.S.** arr.
Same as 129:205, 131:206.
- 016:206 Seminar: The Plantation South** arr.
- 016:208 Readings: New Southern Histories** arr.
Transition from slave to free labor; Reconstruction politics; retreat from Reconstruction; postwar construction of gender, race; rise of white supremacy campaigns; the New South; origins of Jim Crow; memory and war.
- 016:209 Seminar: Medieval Social and Economic History** arr.
- 016:210 Readings: Medieval Women** arr.
- 016:211 Seminar: Medieval Intellectual History** arr.

016:212 Readings: Medieval Intellectual History	arr.	016:245 Readings: African American Historiography	arr.
		Same as 129:245.	
016:213 Seminar: History of Science	arr.	016:246 Seminar: African American History	arr.
		Same as 129:246.	
016:214 Readings: Medieval and Early Modern Universities	arr.	016:247 Crossing Borders Seminar	2-3 s.h.
016:215 Readings: Monastic History	arr.	Past and place of "memory studies" as a distinct research field; regional and national case studies involving controversies in archaeology, public discourse, museology, and so forth.	
016:217 Source Criticism for Medieval Studies	arr.	Repeatable. Same as 01H:247, 008:231, 013:262, 030:242, 035:273, 044:286, 048:247, 113:247, 129:231.	
016:218 Medieval Latin Paleography	arr.	016:248 Seminar: Research in Race and Ethnicity	arr.
016:219 History Writing: Theory and Interpretation	arr.	016:249 Teaching Seminar: Graduate Instructors	2-3 s.h.
016:223 Seminar: Reformation Culture and Theology	arr.	Issues and methods for effective history teaching at the college level.	
Changes in politics, society, and law in modern France and the Caribbean; government and labor disputes; marital and colonial regimes; human rights struggles; mid-17th through 19th centuries. Same as 032:223.		016:250 Readings: History of Medicine and Health	arr.
016:224 Seminar: History of Disability	arr.	016:251 Seminar: History of Medicine and Health	2-4 s.h.
016:225 Readings: History of Sexuality	arr.	016:252 Readings in Capitalism and Slavery	arr.
History of sexuality within the family, its move into the marketplace; social customs and taboos, methods of birth control and abortion, religion, medical and psychological writings, state policies. Same as 131:225.		016:254 Teaching Proseminar	2-4 s.h.
016:228 Readings: History of Feminisms	arr.	Preparation for leading undergraduate discussion sections for 016:001-016:003 Western Civilization I-III; specific subject matter preparation similar to that offered in graduate readings courses; for first-time graduate teaching assistants.	
Same as 131:228.		016:255 Seminar: Soviet History	arr.
016:229 Readings in the Arab Israeli Conflict	arr.	016:256 Readings: Russian History	arr.
016:230 Readings in Modern Middle East History	arr.	016:257 Readings: Soviet History	arr.
016:231 Seminar: African History	arr.	016:259 Seminar: Interpreting Oral Histories	arr.
Themes in African precolonial and modern history.		Interpretations and methods applied by historians in various world regions to different forms of oral history, from old oral traditions to contemporary autobiographical testimony. Same as 129:259.	
016:232 Readings in African History	arr.	016:260 Readings: Comparative Labor History	arr.
016:233 Readings: Women, Men, and Gender in Modern Europe	arr.	016:261 Seminar: American Colonial History	arr.
Same as 131:233.		016:262 Readings: American Colonial History	arr.
016:234 Readings: Colonialism and Empire in European History	arr.	016:264 Seminar: Social History of the American Working Class	arr.
016:235 Seminar: Modern Europe	arr.	016:265 Seminar: American Social History	arr.
016:236 Readings: Modern European History	arr.	016:266 Readings: The Gilded Age and the Progressive Era	arr.
016:237 European Encounters with North America	arr.	016:267 Seminar: Contemporary United States	arr.
History of European-American relations over the past three hundred years; reading of primary texts such as de Tocqueville's <i>Democracy in America</i> and secondary works on Europeans' interests in North America and their confrontations with the United States.		016:268 Readings: Modern United States	arr.
016:238 Readings in the History of Modern France	arr.	016:269 Readings of the American South: Gender and Race in American History	arr.
016:239 Seminar: Modern Britain	arr.	Same as 045:269.	
016:240 Readings: Modern Britain	arr.	016:270 Readings in the History of Women and Gender in the U.S.A.	arr.
016:242 Readings: British Imperialism	arr.	Same as 131:270.	
016:243 Readings: Social and Cultural History of North American Indians	arr.	016:271 Seminar: American Frontier	arr.
Same as 149:243.		016:272 Readings: The American Frontier	arr.
016:244 Crossing Borders Proseminar	1 s.h.	016:273 Readings in American Social History	arr.
Weekly meeting of Crossing Borders participants; key issues in international studies. Open only to graduate students in Crossing Borders program. Repeatable. Same as 01H:330, 013:260, 030:243, 035:271, 044:287, 048:244, 113:248.		016:274 Readings: Social History of the U.S. Working Class	3-4 s.h.

016:275 Seminar: American Religious Thought	arr.
Same as 032:213.	
016:276 Seminar: Puritanism	arr.
Same as 032:214.	
016:277 Feminist Research Seminar	arr.
Feminist research methodologies; how to conduct original research, write a research proposal and research paper, read and criticize others' work. Repeatable. Same as 131:204.	
016:279 Seminar: Gender and Sexuality in U.S. Law	arr.
Same as 091:627.	
016:280 Readings in Latina/o History	arr.
Introduction to major works and recent scholarship in Latina/Latino history.	
016:283 Feminist Theory: Historians' Perspectives	arr.
Same as 131:283.	
016:284 Seminar: History of American Women	arr.
Same as 131:284.	
016:285 Readings: Gender in Latin American History	arr.
016:287 Readings: African American Women's History	arr.
Same as 129:287, 131:287.	
016:288 Readings: Latin American History	arr.
Same as 035:247.	
016:289 Archives Master Course	1 s.h.
016:290 Seminar: Post-Comprehensive	arr.
Historical fields, methodologies; emphasis on presentation, criticism of research materials. Prerequisite: Ph.D. comprehensive exams passed.	
016:291 Seminar: Modern Chinese History	arr.
Same as 039:254.	
016:292 Readings in Chinese History	arr.
Same as 039:258.	
016:293 Crossing Borders Seminar: Introductory	3-4 s.h.
Repeatable. Same as 01H:230, 008:230, 013:264, 030:241, 035:272, 044:285, 048:230, 113:230.	
016:294 Readings: Japanese History	arr.
Same as 39J:257.	
016:295 Readings in Modern India	arr.
016:296 Individual Study: Graduate	arr.
016:297 Thesis	arr.
016:299 History Workshop: Theory and Interpretation	arr.

Integrative Physiology

Chair: Jerry A. Maynard

Professors: John P. Albright (Orthopaedics and Rehabilitation/Integrative Physiology), Joseph A. Buckwalter (Orthopaedics and Rehabilitation/Integrative Physiology), Alan K. Johnson (Psychology/Integrative Physiology), Kevin C. Kregel, Jerry A. Maynard (Integrative Physiology/Orthopaedics and Rehabilitation), Kenneth E. Mobily (Leisure Studies/Integrative Physiology), Larry W. Oberley (Radiation Oncology/Integrative Physiology)

Professors emeriti: Gene M. Asprey, Donald R. Casady

Associate professors: Annunziato Amendola (Orthopaedics and Rehabilitation/Integrative Physiology), Kelly J. Cole (Integrative Physiology/Physical Therapy), Warren G. Darling (Integrative Physiology/Physical Therapy), Gina Schatteman, Don D. Sheriff

Associate professors emeriti: Gary F. Hansen, N. Richard Hozaepfel, David K. Leslie

Assistant professors: Michel Ladouceur, Harald Stauss

Adjunct assistant professors: Jennifer L. Fagenbaum, Shawn Flanagan, Alan J. Ryan

Adjunct instructors: Jennifer L. Hartgrave, Matthew R. Doyle, Diane L. Rotello, Michael A. Shaffer

Lecturers: Ray F. Fagenbaum, Danny T. Foster

Adjunct associate: Marc Pizzimenti

Undergraduate degree: B.S. in Integrative Physiology, Athletic Training

Undergraduate nondegree program: Minor in Integrative Physiology

Graduate degrees: M.S. in Exercise Science, Ph.D. in Integrative Physiology

Web site: <http://www.uiowa.edu/~exsci>

The Department of Integrative Physiology offers undergraduate and graduate programs in integrative physiology. Graduate students may choose from five different areas of specialization for the M.S. with thesis, and from four different areas for the Ph.D. The department also offers an undergraduate major in athletic training, in conjunction with the Department of Orthopaedics and Rehabilitation in the Carver College of Medicine.

Undergraduate Programs

The Department of Integrative Physiology offers a Bachelor of Science in integrative physiology and in athletic training. It also offers a minor in integrative physiology.

Bachelor of Science in Integrative Physiology

The Bachelor of Science in integrative physiology requires 50-51 s.h. in the major. The program is designed primarily for individuals who intend to continue their education beyond the B.S. in the health professions, including medicine, dentistry, optometry, physician assistant, physical therapy, and podiatry, or for those who intend to pursue graduate degrees in basic sciences related to the health care professions.

The integrative physiology major includes study in anatomy, biomechanics, integrative physiology, neural control of movement, and the cognate areas of biology, chemistry, mathematics, physics, and statistics.

Qualifications for admission to integrative physiology include completion of the following courses, with a g.p.a. of 3.00 or higher.

002:010 Principles of Biology I 4 s.h.

004:011 Principles of Chemistry I 4 s.h.

One of these:

22M:016 Calculus for the Biological Sciences 4 s.h.

22M:025 Calculus I 4 s.h.

22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.

A more advanced calculus course

One of these:

010:001-010:002 Rhetoric I-II 8 s.h.

010:003 Accelerated Rhetoric 4 s.h.

Students also must have maintained a g.p.a. of 2.75 or higher in all course work taken at The University of Iowa.

Students denied admission to the major may reapply in a subsequent semester.

GENERAL EDUCATION COURSES

The department recommends that candidates for the B.S. in integrative physiology complete the College of Liberal Arts and Sciences General Education Program natural sciences component by taking 004:011-004:012 Principles of Chemistry I-II and 002:010 Principles of Biology I. It also recommends completing the General Education Program social sciences component with 031:001 Elementary Psychology. Transfer credit for course work in the

major requires the approval of the undergraduate academic advisor.

INTEGRATIVE PHYSIOLOGY REQUIREMENTS

All of these:

027:130 Human Physiology	3 s.h.
027:141 Exercise Physiology	3 s.h.
027:142 Exercise Physiology Laboratory	2 s.h.
027:150 Gross Anatomy for Exercise Science	2 s.h.
027:151 Gross Anatomy Lab for Exercise Science	2 s.h.
027:160 Motor Control I: Neurophysiological Basis	3 s.h.
027:197 Biomechanics of Human Motion	4 s.h.

At least three of these:

027:117 Human Growth and Motor Development	3 s.h.
027:145 Cardiovascular Physiology	3 s.h.
027:146 Molecules to Malady	3 s.h.
027:153 Embryology and Connective Tissue Anatomy	2 s.h.
027:155 Skeletal Muscle Biology	3 s.h.
027:196 Exercise Science Senior Seminar	3 s.h.
027:200 Problems	arr.
103:028 English Grammar	3 s.h.

REQUIREMENTS IN OTHER SUBJECTS (COGNATES)

Biology

Students must complete at least 8 s.h. beyond 002:010, which is a prerequisite for admission to the major and for 002:011.

002:011 Principles of Biology II	4 s.h.
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At least 4 s.h. from these:

002:108 Vertebrate Zoology	4 s.h.
002:114 Cell Biology	3 s.h.
002:124 Animal Physiology	3 s.h.
002:128 Fundamental Genetics	4 s.h.
002:143 Animal Behavior	4 s.h.
002:150 Endocrinology	3 s.h.
002:155 Cell Physiology	4 s.h.
002:180 Fundamental Neurobiology	4 s.h.
002:181 Neurophysiology	3 s.h.
061:157 General Microbiology	5 s.h.
061:164 Health Sciences Microbiology	4 s.h.
099:110 Biochemistry	3 s.h.
099:120 Biochemistry and Molecular Biology I	3 s.h.

Chemistry

Students must complete at least 4 s.h. beyond 004:011, which is prerequisite for admission to the major and for 004:012.

004:012 Principles of Chemistry II	4 s.h.
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These additional courses are highly recommended.

004:121 Organic Chemistry I	3 s.h.
004:122 Organic Chemistry II	3 s.h.
004:141 Organic Chemistry Laboratory	3 s.h.

Physics

One of these sequences:

029:011-029:012 College Physics I-II	8 s.h.
029:081-029:082 Introductory Physics I-II	8 s.h.

Statistics

At least 3 s.h. from these:

07P:143 Introduction to Statistical Methods	3 s.h.
22S:101 Biostatistics	3 s.h.
22S:102 Introduction to Statistical Methods	3 s.h.
171:161 Introduction to Biostatistics	3 s.h.

RECOMMENDED ELECTIVES

It is recommended that students choose from the following electives in order to complete the 120 s.h. required for a B.S. in the College of Liberal Arts and Sciences. Courses in biology and chemistry also are listed under "Requirements in Other Subjects (Cognates)."

Anthropology

113:190 Human Osteology	3 s.h.
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Biochemistry

099:110 Biochemistry	3 s.h.
099:120 Biochemistry and Molecular Biology I	3 s.h.
099:130 Biochemistry and Molecular Biology II	3 s.h.
099:140 Experimental Biochemistry	4 s.h.

Biology

002:108 Vertebrate Zoology	4 s.h.
002:114 Cell Biology	3 s.h.
002:124 Animal Physiology	3 s.h.
002:128 Fundamental Genetics	4 s.h.
002:143 Animal Behavior	4 s.h.
002:150 Endocrinology	3 s.h.
002:155 Cell Physiology	4 s.h.
002:180 Fundamental Neurobiology	4 s.h.
002:181 Neurophysiology	3 s.h.

Chemistry

004:111 Analytical Chemistry I	3 s.h.
004:112 Analytical Chemistry II	3 s.h.
004:121 Organic Chemistry I	3 s.h.
004:122 Organic Chemistry II	3 s.h.

004:131 Physical Chemistry 3 s.h.
 004:141 Organic Chemistry Laboratory 3 s.h.

Classics

20E:050 Word Power: Building English Vocabulary 3 s.h.
 20E:103 Medical and Technical Terminology 2 s.h.

Computer Science

06K:070 Computer Analysis 3 s.h.
 22C:001 Computer Literacy 3 s.h.
 22C:005 Introduction to Computer Science 3 s.h.
 22C:016 Computer Science I 4 s.h.
 057:017 Computers in Engineering 3 s.h.

Education

07C:185 Introduction to Substance Abuse 3 s.h.

Engineering

057:010 Dynamics 3 s.h.
 057:019 Mechanics of Deformable Bodies 3 s.h.

English

08A:015 Writing for Practical Purposes for Non-English Majors 2-3 s.h.
 08N:050 Word Power: Building English Vocabulary 3 s.h.
 08N:080 Nonfiction Writing 3 s.h.

Health and Sport Studies

028:138 Exercise Testing and Prescription 4 s.h.

Microbiology

061:157 General Microbiology 5 s.h.
 061:164 Health Sciences Microbiology 4 s.h.

Pharmacology

071:120 Drugs: Their Nature, Action, and Use 2 s.h.
 071:130 Drug Mechanisms and Actions 3 s.h.

Psychology

031:063 Abnormal Psychology: Health Professions 3 s.h.
 031:120 Research Methods in Psychology 3 s.h.
 031:126 Behavioral Neuroscience 3 s.h.
 031:128 Psychopharmacology 3 s.h.
 031:129 Neurobiology of Learning and Memory 3 s.h.
 031:152 Health Psychology 3 s.h.
 031:163 Abnormal Psychology 3 s.h.

031:173 Substance Use and Misuse in America 3 s.h.

Radiation Biology

077:103 Radiation Biology 4 s.h.

Speech Pathology and Audiology

003:116 Basic Neuroscience for Speech and Hearing 3 s.h.
 003:140 Manual Communication 1 s.h.

Bachelor of Science in Athletic Training

Athletic trainers work with physically active individuals, including athletes, to help prevent injuries, offer advice about appropriate equipment, recognize and evaluate injuries, administer emergency treatment, and determine need for specialized medical care. Athletic trainers also work as part of health care teams involved in rehabilitation after injuries sustained in sports or physical activity.

The Bachelor of Science in athletic training requires 57-58 s.h. in the major. The program provides concentrated studies and clinical experiences leading to national certification in athletic training. Employment opportunities for graduates include work as health care professionals for sports medicine clinics and hospitals. Additional education usually is required for employment with professional teams as well as for university, college, and secondary school athletic teams. Teacher certification is recommended but not required.

Students who have not formally contacted the athletic training program director before enrolling at The University of Iowa should talk to an athletic training advisor or their academic advisor upon entering the University. Early advising for course selection is vital since prerequisite courses and sequenced skill development must be completed along with general education course work. Students should begin taking prerequisites for required major courses during their first year and should complete their final prerequisites after admission to the athletic training major. For current information on rules, procedures, and curriculum, contact the athletic training program director.

PREREQUISITE FOR APPLICATION

027:096 Exploring Athletic Training 1 s.h.

PREREQUISITES FOR COURSE WORK IN THE MAJOR

Total of 37-39 s.h.

One of these:

- 002:002 Introductory Animal Biology 4 s.h.
- 002:010 Principles of Biology I 4 s.h.

One of these sequences:

- 004:007-004:008 General Chemistry I-II 6 s.h.
- 004:011-004:012 Principles of Chemistry I-II 8 s.h.

One of these:

- 029:008 Basic Physics 4 s.h.
- 029:011 College Physics I 4 s.h.

All of these:

- 07P:075 Educational Psychology and Measurement 3 s.h.
- 22S:025/07P:025 Elementary Statistics and Inference 3 s.h.
- 027:053 Human Anatomy 3 s.h.
- 027:057 Basic Athletic Training 3 s.h.
- 028:032 First Aid and CPR (or community certifications) 2 s.h.
- 028:075 Health in Everyday Life (pathology is recommended substitute) 3 s.h.
- 031:001 Elementary Psychology 3 s.h.

REQUIRED COURSE WORK IN THE MAJOR

Students complete 57-58 s.h., as follows.

One of these:

- 027:140 Exercise Physiology for Practitioners 3 s.h.
- 027:141 Exercise Physiology 3 s.h.

One of these:

- 071:120 Drugs: Their Nature, Action, and Use 2 s.h.
- 071:130 Drug Mechanisms and Actions 3 s.h.

All of these:

- 07C:199 Counseling for Related Professions 3 s.h.
- 027:036-027:037 Practicum in Athletic Training I-II 4 s.h.
- 027:090 Scientific Basis of Human Movement 3 s.h.
- 027:130 Human Physiology 3 s.h.
- 027:143 Physiology of Nutrition (or equivalent) 3 s.h.
- 027:171 Administration of Athletic Training Programs 2 s.h.
- 027:172-027:173 Clinical Sciences I-II 3 s.h.
- 027:180 Advanced Emergency Care for Athletic Trainers 2 s.h.
- 027:182-027:183 Clinical Sciences III-IV 6 s.h.
- 027:185 Clinical Sciences V 2 s.h.
- 027:186 Practicum in Athletic Training III 6 s.h.

- 027:253 Advanced Human Anatomy 6 s.h.
- 076:187 Practicum in Athletic Training IV 8 s.h.

College of Liberal Arts and Sciences students may be admitted to the athletic training major and begin clinical experience as sophomores. Applicants to the program must meet the following requirements:

at least 11 s.h. of graded college credit, including 027:096 with a grade of C or higher; course work taken pass/fail cannot be counted; and

a g.p.a. of at least 2.50 on all undergraduate course work.

Preference is given to applicants with high scholastic standing, strong writing skills, and varied athletic training and health care experience. A personal interview may be required; the athletic training program contacts applicants invited for interviews.

Fulfillment of admission requirements does not ensure admission to the athletic training major. The program selects candidates who appear to be best qualified for the study and practice of athletic training. Students denied admission to the major may reapply in a subsequent fall semester.

All students admitted to the major in athletic training are required to comply with entrance and periodic health screening history and immunization, which is coordinated through the program's medical director.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Students must be admitted to the integrative physiology or athletic training majors on schedule in order to complete a four-year graduation plan.

B.S. in Integrative Physiology

Before the third semester begins: calculus, one other course in the major, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least five more courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S. in Athletic Training

Before the third semester begins: three courses in the major and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: six courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: nine courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester: 12 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Minor

The minor in integrative physiology requires at least 15 s.h. of integrative physiology courses with a g.p.a. of 2.00 or higher. All 15 s.h. must be earned at The University of Iowa; transfer courses are not accepted. At least 12 of the 15 s.h. must be in integrative physiology courses numbered 100 and above.

The service course 027:056 First Aid and CPR does not count toward the minor, nor do the specific clinical training courses involved with the Athletic Training Program (027:036, 027:037, 027:057, 027:171, 027:172, 027:173, 027:180, 027:182, 027:183, 027:184, 027:185, and 027:186). No courses accepted toward the minor may be taken pass/nonpass.

College-level courses in mathematics, chemistry, and biological sciences usually are required as prerequisite work for integrative physiology courses. Students seeking a minor in integrative physiology should be sufficiently prepared in the supporting sciences before they take advanced courses in the department.

There is no minor in athletic training.

Graduate Programs

The Department of Integrative Physiology offers the Master of Science in exercise science, with or without thesis, and the Doctor of Philosophy in integrative physiology. Admission to the graduate program requires an undergraduate g.p.a. of 3.00 or higher.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Master of Science Without Thesis

The Master of Science without thesis for athletic training students requires a minimum of 30 s.h. of graduate credit. It is a terminal degree, designed primarily as an advanced area of study in clinical education and research for the certified athletic trainer. Emphasis is on developing and applying a base of research and education to the knowledge and skills of the entry-level athletic trainer. The program focuses on a health care team approach to sports medicine, medical care management, wellness, pediatric/adolescent health, and special health populations.

The following undergraduate course work (total of 30 s.h.) is required background for the M.S. nonthesis program in athletic training. Students must maintain a g.p.a. of 3.00 for the 30 s.h.

Anatomy:	
Human anatomy (minimum requirement)	3 s.h.
Human physiology	3 s.h.
Athletic training core:	
Prevention	3 s.h.
Evaluation and recognition	3 s.h.
Modalities and rehabilitation	3 s.h.
Administration	2 s.h.
Integrative physiology core:	
Neural control	3 s.h.
Exercise physiology	3 s.h.
Biomechanics or kinesiology	3 s.h.
Electives in related areas	3-4 s.h.
Current emergency certifications	
NATA certification	

Course Requirements

For the M.S. without thesis, athletic training students must complete 30 s.h., including at least 20 s.h. in integrative physiology. Students must

maintain a g.p.a. of 3.00 for the 30 s.h. The following courses are required.

INTEGRATIVE PHYSIOLOGY

Three of these:

- 027:141 Exercise Physiology 3 s.h.
- 027:145 Cardiovascular Physiology 3 s.h.
- 027:146 Molecules to Malady 3 s.h.
- 027:150 Gross Anatomy for Exercise Science 2 s.h.
- 027:153 Embryology and Connective Tissue Anatomy 2 s.h.
- 027:155 Skeletal Muscle Biology 3 s.h.
- 027:160 Motor Control I: Neurophysiological Basis 3 s.h.
- 027:197 Biomechanics of Human Motion 4 s.h.
- 027:253 Advanced Human Anatomy 6 s.h.

CLINICAL RESEARCH TOOLS

- 07P:243/22S:148 Intermediate Statistical Methods 4 s.h.
- An approved tools or special interest area course 2-4 s.h.

ATHLETIC TRAINING

- 027:184 Seminar in Athletic Training (taken twice) 4 s.h.
- 027:200 Problems 2 s.h.
- 027:202 Practicum in College Teaching 3 s.h.
- 027:301 Non-Thesis Seminar 2 s.h.

One of these:

- 07P:205 Design of Instruction 3 s.h.
- 069:133 Introduction to Human Pathology 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.

ELECTIVES

Maximum of 4 s.h.

Master of Science with Thesis

The Master of Science with thesis requires a minimum of 30 s.h. of graduate credit. It is designed primarily as a first step in graduate study leading to the Doctor of Philosophy. The research-oriented program introduces students to the nature and quality of research in integrative physiology and gives them an opportunity to specialize in an area of interest.

The program offers five areas of specialization: anatomy, athletic training, biomechanics, exercise and integrative physiology, and motor control.

Because the M.S. with thesis is regarded as the first step toward the Ph.D. in one of five areas of specialization, the required undergraduate

prerequisite courses depend on the area in which the candidate intends to specialize for doctoral study. Specific courses in mathematics, chemistry, physics, biology, physiology, or psychology are required in some areas of specialization. These courses must be approved by the M.S. advisor and the professor in charge of the emphasis area selected by the student.

Course Requirements

The following courses (total of 30 s.h.) are required for the M.S. with thesis.

COURSES OUTSIDE THE SPECIALIZATION AREA

Two of these:

- 027:141-027:142 Exercise Physiology/Exercise Physiology Laboratory (not for students specializing in physiology) 5 s.h.
- 027:153 Embryology and Connective Tissue Anatomy 2 s.h.
- 027:155 Skeletal Muscle Biology (not for students specializing in motor control) 3 s.h.
- 027:160 Motor Control I: Neurophysiological Basis (not for students specializing in motor control) 3 s.h.
- 027:197 Biomechanics of Human Motion (not for students specializing in biomechanics) 4 s.h.
- 027:253 Advanced Human Anatomy (not for students specializing in anatomy or athletic training) 6 s.h.

CORE COURSE REQUIREMENT

One of these:

- 22S:101 Biostatistics 3 s.h.
- 22S:102 Introduction to Statistical Methods 3 s.h.

SPECIALIZATION AREA COURSES

- 027:404 Thesis: M.S. 4 s.h.
- Specialization courses approved by advisor 5-7 s.h.
- Electives 5-6 s.h.

Doctor of Philosophy

The Doctor of Philosophy in integrative physiology requires a minimum of 72 s.h. of graduate credit. Ph.D. students should have a strong background in the natural sciences, a working knowledge of statistics and research methodology, and a specific interest in at least one area of specialization in the department. Students can acquire additional knowledge of statistics and research methodology after entering the program.

The program offers four specialization areas: anatomy, biomechanics, integrative physiology, and neural control related to human motion.

All Ph.D. students must complete a dissertation in their specialization area. They are expected to submit an appropriate manuscript of the dissertation to a refereed professional journal for publication.

Many of the courses in the specialization areas are offered by departments other than integrative physiology. Faculty members from these departments frequently serve on comprehensive examination committees and on dissertation committees for the initial presentation of a candidate's prospectus. They also participate in the final oral examination.

GENERAL REQUIREMENTS

Ph.D. students must fulfill the following requirements.

At least 10 s.h. of independent research, exclusive of the thesis requirement

At least 72 s.h. of graduate credit beyond the B.A. or B.S.

CORE COURSE REQUIREMENTS

Two approved courses in statistics	6 s.h.
027:201 Research (10 s.h. minimum)	10 s.h.
027:202 Practicum in College Teaching (2 s.h. minimum)	2 s.h.
027:405 Thesis: Ph.D.	12 s.h.
650:270 Responsible Conduct in Research	1 s.h.

SCIENTIFIC AREA COURSES

In order to ensure that integrative physiology Ph.D. students obtain a breadth of knowledge over the key scientific areas that constitute the basis of the major, each student must complete at least one course in each of the areas of specialization. This requirement may be met by transfer credit if approved by the student's advisor. The areas of specialization are anatomy, biomechanics, exercise physiology, and motor control.

Specializations

Candidates are expected to obtain a broad knowledge base within their area of specialization. This normally entails approximately 30 s.h. of course work. The following courses are recommended choices for each area of specialization.

ANATOMY

002:128 Fundamental Genetics	4 s.h.
002:150 Endocrinology	3 s.h.
027:153 Embryology and Connective Tissue Anatomy	2 s.h.
027:155 Skeletal Muscle Biology	3 s.h.
027:253 Advanced Human Anatomy	6 s.h.
060:205 General Histology for Graduate Students or equivalent	4 s.h.
060:234 Medical Neuroscience	4 s.h.
077:103 Radiation Biology	4 s.h.
099:110 Biochemistry	3 s.h.
099:120 Biochemistry and Molecular Biology I	3 s.h.
099:130 Biochemistry and Molecular Biology II	3 s.h.
101:295 Applied Electromyography	3 s.h.
142:220 Mechanisms of Cellular Organization	3 s.h.
142:225 Mechanisms of Cell Growth and Development	3 s.h.
One of these:	
003:219 Fundamentals of Laboratory Instrumentation	3 s.h.
101:212 Biomedical Instrumentation and Measurement	4 s.h.

BIOMECHANICS

027:253 Advanced Human Anatomy	6 s.h.
057:019 Mechanics of Deformable Bodies	3 s.h.
057:020 Fluid Mechanics	4 s.h.
101:212 Biomedical Instrumentation and Measurement	4 s.h.
101:295 Applied Electromyography	3 s.h.
171:162 Design and Analysis of Biomedical Studies	3 s.h.

EXERCISE AND INTEGRATIVE PHYSIOLOGY

002:128 Fundamental Genetics	4 s.h.
002:150 Endocrinology	3 s.h.
027:141 Exercise Physiology	3 s.h.
027:142 Exercise Physiology Laboratory	2 s.h.
027:145 Cardiovascular Physiology	3 s.h.
027:146 Molecules to Malady	3 s.h.
027:241 Integrative Physiology Seminar	1 s.h.
027:253 Advanced Human Anatomy	6 s.h.
050:240 Human Organ Systems	8 s.h.
060:204 Survival Skills for a Research Career	1 s.h.
060:205 General Histology for Graduate Students	4 s.h.
071:130 Drug Mechanisms and Actions	3 s.h.
072:153 Graduate Physiology	4 s.h.
077:103 Radiation Biology	4 s.h.
077:222 Free Radicals in Biology and Medicine	4 s.h.

099:110 Biochemistry	3 s.h.
099:120 Biochemistry and Molecular Biology I	3 s.h.
099:130 Biochemistry and Molecular Biology II	3 s.h.
099:140 Experimental Biochemistry	4 s.h.

NEURAL CONTROL OF MOVEMENT

027:155 Skeletal Muscle Biology	3 s.h.
027:160 Motor Control I	3 s.h.
027:197 Biomechanics of Human Motion	4 s.h.
027:253 Advanced Human Anatomy	6 s.h.
027:314 Seminar in Motor Control	2 s.h.
051:150 Musculoskeletal Biomechanics	3 s.h.
057:019 Mechanics of Deformable Bodies	3 s.h.
060:234 Medical Neuroscience	4 s.h.
101:212 Biomedical Instrumentation and Measurement	4 s.h.
101:275 Analysis of Sensori-Motor Systems in Health and Disease	3 s.h.
101:285 Biomechanical Analysis in Rehabilitation	arr.
101:295 Applied Electromyography	3 s.h.

Courses chosen from the following areas:
 computer science, neuroscience,
 anatomy, exercise physiology,
 psychology

Admission

Admission to the Ph.D. program is based on the applicant's grade-point average on work completed for the B.S. and M.S. and on his or her score on the Graduate Record Examination (GRE) General Test. To be considered for admission, applicants must have earned a g.p.a. of 3.00 or higher on all graduate work.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Deadlines for admission applications are October 15, March 15, and May 15; notification is made approximately two months after the respective application deadline.

Facilities

Classroom and research laboratories for anatomy, biomechanics, exercise physiology, and motor control are located in the Field House and in other buildings on campus. They provide excellent facilities for instruction and research at both the undergraduate and graduate levels.

Cooperative efforts with other departments facilitate specialization by allowing integrative physiology students to use additional special facilities and research equipment in other departments on campus (e.g., biology, biochemistry, orthopaedic surgery, internal medicine, pharmacology, physiology and biophysics, and the College of Engineering).

Courses

Primarily for Undergraduates

027:036 Practicum in Athletic Training I	2 s.h.
Basic clinical skill instruction, evaluation, and integration for athletic trainers. Prerequisite: athletic training major.	
027:037 Practicum in Athletic Training II	2 s.h.
Integration of basic physical skills and orientation to traditional settings; clinical experience for first-year students arranged through the athletic training program. Prerequisite: grade of C or higher in 027:036.	
027:053 Human Anatomy	3 s.h.
General human anatomy covering most systems of the body. GE: natural sciences.	
027:056 First Aid and CPR	2 s.h.
American Red Cross certification: basic first aid, CPR procedures.	
027:057 Basic Athletic Training	3 s.h.
Basic pathology, epidemiology, materials biology for prevention and immediate care of athletic injuries.	
027:090 Scientific Basis of Human Movement	3 s.h.
Survey of scientific principles that underlie human movement; emphasis on biomechanical and physiological contributions.	
027:096 Exploring Athletic Training	arr.
027:117 Human Growth and Motor Development	3 s.h.
Human growth and biological maturation; focus on motor development from birth through puberty. Offered fall semesters. Recommended: anatomy, human physiology, or animal biology course.	
027:198 Honors Research I	2 s.h.
Research for honors thesis; selection of faculty mentor, preparation of research proposal, written and oral presentations of research proposal, literature review, participation in experiments designed to develop laboratory skills for research; first of a two-semester sequence. Prerequisite: honors standing.	
027:199 Honors Research II	3 s.h.
Completion of honors research begun in 027:198, analysis of data, writing and oral presentation of honors thesis; second of a two-semester sequence. Prerequisites: honors standing and grade of B or higher in 027:198.	

For Undergraduate and Graduate Students

027:130 Human Physiology	3 s.h.
Organ system approach to physiology, with focus on normal function of the human body; information on all levels of integration, from submolecular to whole organism, with emphasis on how the intact organism functions. GE: natural sciences.	

027:140 Exercise Physiology for Practitioners 3 s.h.
Effects of acute and chronic exercise on different physiological systems (energy, respiratory, circulatory, endocrine); fitness evaluation, weight-control strategies, training programs; preparation for ACSM Fitness Instructor Certification. Offered fall semesters and summer sessions. Recommended: human physiology course.

027:141 Exercise Physiology 3 s.h.
Mechanisms responsible for the acute and chronic effects of exercise on the different organ systems of the body. Offered fall semesters. Prerequisite: 027:130 or 072:150 or equivalent.

027:142 Exercise Physiology Laboratory 2 s.h.
Supplements 027:141; principles of scientific investigation used to demonstrate acute and chronic effects of exercise. Prerequisite: consent of instructor.

027:143 Physiology of Nutrition 3 s.h.
Metabolic and biological aspects of human energy production, relationship to energy consumption; systems or integrative approach.

027:145 Cardiovascular Physiology 3 s.h.
Structure and function of cardiovascular system; heart, microcirculation, hemodynamics, regional circulation, reflex integration, regulation during physical stress. Prerequisite: 027:130 or equivalent. Recommended: calculus and physics.

027:146 Molecules to Malady 3 s.h.
Changes in single molecules that lead to systemic physiological alterations in mammals; relationship of these changes to development, aging, exercise, and specific diseases; current methodologies for studying mammalian genetics and physiology. Prerequisite: 027:130 or equivalent.

027:150 Gross Anatomy for Exercise Science 2 s.h.
Major systems of the body with emphasis on the nervous, muscular, connective tissue systems related to movement. Offered fall semesters. Prerequisite: integrative physiology major.

027:151 Gross Anatomy Lab for Exercise Science 2 s.h.
Major systems of the body with emphasis on nervous, cardiovascular, muscular systems related to movement. Offered fall semesters. Prerequisite: integrative physiology major.

027:153 Embryology and Connective Tissue Anatomy 2 s.h.
Structure, growth, and development of connective, muscular, nerve tissues from embryologic to adult stages; specific joints, their structure and movements. Offered spring semesters.

027:155 Skeletal Muscle Biology 3 s.h.
Skeletal muscle structure, contractile mechanisms, production of movement, biomechanical properties; adaptation to increased use, disuse, injury. Offered spring semesters.

027:160 Motor Control I: Neurophysiological Basis 3 s.h.
Neuroanatomical and neurophysiological bases of human motor control; mechanisms for locomotion and posture, control of arm and hand movements, role of sensory information. Offered spring semesters. Prerequisite: anatomy or human physiology course.

027:171 Administration of Athletic Training Programs 2 s.h.
Health care supervision, professional athletic training responsibilities, philosophies in athletic health care. Offered fall semesters. Prerequisite: 027:057.

027:172 Clinical Sciences I 2 s.h.
Theoretical knowledge base in therapeutic modalities. Offered spring semesters. Prerequisite: grade of C or higher in 027:036.

027:173 Clinical Sciences II 1 s.h.
Palpation, ROM, strength and stretching orientation for musculoskeletal evaluation. Offered summer sessions. Prerequisites: 027:172 and athletic training major.

027:180 Advanced Emergency Care for Athletic Trainers 1-2 s.h.
Coordinated initial professional emergency response certifications for athletic trainers; recertification for those holding valid certifications. Prerequisites: Red Cross First Aid and CPR certifications, or consent of instructor.

027:182 Clinical Sciences III 3 s.h.
Theoretical and practical skill development in the areas of musculoskeletal evaluation. Offered fall semesters. Prerequisites: 027:173 and athletic training major.

027:183 Clinical Sciences IV 3 s.h.
Continuation of musculoskeletal evaluation, completion of EENT, chest, abdomen, and dermatologic evaluation; integration of rehabilitation programs. Offered spring semesters. Prerequisite: grade of C or higher in 027:182.

027:184 Seminar in Athletic Training 1-4 s.h.
Sports medicine conference topics. Offered fall and spring semesters. Prerequisite: graduate standing.

027:185 Clinical Sciences V: Rehabilitation 2 s.h.
Rehabilitation for athletic trainers based on the theory and principles of therapeutic exercise; application of current research concepts. Prerequisites: 027:172 and athletic training major. Corequisite: 027:182.

027:186 Practicum in Athletic Training III 3 s.h.
Advanced clinical skill instruction, evaluation, and integration for athletic trainers. Prerequisite: grade of C or higher in 027:037.

027:196 Exercise Science Senior Seminar 2-3 s.h.
Independent library or laboratory research in one of four areas of specialization (anatomy, biomechanics, exercise physiology, or motor control); oral and written presentation of results. Offered fall and spring semesters. Prerequisite: integrative physiology major.

027:197 Biomechanics of Human Motion 4 s.h.
Application of the principles of mechanics to investigation of human motion in two dimensions; system modeling, force system and equilibrium analysis, particle and rigid body kinematics, Newton's and Euler's equations of motion, work-energy and impulse-momentum integral principles. Offered spring semesters.

Primarily for Graduate Students

027:200 Problems arr.
Repeatable. Prerequisite: consent of instructor.

027:201 Research arr.
Repeatable. Prerequisite: consent of instructor.

027:202 Practicum in College Teaching arr.
Prerequisite: consent of instructor.

027:241 Integrative Physiology Seminar 1 s.h.
Current topics in cardiovascular physiology, vascular biology, free radical biology. Repeatable.

027:253 Advanced Human Anatomy 6 s.h.
Offered summer sessions.

027:301 Non-Thesis Seminar 2 s.h.
For candidates for the M.S. without thesis. Offered spring semesters.

027:314 Seminar in Motor Control arr.
Repeatable.

027:404 Thesis: M.S. 0-4 s.h.
Repeatable.

027:405 Thesis: Ph.D. arr.
Repeatable.

Interdepartmental Studies

Program coordinator: David Gould
Undergraduate degree: B.A. in Interdepartmental Studies
Web site: <http://www.uiowa.edu/~interdep/>

The Interdepartmental Studies Program (ISP) offers a Bachelor of Arts designed to provide an alternative to traditional undergraduate majors. The interdepartmental studies major includes course work from a variety of departments.

Bachelor of Arts

The Bachelor of Arts in interdepartmental studies requires a minimum of 120 s.h. and has two tracks. Track one offers a choice of preapproved interdepartmental study plans; track two requires that students design their own study plan and gain approval for it. See “Track One” and “Track Two” below.

The interdepartmental studies major is undergoing revision. Visit the Interdepartmental Studies Program web site for information about rules and requirements for the major.

Track One

Track one of the interdepartmental studies major offers students a choice of preapproved study plans that focus on health science, business, and communication. Each study plan provides emphasis options in areas such as health counseling, financial aspects of health care, writing, consumer behavior, and entertainment. Students who choose track one of the interdepartmental studies major are advised at the Academic Advising Center. Contact the center for information about track one requirements.

Track Two

Students who choose track two build their own study plan, creating a unique major that speaks to interests across departments and that integrates varied approaches to a particular topic (e.g., aging studies, technical writing, urban studies).

GUIDELINES FOR TRACK TWO STUDY PLAN

Track two students must submit their study plan for approval. The plan must include:

an essay (no more than five pages) that includes a clear statement of the area of intellectual focus; the reasons for preferring the ISP to any departmental program; a concrete discussion of how the advanced courses relate to each other; to personal interests, and to the central focus of the plan of study; and a description of academic goals for the bachelor's degree; and

a list of advanced-level course work already completed and advanced-level course work planned for all remaining semesters.

Each plan of study is approved by a committee that may include the ISP coordinator and the faculty advisory committee. Reviews are held as needed.

If the committee does not grant approval, the plan of study may be returned to the student for revisions and resubmission at the next committee meeting. In some cases, the student may be referred to an appropriate departmental major.

Students are required to take the courses approved in the plan of study. A limited number of substitutions may be allowed, but only if they are clearly consistent with the area of intellectual focus in the approved plan of study and only if they are approved in advance by the ISP advisor. Unauthorized substitutions may be designated as elective course work.

Significant changes in the focus of a student's plan of study require the submission and approval of a revised plan of study. The student's academic advisor determines whether changes warrant a revised plan.

See the Interdepartmental Studies Program web site for up-to-date information on track two and rules for submitting the study plan.

Students who choose track two of the interdepartmental studies major are advised by the Interdepartmental Studies Program coordinator and work closely with the Interdepartmental Studies Program office while designing the study plan. Students who plan to submit a study plan for track two should contact the Interdepartmental Studies Program coordinator as early as possible.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major.)

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least one-half of the semester hours required for graduation

Before the seventh semester begins: an approved plan of study, at least six courses in the plan of study, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: a total of at least nine courses in the plan of study

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Interdepartmental studies students qualify for membership in the University Honors Program by maintaining a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Graduating with honors usually includes the successful completion of the honors requirements in a particular department or program.

Students should initiate inquiries about graduating with honors by contacting the ISP coordinator. Students are encouraged to inquire early in their junior year to allow time for foundation course work. The director of the Honors Program can offer suggestions for contacting a supervising faculty member or committee from one or several appropriate departments. Because the ISP exists outside traditional departmental structures, students must submit an honors project approval form to the ISP coordinator and the honors program director.

Double Major

Interdepartmental studies students may earn a second major, but the focus represented by each major should be distinct and separate. Consult an advisor for requirements.

Simultaneous Degrees

Interdepartmental studies students may earn a second degree (see "Simultaneous Degrees" in the CLAS Student Academic Handbook).

Certificates

Interdepartmental studies students may earn certificates in other programs, departments, or colleges. The same course may be used to meet the requirements of both the major in interdepartmental studies and the certificate program.

Minor

The Interdepartmental Studies Program does not offer a minor. Interdepartmental studies students may earn minors in other programs, departments, or colleges. Courses used to meet the requirements of a minor may not be used to complete the interdepartmental studies major.

Career Considerations

Since the B.A. in interdepartmental studies affords opportunities outside the traditional degree pattern, students must create programs of study that meet their individual educational and career objectives. Those who plan to seek employment immediately after graduation should familiarize themselves with the educational background and qualifications required by employers and should include appropriate courses in their programs of study.

Students preparing for advanced study should become familiar with the admissions requirements of graduate or professional schools that interest them. The earlier students decide to pursue graduate or professional study, the easier it is to complete necessary prerequisites.

Courses

145:125 Contemporary Nutrition	3 s.h.
145:130 Coaching for Health and Wellness	3 s.h.
145:198 Independent Study	arr.
Individual study of issues or topics related to a specific interdepartmental focus chosen by the student.	
145:199 Interdepartmental Studies Practicum	arr.
Opportunity to relate a student's chosen area of study to practical application.	

Division of Interdisciplinary Programs

Director: Lauren Rabinovitz (American Studies/Communication Studies)

The College of Liberal Arts and Sciences has long recognized that research and learning cannot always be contained within one discipline and that interactions between experts in different disciplines benefit researchers and students alike. One locus of interdisciplinary activity in the college is the Division of Interdisciplinary Programs. The division provides a structure that facilitates teaching, research, and service that cut across established boundaries.

The division provides an administrative umbrella for several of the college's programs. The Program in Literature, Science, and the Arts and the Leisure Studies Program offer undergraduate majors. The Aging Studies, American Indian and Native Studies, Medieval Studies, and Sexuality Studies Programs offer certificates and, in some cases, minors.

Located in the Jefferson Building, the Division of Interdisciplinary Programs provides a home for its constituent programs and centralizes administrative activities. The division home facilitates access to academic advising for students and administrative support for faculty members.

Leisure Studies

Director of Interdisciplinary Programs:

Lauren Rabinovitz

Academic coordinator: Kenneth Mobily**Professors:** Benjamin K. Hunnicutt (Leisure Studies/Literature, Science, and the Arts), Richard D. MacNeil (Leisure Studies/Aging Studies), Kenneth E. Mobily (Leisure Studies/Exercise Science), Michael L. Teague (Leisure Studies/Community and Behavioral Health)**Professor emeritus:** John A. Nesbitt**Adjunct instructors:** Wayne Fett, David Gould, Michael Moran, Kathy Walter**Undergraduate degree:** B.S. in Leisure Studies**Undergraduate nondegree program:** Minor in Leisure Studies**Graduate degree:** M.A. in Leisure Studies**Web site:** <http://www.uiowa.edu/interdi/leisure/>

Leisure plays an important role in all of our lives. The Leisure Studies Program contributes to the education of students in the College of Liberal Arts and Sciences by providing opportunities to study the phenomenon of leisure. In courses offered by leisure studies, students learn how to use their unobligated—or free—time to enhance the quality of their lives. The program also provides professional preparation for careers in the expanding fields of therapeutic recreation and recreational sport management.

The Leisure Studies Program offers courses that students may use to complete the General Education Program, including courses approved in the humanities area and in the social sciences area.

The undergraduate and graduate programs offered in leisure studies prepare professionals to work in community, commercial, campus, and therapeutic recreation settings. The populations served by recreation professionals include the general public; students, colleges, and universities; and persons with disabilities or chronic conditions.

Undergraduate Program

Bachelor of Science

The Bachelor of Science in leisure studies requires 53 s.h. in the major. Its emphasis is therapeutic recreation.

Therapeutic recreation is a rapidly growing, health-oriented field in recreation and leisure services professions. It involves the use of recreation services to improve or maintain the physical, mental, emotional, and/or social functioning of persons with disabilities and/or special needs. Therapeutic recreation also helps individuals pursue meaningful lifestyles. Graduates are eligible to sit for the national certification examination in therapeutic recreation. Typically, graduates find employment in clinical or community settings.

Comprehensive therapeutic recreation services involve a continuum of care, including treatment that uses activities to remediate or rehabilitate functional disabilities; leisure education that uses instruction to help individuals acquire skills, knowledge, and attitudes that facilitate an independent lifestyle and avocational competence; and recreation that uses activities to enhance health, growth, development, and independence through intrinsically rewarding leisure behavior.

Populations most commonly served by certified therapeutic recreation specialists include persons with physical, cognitive, emotional, or developmental disabilities, and adults who are incarcerated, chemically dependent, or socially disadvantaged. Therapeutic recreation professionals are commonly employed in settings such as skilled nursing facilities, community recreation departments, state and community mental health institutions, general medical hospitals, physical rehabilitation centers, special recreation districts, correctional facilities, senior citizens' community-based programs, facilities for the mentally delayed, facilities for the emotionally disturbed, and substance-abuse programs.

The U.S. Department of Labor's Bureau of Labor Statistics recently projected that employment in the field of therapeutic recreation is expected to

grow faster than average. This growth is caused by the expansion of physical and psychiatric rehabilitation and services in long-term care settings, including nursing homes, retirement communities, community-based therapeutic recreation, and adult day care programs.

Students interested in leisure studies often begin by taking one of the program's courses approved for the General Education Program. Students can indicate their interest in leisure studies when they are admitted to The University of Iowa or any time after that, but application and admission to the major is required. To be admitted to the therapeutic recreation emphasis, students must complete a minimum of 24 s.h. at The University of Iowa, including the following.

All of these:

- 07P:025 Elementary Statistics and Inference (or 07P:143, 22M:015, 22M:016, 22S:002, 22S:008, 22S:025, or 22S:102) 3 s.h.
- 027:053 Human Anatomy 3 s.h.
- 031:001 Elementary Psychology (or an equivalent or more advanced course addressing the same content areas) 3 s.h.

One of these:

- 034:001 Introduction to Sociology: Principles 3-4 s.h.
- 034:020 Principles of Social Psychology 3-4 s.h.

Students must have a g.p.a. of at least 2.50 for all University of Iowa course work and a cumulative g.p.a. of at least 2.50.

Transfer students must meet the same requirements (including the same sociology, statistics, anatomy, and psychology courses), except that they must have completed a minimum of 12 s.h. at The University of Iowa.

Students who have a University of Iowa or cumulative g.p.a. lower than 2.50 may apply for exceptional admission.

For application forms, visit the Leisure Studies Program web site or contact the Division of Interdisciplinary Programs. Applications must be completed and submitted for consideration to the department's therapeutic recreation admissions committee by October 15 for admission the following spring semester or by March 15 for consideration for admission the following fall semester. Once admitted, students should plan on a course of study of about two years.

In addition to courses required for admission to the program, students must complete the following course work.

Therapeutic Recreation Foundation

These courses are required (22 s.h.).

- 169:060 Leisure in Contemporary Society 3 s.h.
- 169:061 Recreation Leadership and Programming 4 s.h.
- 169:150 Recreation Administration 3 s.h.
- 169:160 Introduction to Therapeutic Recreation 3 s.h.
- 169:162 Therapeutic Recreation: Clientele 3 s.h.
- 169:163 Concepts and Issues in Therapeutic Recreation 3 s.h.
- 169:164 Therapeutic Recreation: Rehabilitation 3 s.h.

Therapeutic Recreation Electives

Students must complete 18 s.h. of electives chosen from these.

- 031:063 Abnormal Psychology: Health Professions 3 s.h.
- or
- 031:163 Abnormal Psychology 3 s.h.
- 027:053 Human Anatomy 3 s.h.
- 096:030 Human Development and Behavior 3 s.h.
- Courses in human services (i.e., aging studies, psychology, sociology, social work, special education, counselor education) 9 s.h.

Internship

Students must complete both of these (13 s.h.).

- 169:190 Preinternship Seminar 1 s.h.
- 169:191 Internship I 12 s.h.

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available for the B.S. in leisure studies. Students are encouraged to work with their advisors to develop an individual graduation plan.

Honors

The honors program is designed for superior students. It gives participants some research experience and a perspective on some aspects of graduate study. To be eligible for honors, students must maintain a cumulative University of Iowa g.p.a. of at least 3.33. For honors program application forms, contact the Leisure Studies Program.

To qualify for a degree with honors in leisure studies, students must successfully complete 169:194 Honors Readings and 169:195 Honors

Problems, for which they must complete a reading or research project under the supervision of a leisure studies faculty member and write a paper summarizing the project's results. Honor students also must maintain a cumulative University of Iowa g.p.a. of at least 3.33 throughout the rest of their degree work.

Contact the University Honors Program for more information about honors study at Iowa.

Minor

Students who wish to minor in leisure studies must complete at least 15 s.h. in leisure studies with a g.p.a. of at least 2.00. Of the 15 s.h., 12 must be taken in advanced (100-level) courses at The University of Iowa. Students choose courses according to their interests and the recommendations of the leisure studies coordinator. No courses accepted toward the minor may be taken pass/nonpass.

Graduate Program

The department offers a Master of Arts in leisure studies. Undergraduate preparation in leisure studies is not required for successful completion of the graduate program; indeed, students from diverse backgrounds are encouraged to apply. However, students may need to fulfill prerequisites specific to their specialization areas.

Master of Arts

The Master of Arts in leisure studies requires a minimum of 33 s.h. of graduate credit with thesis, or 36 s.h. of graduate credit without thesis. Students choose one of two specialization areas: therapeutic recreation or recreational sport management. All M.A. students must complete a common group of core courses and work in their specialization area.

CORE REQUIREMENTS

All M.A. students must take these courses.

07P:143 Introduction to Statistical Methods	3 s.h.
169:200 Historical and Philosophical Perspectives on Leisure	3 s.h.
169:205 Research Methods and Leisure Behavior	3 s.h.
169:301 Research Colloquium in Leisure Studies	3 s.h.

Specialization Areas

THERAPEUTIC RECREATION

The therapeutic recreation emphasis prepares students to meet the challenges of outpatient- and community-based health care service delivery. The program stresses research and business skills that will enable graduates to find the best jobs in the field.

Therapeutic recreation specialists are increasingly called upon to deliver preventive outpatient services, such as programs designed to prevent secondary impairments in persons with disabilities (e.g., arthritis exercise to manage pain, fall prevention for older adults); education for individuals with negative lifestyle habits (e.g., smoking, substance abuse); programs designed to restore meaning and purpose to life following traumatic events (e.g., following a spinal cord injury); and initiatives to help communities and businesses make services accessible to persons with disabilities.

Iowa's therapeutic recreation program emphasizes business skills and innovation in delivery of services. Economics and Financing (169:252) and classes in entrepreneurship and new business formation prepare students to enter the workforce ready to build therapeutic recreation businesses that are self-supporting or profitable.

Students also acquire research skills that they can apply directly to therapeutic recreation practice, for example, to assess the effectiveness of specific interventions or the demand for varied services among older adults in a community.

In addition to the M.A. common core requirements (above), therapeutic recreation emphasis students must complete the following.

169:163 Concepts and Issues in Therapeutic Recreation	3 s.h.
169:252 Economics and Financing	3 s.h.
169:262 Procedures in Therapeutic Recreation	3 s.h.
Cognate area courses (entrepreneurship in therapeutic recreation)	10 s.h.

Nonthesis students also take an additional 6 s.h. of electives; thesis students complete 6 s.h. of 169:398 M.A.: Thesis.

Therapeutic recreation students must complete a practicum (169:289 Graduate Practicum in Therapeutic Recreation) to sit for the National Certification Examination.

RECREATIONAL SPORT MANAGEMENT

The recreational sport management emphasis prepares students for positions in public and private recreation and sport management. Students typically find employment in community or municipal recreation programs, campus recreation programs, or commercial recreation and sport operations.

In addition to the M.A. common core requirements (above), recreational sports management emphasis students must complete the following.

- 169:151 Risk Management 3 s.h.
- 169:250 Seminar in Recreation Management 3 s.h.
- 169:252 Economics and Financing 3 s.h.
- Cognate area courses (business, communications, or cultural studies) 6-9 s.h.

Nonthesis students also take an additional 6 s.h. of electives; thesis students complete 6 s.h. of 169:398 M.A.: Thesis.

Internships

Internships, available in several areas, are strongly recommended for graduate students.

Certification Examination

M.A. students specializing in therapeutic recreation or in recreational sport management are eligible to take professional certification examinations. Consult a graduate advisor for guidance toward professional certification.

Assistantships

The program offers a limited number of teaching assistantships; applications should be made directly to the leisure studies academic coordinator. Teaching assistants support General Education Program courses offered by the Leisure Studies Program.

Courses

- 169:029 First-Year Seminar** 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.
- 169:040 The Good Society** 3 s.h.
Same as 033:040.
- 169:045 Health for Living** 3 s.h.
Personal health strategies; focus on disease prevention, wellness. GE: health and physical activity.

- 169:050 Making Choices: Interdisciplinary Perspectives** 3 s.h.
GE: humanities. Same as 033:050.

- 169:060 Leisure in Contemporary Society** 3 s.h.
Basic philosophical, historical, scientific foundations and developments; function, settings of organized recreation.

- 169:061 Recreation Leadership and Programming** 4 s.h.
Leadership principles, techniques; programming techniques.

- 169:070 Perspectives on Leisure and Play** 3 s.h.
Relationships between leisure and economics, sociology, other social sciences; effect of leisure on individual and group behavior; antecedents, motives, consequences of leisure behavior. GE: social sciences.

- 169:072 Leisure and the Liberal Arts** 3 s.h.
Integration of the ideal of a liberal education with worthy, meaningful use of free time in contemporary society; classic writings in the humanities. GE: humanities.

- 169:075 The Politics of Women's Leisure** 3 s.h.
Politics of women's leisure viewed through sociological concepts of agency and constraint and theoretical perspectives of hegemony and feminist theories; gender differences in leisure choices, politics of housework, mothering and childlessness, fitness and sport, beauty and appearance, emotional labor and relationships, media and popular culture as vehicles for discussion and analysis; how race, sexual preference, age, and socioeconomic status affect women's attitudes and choice of work and leisure pursuits.

- 169:076 Culture and Community in Human Services** 3 s.h.
Roles played by culture and community in human services; aspects of culture and community-based perspectives, including race, ethnicity, gender, class, sexuality, religion; disproportionate influence that particular cultures and communities exert on the structures of society.

- 169:077 Introduction to Child Life Therapy** 3 s.h.
Orientation to the field of child life therapy including services for hospitalized children and their families.

- 169:080 Introduction to Place Studies** 3 s.h.
Same as 033:080.

- 169:102 Introduction to Museology** 3 s.h.
GE: humanities. Same as 075:112, 024:102, 097:115, 113:103.

- 169:108 Basic Aspects of Aging** 3 s.h.
Social, psychological, and biological aspects of aging; focus on demographics of aging, health, economic issues, primary relationships, social services. Same as 042:108, 096:108, 153:108.

- 169:128 Environmental Issues in Recreation** 1-4 s.h.
Issues related to outdoor recreation behavior, management; issues vis-à-vis ecosystem concept.

- 169:142 Health Promotion in the Workplace Setting** 3 s.h.
Management and organizational theories; assessment, planning, implementation, and evaluation of clinical and workplace (targeted) health promotion programs.

- 169:146 Health Promotion for Older Adults** 3 s.h.
Problems, strategic efforts toward long-term goal of health promotion; disease prevention; slowing the decline caused by chronic conditions to extend independent, rewarding lives. Same as 096:146, 153:146.

- 169:148 Personal Training Management** 3 s.h.
Basics of personal training, including establishing a personal training business, screening, and assessing clients; current issues and certifications.

169:150 Recreation Administration	3 s.h.	169:200 Historical and Philosophical Perspectives on Leisure	3 s.h.
Personnel, finance, budgets, liability, marketing.		Historical and philosophical origins of leisure studies; historical issues related to leisure ideas, such as shorter hours, share-the-work, utopian vision of a better society.	
169:151 Risk Management	3 s.h.	169:205 Research Methods and Leisure Behavior	3 s.h.
Legal knowledge necessary for effective management of sport, recreation, and physical activity programs, avoidance of legal problems; strategies for addressing issues such as right to participate, liability for injuries, risk management; legal statutes that govern sport, health, recreation organizations.		The scientific process: research designs for experiments and surveys, questionnaire construction, sampling theory, basic data analysis.	
169:155 Camp Administration	3 s.h.	169:250 Seminar in Recreation Management	3 s.h.
Basics of camp administration; risk management, programming, general standards set by the American Camping Association.		The sport/leisure industry and product characteristics of nonprofit, private/commercial, and public organizations; participant and spectator consumer behavior; fundamentals of market research in sport/leisure organizations.	
169:156 Design of Recreation Facilities	3 s.h.	169:252 Economics and Financing	3 s.h.
Horticulture, floriculture, landscape design, agronomy, turf management; their relation to planning and design of recreation and park areas and facilities.		Economic issues for sport/leisure services in nonprofit, private/commercial, and public sectors; strategic financial analysis for the nonfinancial manager; principles, issues in financing sport/leisure organizations.	
169:160 Introduction to Therapeutic Recreation	3 s.h.	169:262 Procedures in Therapeutic Recreation	3 s.h.
Lifestyles and barriers faced by persons with disabilities; basic aspects of the therapeutic recreation profession; skills used to establish therapeutic relationship; techniques used with patients; theoretical and conceptual bases for practice.		Application of business and research principles to therapeutic recreation practice and program administration. Prerequisite: consent of instructor.	
169:162 Therapeutic Recreation: Clientele	3 s.h.	169:264 Therapeutic Recreation: Services	3 s.h.
Developmental patterns of special populations; examination of specific interventions and research applied to specific cognitive, emotional, and physical impairments. Prerequisite: 169:160.		Initiation, improvement, expansion of therapeutic recreation service for disabled persons; practice in program evaluation procedures; parallel practices in related fields. Prerequisite: consent of instructor.	
169:163 Concepts and Issues in Therapeutic Recreation	3 s.h.	169:289 Graduate Practicum in Therapeutic Recreation	3-9 s.h.
Ethical, professional, and theoretical issues in delivery of therapeutic recreation services; impact of legislation, standards of practice, health care reform; application of research to practice and marketing services. Prerequisite: 169:160.		Field placement with a therapeutic recreation service delivery agency; meets NCTRC certification standards. Prerequisite: 169:160 or equivalent. Corequisites: 169:163 and 169:164.	
169:164 Therapeutic Recreation: Rehabilitation	3 s.h.	169:290 Graduate Internship	3-9 s.h.
In-depth review of therapeutic recreation techniques used in clinical and community rehabilitation; opportunities to use techniques with patients. Prerequisite: 169:160.		Prerequisite: consent of instructor.	
169:168 Aging and Leisure	3 s.h.	169:291 Problems	arr.
Status of the well elderly in relation to retirement issues, use of free time, and factors that support leisure activity; leisure services in long-term care. Same as 153:168.		Prerequisite: consent of instructor.	
169:173 Work and Leisure in American Culture	3 s.h.	169:299 Graduate Research Problems	arr.
Methods and insights of American studies and leisure studies applied to work/leisure relationship in American life; patterns and perceptions of work and leisure, leisure's share and potential; changing American values.		Prerequisite: consent of instructor.	
169:180 Practicum in Therapeutic Recreation	1 s.h.	169:301 Research Colloquium in Leisure Studies	3 s.h.
Participation in a weekend respite care camp for people with varied disabilities and illnesses; hands-on care and provision of activities. Prerequisite: 169:160.		Current faculty research; individual work with faculty members on projects that will be presented in class.	
169:190 Preinternship Seminar	1 s.h.	169:398 M.A.: Thesis	1-6 s.h.
Orientation to the internship process. Prerequisite: 169:160.		Repeatable. Prerequisite: consent of instructor.	
169:191 Internship I	arr.		
Practical field experience; direct leadership, program planning, administrative procedures. Prerequisites: 169:190 and consent of instructor.			
169:193 Independent Study	arr.		
Problem in a specific area. Prerequisite: consent of instructor.			
169:194 Honors Readings	arr.		
Prerequisite: consent of instructor.			
169:195 Honors Problems	arr.		
Prerequisite: consent of instructor.			

Literature, Science, and the Arts

Director of Interdisciplinary Programs:

Lauren Rabinovitz

Professor: Jon Ringen

Lecturer: Jack Johnson (Literature, Science, and the Arts/French and Italian)

Undergraduate degree: B.A. in Literature, Science, and the Arts

Web site: <http://www.uiowa.edu/~interdi/lsa/index.shtml>

The Interdisciplinary Program in Literature, Science, and the Arts (LSA) enables students to pursue individual interests while exploring the full range of liberal arts and sciences disciplines. LSA majors design individualized plans of study that relate personal goals and academic interests to broad issues in the humanities, sciences, arts, and professions. One student might study ethics related to business, law, and medicine; another, relations among science, society, and values; yet another, the arts within a particular cultural context.

The LSA major offers a Bachelor of Arts degree broader than that permitted by study in a single subject. Topics cross, reflect upon, and challenge disciplinary boundaries. Through writing, analytical thinking, and discussion, students develop critical appreciation of diverse perspectives.

Central to the program are team-taught interdisciplinary seminars that challenge students to consider ideas from diverse points of view. The seminars are small-group round-table discussions led by two or more faculty members representing different departments and disciplinary perspectives. Together, faculty members and students examine values and judgments rooted in liberal arts and sciences disciplines.

LSA courses are open to undergraduates from any department or college. Courses numbered 100 and below are designed as introductions to interdisciplinary studies and are open to all students who have completed the rhetoric requirement. Courses numbered above 100 are designed for juniors, seniors, and graduate students; all other students should consult the instructor or the LSA office before enrolling.

Frequent consultations with an advisor and care in preparing the required statement of purpose ensure that students shape the major to suit individual goals, including preparation for

professional careers or further study in graduate school.

Bachelor of Arts

The B.A. in literature, science, and the arts requires 54 s.h. in the major. A plan of study must include the following 24 s.h. of course work.

LSA courses 12 s.h.
Natural science and social science courses 12 s.h.

Students also must complete at least 30 s.h. of course work chosen from the following four areas. All areas must be represented; students choose 12 s.h. from each of two areas and 3 s.h. from each of the other two areas. Up to 15 s.h. of advanced course work used to complete the General Education Program may be applied to requirements of the major.

Philosophy, religion, history

Literature (may include literature courses taught in a language other than English; may not include courses with 08G prefix)

Fine arts

Foreign language (may not include courses used to complete the General Education Program foreign language component)

Students who fulfill the LSA foreign language requirement with 3 s.h. can use a course in culture, civilization, or literature taught in English by the department of the student's language of expertise. Students who fulfill the requirement with 12 s.h. cannot use courses taught in English.

By their second semester as majors, LSA students must submit a statement of purpose describing their goals. For information on writing the statement of purpose and descriptions of LSA courses for the current and coming semesters, visit the Program in Literature, Science, and the Arts web site.

Students must complete a minimum of 12 s.h. of LSA courses and at least 12 s.h. of other major courses at The University of Iowa.

Students considering an LSA major should consult with the program's office before the end of their sophomore year.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: No course may satisfy more than one major requirement. Students prepare an individualized plan of study consisting of at least 14 courses, including one in foreign language beyond fourth-semester competency, so some students may need to do foreign language work early.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: a plan of study, language competency in the language of choice, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses from the plan of study and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: four more courses from the plan of study

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Superior students who undertake a further program of independent study may earn the Bachelor of Arts with honors. To be admitted as candidates for a degree with honors, students must have the endorsement of the director of the Program in Literature, Science, and the Arts and must meet the requirements for the University Honors Program. Membership in the Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students submit an honors project to a faculty committee.

Courses

033:040 The Good Society 3 s.h.
Critiques of the existing social order, articulation of models of a good society with associated conceptions of the good life. GE: humanities. Same as 169:040.

033:050 Making Choices: Interdisciplinary Perspectives 3 s.h.
Philosophical and historical foundations of choice; personal, social, private decision making. GE: humanities. Same as 169:050.

033:055 Revolutions in 19th-Century France 3 s.h.
Introduction to social and political history of 19th-century France, an unstable but rich period in French history and culture. GE: humanities. Same as 009:055.

033:056 The Splendor of Cities 3 s.h.
Same as 102:055.

033:060 Scientific Reasoning 3 s.h.
Patterns of reasoning useful for understanding and evaluating scientific evidence, theory, controversy; historical and contemporary examples from the physical, biological, behavioral, biomedical sciences. GE: quantitative or formal reasoning.

033:065 Essays and Assays 3 s.h.
Topics in biology and medicine; aesthetic concepts of mimesis, identity, representation.

033:075 Cultural Diversity and Identity 3 s.h.
The nature of personal and cultural identity within a pluralistic society; race, ethnicity, national identity, class, sexuality, and gender as categories of cultural difference. GE: cultural diversity. Prerequisite: 010:002 or 010:003.

033:080 Introduction to Place Studies 3 s.h.
Environmental, social, and cultural perspectives on the interdisciplinary concept of place; historical concepts of place, the state of place in contemporary society and culture, elements of place in midwestern experience. Same as 169:080.

033:095 Science and the Arts: Chaos Theory 3 s.h.
Chaos theory and new perspectives on cause and effect, pattern and randomness, simplicity and complexity, organization and dissipation, fate and free will; challenges to the certainties of Newtonian physics and the confidence of western science; how chaos and related theories (e.g., complexity theory, catastrophe theory, fractal geometry) can illuminate aspects of the arts and the creative process.

033:110 Comparative Arts 3 s.h.
Same as 048:110.

033:112 The City: Narrative and Design 3 s.h.
Same as 102:112.

033:115 What is Storytelling For? 3 s.h.
Philosophical look at storytelling; experiences telling and listening to stories; role of storytelling in performative acts of interpretation. Same as 01J:115.

033:120 Tobacco, Health, and Society 2 s.h.
The tobacco industry, tobacco-related disease, and public policy responses in various political systems, economic environments, cultural contexts; history of tobacco and its cultural associations, production, promotion, health issues, and control efforts worldwide, focusing on countries with unique problems or approaches.

033:125 Germany in the World 3 s.h.
Same as 13E:120.

033:130 Paris and the Art of Urban Life 3 s.h.
Pictorial treatment of well-known architectural sites, such as the Eiffel Tower, the Cathedral of Notre Dame; intersection of urban history, art, architecture, daily life. Same as 009:130, 01H:157.

033:139 Religion and Environmental Ethics 3 s.h.
How humans conceptualize the biophysical environment through religious beliefs and practices; how images of the environment influence people's activities and are used in grass-roots environmental movements. Same as 032:130, 113:139.

- 033:143 Gender Issues in Science and Medicine** 3 s.h.
Impact of gender on diagnosis, treatment, allocation and utilization of resources in medicine; study design, data collection, interpretation, and implementation of results in research.
- 033:144 Mind and Behavior** 3 s.h.
Theories of what it is to act and know, of what intelligence might be in animals, humans, machines; perspectives from philosophy, psychology. Prerequisite: junior or senior standing or consent of instructor. Same as 031:174.
- 033:145 Literature, Music, and Aesthetics** 3 s.h.
Interdisciplinary connections between literature and music; specific cultural, ideological contexts. Same as 025:137.
- 033:147 Nature vs. Nurture: Theory to Practice** 3 s.h.
Sex differences in cognitive abilities explored through psychosocial versus biological perspective; impact on populations, especially women in science, math, engineering, technology.
- 033:151 Individuals and Institutions** 3 s.h.
Relationships between individuals and institutions viewed through outstanding works of literature, social science, and law.
- 033:152 Values in the Contemporary World** 3 s.h.
Modern problems in definition and choice of values; writings of contemporary ethical theorists, novelists. Same as 032:149.
- 033:153 Hard Cases: Science Policy and Values** 3 s.h.
Major issues in practical ethics through difficult case studies in fields such as law, medicine, business, politics; readings in classic authors; recent contributions from several disciplines. Same as 060:153.
- 033:154 Human Nature and the Impact of Science** 3 s.h.
Relationships among scientific, humanistic, social, religious thought. GE: humanities.
- 033:161 The Arts in Performance** 3 s.h.
Performing arts in human experience; creativity in different performance media, cultures, historical contexts. GE: fine arts or humanities.
- 033:170 Trains of Thought** 3 s.h.
- 033:175 Art, Law and Ethics** 3 s.h.
How law and ethics apply to individuals and institutions concerned with the visual arts. Same as 01H:182, 024:161, 091:192.
- 033:180 Special Projects** arr.
- 033:191 Independent Study for Honors** arr.

International Studies

Director: Jane Desmond

Undergraduate degree: B.A. in International Studies

Undergraduate nondegree program: Minor in International Studies

Web site: http://intl-programs.uiowa.edu/studies/stu_BA.htm

International studies is not simply the study of diplomacy and relations among states. The International Studies Program requires all students to integrate theoretical knowledge about broad global processes and the methods used to study them, with in-depth examination of a particular region of the world or a major theme in international studies. It affords students the opportunity to integrate the study of history, politics, economics, expressive arts, culture, beliefs, and social systems.

Undergraduate Program

International Programs offers a major in international studies leading to a Bachelor of Arts from the College of Liberal Arts and Sciences. The major is an interdisciplinary program of study offered with either a geographic or a thematic emphasis. It prepares students for careers in business, government, international development agencies, nongovernmental organizations, philanthropic agencies, and the arts. It also is excellent preparation for graduate training in the social sciences, the arts, law, business, journalism, international affairs, and area studies.

The curriculum is designed to help students learn to appreciate foreign cultures, focus on themes of global significance, and master varied disciplinary approaches used to study international issues. For students interested in pursuing a double major, the international studies major complements a wide range of academic degree programs.

Bachelor of Arts

The Bachelor of Arts in international studies requires 36 s.h. in the major. The program is flexible, drawing on courses across the humanities and social sciences. All students majoring in international studies are mentored by a faculty member who specializes in their

geographic or thematic emphasis area. The Academic Advising Center provides official advising for all international studies majors. Students must work closely with their advisors to coordinate their program of study and fulfill the requirements for the major.

International studies students must earn at least 12 of the required 36 s.h. in upper-level course work. A foundation course (3 s.h.) and two core courses (6 s.h.) introduce students to the major issues in international studies and the varied methods used to examine them. Foreign language proficiency is vital for participating in diverse societies and cultures, so foreign language study beyond the General Education requirements is required. Students select a geographic or thematic emphasis area or develop one in consultation with their faculty advisor. Each student must complete a senior project related to his or her focus of study. International studies electives (6 s.h.) outside the student's emphasis area provide comparative perspectives.

The program encourages study abroad. See "Study Abroad Opportunity" below, for details.

DISTRIBUTION REQUIREMENTS

No more than 12 s.h. earned toward the international studies major can also be applied to a second major, a minor, or a certificate.

International studies students must undertake course work in at least four different departments.

They must complete at least 12 s.h. of upper-level course work: 6 s.h. in the emphasis area, 3 s.h. in the elective area, and 3 s.h. in the emphasis, elective, or foreign language area.

FOUNDATION COURSE

Each student chooses at least one of the following courses, ordinarily as the first course in the major. Each provides an overview of global issues and introduces a disciplinary approach to global topics, laying a foundation for continuing study.

Issues in international studies courses (187:001, 187:002, 187:003, and 187:004, each 1 s.h.) are offered every semester by faculty members affiliated with the international studies major. Each course provides a focused introduction to a specific international studies topic or approach.

Students who choose Issues in International Studies as their foundation must complete three courses (total of 3 s.h.).

06E:125 International Economics	3 s.h.
030:060 Introduction to International Relations	3 s.h.
036:086 Global Media Studies	3 s.h.
044:010 The Contemporary Global System	4 s.h.
044:019 Contemporary Environmental Issues	3 s.h.
113:010 Anthropology and Contemporary World Problems	3 s.h.
187:001 International Studies Colloquium (or 187:002 or 187:003 or 187:004)	1 s.h.
187:005 Making of the Modern Global System	3 s.h.
187:006 International Analysis of Topics and Places	3 s.h.

CORE COURSES

In choosing core courses, students begin to craft their individualized majors. For example, a student might choose two courses in the arts or two social science courses.

Students should choose two core courses (total of 6 s.h.) from the following list. In order to preserve the interdisciplinarity of the program, students must choose at least one course from a department different from the one that offered their foundation course.

06E:125 International Economics (if not taken as the foundation course)	3 s.h.
06J:146 International Business	3 s.h.
030:060 Introduction to International Relations (if not taken as the foundation course)	3 s.h.
030:061 Introduction to American Foreign Policy	3 s.h.
036:042 Intercultural Communication	3 s.h.
036:086 Global Media Studies (if not taken as the foundation course)	3 s.h.
044:010 The Contemporary Global System (if not taken as the foundation course)	4 s.h.
044:019 Contemporary Environmental Issues (if not taken as the foundation course)	3 s.h.
044:030 The Global Economy	3 s.h.
048:022 World Film	3 s.h.
103:055 Languages of the World	3 s.h.
113:010 Anthropology and Contemporary World Problems (if not taken as the foundation course)	3 s.h.
130:070 Introduction to Latin American Studies	3 s.h.

187:001 International Studies Colloquium (or 187:002 or 187:003 or 187:004, if not taken as the foundation course)	1 s.h.
187:005 Making of the Modern Global System (if not taken as the foundation course)	3 s.h.
187:006 International Analysis of Topics and Places (if not taken as the foundation course)	3 s.h.
187:060 The Middle East Today: A Social Inquiry	3 s.h.
187:080 Introduction to Human Rights	3 s.h.

GEOGRAPHIC OR THEMATIC EMPHASIS AREA

Each student chooses a concentration in one of the geographic emphasis or thematic emphasis areas listed below. The emphasis area is noted on the student’s transcript. Lists of approved courses in each area are available at the Academic Advising Center and on the International Studies Program web site. Students may petition the associate dean of international studies to include a course not on the approved list. Students must complete at least four courses in the emphasis area, for a total of 12 s.h.; at least 6 of the 12 s.h. must be earned in upper-level course work (usually numbered 100 or above).

Geographic areas include Caribbean studies, African studies; East Asian studies; European studies; Latin American studies; Russian, East European, and Eurasian studies; Middle East and Muslim world studies; and South Asian studies.

Thematic areas include development; global artistic tradition and change; global resources and the environment; global health; human rights; international business; international communication and information; international politics and international relations; postcolonial and diasporic studies; and war, peace, and security.

Other thematic areas, for which sufficient courses exist, may be developed by a student with the approval of an international studies faculty advisor.

INTERNATIONAL STUDIES ELECTIVES

Students also must complete 6 s.h. of international studies course work. Electives may be chosen from any of the courses approved for the international studies major, but they must not be chosen from courses in the student’s emphasis area. At least 3 s.h. must be earned in upper-level course work.

LANGUAGE REQUIREMENT

All students must complete a minimum of two semesters of advanced foreign language study (defined as beyond the minimum required to complete the foreign language component of the General Education Program), or two semesters of a second foreign language at any level. This requirement may be fulfilled either by completing the third year of the same language used to complete the General Education Program or by completing two semesters, or the equivalent, of a second foreign language. Languages not offered by The University of Iowa may be studied at other universities or through an approved study abroad program. Consult an international studies advisor in the Academic Advising Center for more information.

In fulfilling the language requirement, most students are eligible to receive an additional 4 s.h. of ungraded credit under the Foreign Language Incentive Program (FLIP). This credit may be applied to the minimum 120 s.h. required for graduation, but it does not count toward requirements for the international studies major.

INTERNATIONAL STUDIES SENIOR PROJECT

All students enroll in 187:199 International Studies Senior Project during their last year of study. In this independent study course, students complete a research essay of 15-20 pages or produce a creative work focusing on a topic within their geographic or thematic emphasis area. The course is completed under the supervision of a faculty mentor in the emphasis area.

Study Abroad Opportunity

Students are strongly encouraged to incorporate an approved study abroad experience into their international studies major. Credit earned while studying abroad is counted toward the requirements for the major, as appropriate. International studies majors who study abroad in an approved program may receive a \$1,000 scholarship from International Programs in addition to other financial aid and scholarships for which they are eligible. In order to receive this scholarship, students must declare the international studies major, complete at least 12 s.h. of course work toward the major, and participate in a study abroad program of at least six weeks in length.

It is important to plan ahead for study abroad. Students should meet with an advisor in the Office for Study Abroad shortly after choosing

their geographic or thematic emphasis for help in selecting an appropriate study abroad program. Students planning to earn a bachelor's degree in four years must schedule study abroad advising appointments (see "Four-Year Graduation Plan," below).

Transfer Credit

Transfer course work equivalent to University of Iowa course work can be accepted toward the major, but at least 15 s.h. of course work for the major must be earned at The University of Iowa.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete in order to stay on the University's Four-Year Graduation Plan.

Note: Students who intend to study abroad in their junior year should schedule an appointment during their fourth semester to meet with an advisor from the Office for Study Abroad. Those who intend to study abroad in their senior year should schedule an appointment during their sixth semester to meet with an advisor from the Office for Study Abroad.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major (6 s.h., a foundation course and one core course) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major (three courses), all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Students may earn a B.A. with honors in international studies. The option is available to students with a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in international studies. To graduate with honors, students are required to complete a minimum of

39 s.h., including three courses (9 s.h.) in a second emphasis area (this takes the place of the 6 s.h. international studies elective requirement). Honors students must complete at least 15 s.h. in upper-level course work. At least 6 s.h. of the 39 s.h. required for the honors major must be earned in courses designated as honors courses. Students may enroll in honors courses offered by individual departments, or they may work with instructors to designate any approved international studies course as an honors course by adding additional writing requirements. For more information, contact an international studies advisor at the Academic Advising Center.

Contact the University Honors Program for more information about honors study at Iowa.

Minor

To earn a minor in international studies, students must complete 15 s.h. in courses approved by international studies. To preserve the minor's interdisciplinary nature, students may not count toward the international studies minor more than 6 s.h. applied to another major, minor, or certificate. At least 12 s.h. applied to the minor must be earned in course work designated as upper-level by the department offering the course. Students are required to include one of the international studies core courses in the minor.

Courses

187:001 International Studies Colloquium 1 s.h.
Modules focusing on varied topics, taught by international studies faculty members.

187:002 Issues in International Studies 1 s.h.
Modules focusing on varied topics, taught by international studies faculty members.

187:003 Issues in International Studies 1 s.h.
Modules focusing on varied topics, taught by international studies faculty members.

187:004 Issues in International Studies 1 s.h.
Modules focusing on varied topics, taught by international studies faculty members.

187:005 Making of the Modern Global System 3 s.h.
Formation of the modern global system; capitalism, science and technology, representative government and nationalism, colonialism and decolonization; rise of these institutions in the West, response and adaptation by a nonwestern society.

187:006 International Analysis of Topics and Places 3 s.h.
Analysis of international topics (e.g., population characteristics, religion, language and racial groups, world income, environment) using case-study approach.

187:012 European Ethnic Places in Iowa 1 s.h.
Iowa's European Heritage; European immigration; field trips to European ethnic communities in Iowa.

187:030 International Crossroads Seminar 1 s.h.
Introduction to international campus resources; cross-cultural communication skills; service learning project. Prerequisite: UI International Crossroads Community residence.

187:060 The Middle East Today: A Social Inquiry 3 s.h.

187:070 Introduction to Latin American Studies 3 s.h.
Same as 035:070, 038:070, 130:070.

187:080 Introduction to Human Rights 3 s.h.
Analysis and evaluation of the international human rights program; relationship between human rights and international law.

187:090 International Studies News Colloquium 2 s.h.

187:095 Research and Final Project Preparation 1 s.h.
Preparation for senior project, development of course proposal. Prerequisite: junior or higher standing.

187:099 Introduction to Russia, the Soviet Union, and its Successor States 3 s.h.
Histories and cultures of the region's societies, including current problems in economics, politics, ethnicity, religion, ecology, health, law. GE: foreign civilization and culture.

187:105 Independent Study in International Studies arr.
Research on a topic of international significance.

187:142 Introduction to Caribbean Studies 3 s.h.
Diversity and unity of Caribbean culture; geography, history, culture; Hispanic, Francophone, and Anglophone Caribbean texts. Same as 035:142.

187:150 Internetworks in International Development 3 s.h.
The Internet and online development resources; technical background, accessibility impact; advanced skill development in Internet communication and authoring techniques; previous knowledge not required.

187:159 African Literature Today 3 s.h.
Same as 008:159, 048:159.

187:160 Modern Arab Narrative Identities 3 s.h.

187:170 IFUSS Proseminar 1-3 s.h.
Introduction to Islam; growth and development of Islam; sociopolitical and historical forces relevant to contemporary crisis in the Middle East; Islam and the United States.

187:175 Child Labor and International Human Rights 3 s.h.
Complexity of child labor in global, regional, national, and local contexts; international human rights system, current programs and strategies for reducing or eliminating abusive child labor.

187:199 International Studies Senior Project 3 s.h.

187:210 International Programs Summer Institute for Teachers 3 s.h.
Professional development workshop for teachers on what Iowans need to know about the rest of the world. Weeklong. Same as 07S:210.

187:211 International Studies Professional Development for Teachers 1 s.h.
Contemporary issues in international studies and classroom integration of global perspectives; for current and pre-service K-12 teachers. Repeatable.

Journalism and Mass Communication

Director: Pamela J. Creedon

Professors: Kay Amert, Daniel A. Berkowitz, Stephen G. Bloom, Pamela J. Creedon, Carolyn Stewart Dyer, Judy Polumbaum

Professors emeriti: Joseph Ascroft, Gilbert Cranberg, Hanno Hardt, Donald Smith, Kenneth Starck, Al Talbott

Associate professors: Julie Andsager, Stephen Berry, Venise Berry, Gigi Durham, Lyombe Eko, John Kimmich, Donald McLeese, Jane Singer

Associate professors emeriti: John Erickson, Sue Laiky, William Zima

Assistant professors: John Bennett, Stacey Cone, Frank Durham, Sujatha Sosale

Undergraduate degrees: B.A., B.S. in Journalism and Mass Communication

Undergraduate nondegree program: Minor in Mass Communication

Graduate degrees: M.A. in Journalism; Ph.D. in Mass Communications

Web site: <http://www.uiowa.edu/jmc>

Undergraduate Program

The School of Journalism and Mass Communication offers a Bachelor of Arts and a Bachelor of Science. Both degrees prepare students for careers in journalism and mass communication.

Journalistic writing is the core of the undergraduate program, and visual communication is an important focus. Students are required to take both professional and conceptual courses offered by the school; they develop professional skills while studying the historical, legal, cultural, and institutional roles of media in society. The program also builds upon the University's commitment to the liberal arts and sciences, requiring majors to complete extensive academic work outside the school.

Graduates find employment in a variety of areas such as newspapers, magazines, radio, television, online communications, public relations, publication design, photojournalism, and media research.

The school also offers a minor in mass communication; see "Minor" later in this section.

The school is accredited by the Accrediting Council on Education in Journalism and Mass Communications.

Selective Admission

To preserve the quality of its programs, the School of Journalism and Mass Communication has a selective admission program. Students with a declared interest in journalism are admitted to the major in one of two ways. First-year students who enter the University with honors standing in the College of Liberal Arts and Sciences, or as Presidential Scholars, Dean's Scholars, or Daily Iowan Scholars, are eligible to enter the major in journalism and mass communication upon enrollment in the University. Most students are classified as having an interest in journalism until they are admitted to the major.

Students may apply for admission to the major during the semester in which they will complete the following: 019:090 Social Scientific Foundations of Communication and 019:091 Cultural and Historical Foundations of Communication; all required rhetoric courses; and a total of at least 45 s.h. of course work. Students who qualify for the University Honors Program after their first semester at the University may apply for admission to the major during the semester in which they will complete the premajor requirements and 30 s.h. of course work.

The primary criterion for admission to major status is overall academic performance. Also considered are the applicant's statement of interest, demonstrated writing ability, résumé, prior journalistic experience, participation in journalism student organizations, and performance in journalism courses. The number of students accepted each semester depends on the number of students already in the program and available resources. The school reviews applications with the goal of admitting the most qualified students.

For applications and deadline information, contact the School of Journalism and Mass Communication.

Bachelor of Arts, Bachelor of Science

The B.A. and B.S. in journalism and mass communication require a minimum of 36 s.h. in the major. Students may earn a maximum of 40 s.h. in journalism and mass communication

courses, in accordance with College of Liberal Arts and Sciences guidelines. Students must maintain a g.p.a. of at least 2.00 in courses in the major in order to graduate. They also must complete a second major or 24 s.h. in a second concentration area.

The undergraduate program's flexibility allows each major to develop an individual study plan in consultation with a faculty advisor.

Common Requirements

All majors must complete the following course work (minimum of 36 s.h., maximum of 40 s.h. in courses offered by the school).

PREMAJOR FOUNDATION

019:090 Social Scientific Foundations of Communication	3 s.h.
019:091 Cultural and Historical Foundations of Communication	3 s.h.

JOURNALISM WRITING AND WORKSHOP COURSES

019:098 Journalistic Reporting and Writing	4 s.h.
One writing and reporting course (019:120-019:129)	4 s.h.
One workshop (019:130-019:139, 019:172-019:179)	4 s.h.
One advanced writing course (019:171 or an approved advanced crossover course)	4 s.h.
One elective (019:120-019:129, 019:130-019:139, 019:172-019:179)	4 s.h.

A number of workshops fulfill the advanced writing course requirement: 019:135 Public Relations Practice Workshop, 019:136 Editing, 019:174 Advanced Television News, 019:176 Visual Storytelling, 019:177 Convergence Journalism, and 019:178 Iowa Journalist.

CONCEPTUAL COURSES

019:140 Legal and Ethical Issues in Communication	4 s.h.
One advanced conceptual course (019:141-019:169)	3 s.h.

ELECTIVES

Course work chosen from undergraduate journalism and mass communication courses	3 s.h.
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ADDITIONAL ELECTIVES

Additional courses up to the maximum 40 s.h. of courses offered by the school (optional)

LEARNING PORTFOLIO

Graduating seniors must complete an approved learning portfolio. Guidelines for creating learning portfolios are available in the school's Internship and Assessment Office.

Second Major or Concentration Area

In addition to completing the College of Liberal Arts and Sciences General Education Program, every journalism major must complete a second major or a concentration area outside the School of Journalism and Mass Communication. Study in the second major or concentration area enables students to acquire a substantial body of knowledge, learn how another discipline views the world, and/or develop a companion set of skills to those in journalism and mass communication.

Students who satisfy the requirement by completing a concentration area must choose 24 s.h. of related course work in one or more departments; at least 15 of the 24 s.h. must be earned in advanced courses (in most departments, advanced courses are numbered 100 or above). B.A. students who complete a minor in business administration are credited with meeting the second major or concentration area requirement. Course work in the concentration area must be arranged in consultation with the student's advisor; each student must have the advisor's written endorsement of the second major or concentration area before graduation.

BACHELOR OF ARTS

B.A. students must complete the requirements for the journalism and mass communication major (36 s.h.) and must satisfy the school's second major or concentration area requirement in one of two ways.

Option 1: complete a B.A. major in another department

Option 2: complete a 24 s.h. concentration of related courses in one or more departments that offer B.A. degrees, or complete a minor in business administration

BACHELOR OF SCIENCE

B.S. students must complete the requirements for the journalism and mass communication major (36 s.h.) and must satisfy the school's second major or concentration area requirement in one of two ways.

Option 1: complete a B.S. major in a natural, mathematical, or social science

Option 2: complete a 24 s.h. concentration of related courses in the social sciences (economics, geography, political science, psychology, or sociology) and/or the natural and mathematical sciences; and complete all the special math, research methods, statistics, computer science, and/or cognate science requirements required for the B.S. in the department in which the majority of concentration area courses are taken

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: With the exception of students admitted to the major directly upon their first enrollment in the University, students are admitted to the School of Journalism and Mass Communication on a competitive, selective basis. The Four-Year Graduation Plan agreement applies only to students who are admitted to major status by the first semester of their sophomore year. Also, each student must complete a second major or a concentration area consisting of at least 24 s.h., of which 15 s.h. must be earned in advanced courses. These checkpoints show only the minimum requirements for a second area, not the requirements for a second major.

Before the third semester begins: either 019:090 or 019:091 and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 019:098, an additional course in the major, at least one second-area course, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: two additional courses in the major, three additional second-area courses, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two additional courses in the major and two more second-area courses

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, all remaining courses in the second area, and a sufficient number of semester hours to graduate

Honors

The University Honors Program gives students with outstanding academic records the opportunity to do honors course work in their fields or individual interest areas under the guidance of a faculty member.

To graduate with honors in journalism and mass communication, a student must have a g.p.a. of at least 3.50 in the major and must be a member of the Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students also must complete 019:191 Honors Project (3 s.h.) under the supervision of a faculty member. The project may be a thesis or a professional project, typically completed during the last semester of the senior year. Students are encouraged but not required to take 019:190 Honors Readings (1-3 s.h.) to prepare for the project.

All majors with an overall g.p.a. of at least 3.33 are encouraged to take any journalism and mass communication course for honors credit and to make use of other honors opportunities in the school. Visit the Journalism Honors Program on the school's web site or contact the school's honors advisor for details.

National Honor Society

The School's chapter of Kappa Tau Alpha, the national society honoring scholarship in journalism and mass communication, was founded in 1936 and is named for former director Leslie G. Moeller. Students are considered for membership if their grade-point average places them in the top 10 percent of their class and they have completed at least five semesters of University work, including a minimum of 9 s.h. in journalism and mass communications skills courses. Contact the School's Kappa Tau Alpha advisor for details.

Minor

Students may earn a minor by completing at least 15 s.h. in mass communication with a g.p.a. of at least 2.00; 12 of the 15 s.h. must be taken in advanced courses at The University of Iowa (courses numbered 019:140-019:169 and above). Students are encouraged to take one of the following courses.

019:090 Social Scientific Foundations of Communication

3 s.h.

019:091 Cultural and Historical Foundations of Communication 3 s.h.
 019:095 Media and Consumers 3 s.h.

The minor does not prepare students for careers in journalism. It should be regarded as an introduction to the field of mass communication.

Courses for the minor may not be taken pass/nonpass.

Transfer Students

Transfer students who declare an interest in journalism and mass communication are classified as premajors. They may apply to the major during the semester in which they complete at least 45 s.h. of course work at The University of Iowa and other institutions, including the rhetoric requirement and the foundation courses 019:090 Social Scientific Foundations of Communication and 019:091 Cultural and Historical Foundations of Communication. Courses taken at other institutions cannot be substituted for 019:090 or 019:091.

The school may accept up to 7 s.h. of transfer credit in journalism toward the major in journalism and mass communication, or up to 3 s.h. toward the minor in mass communication. Some journalism course work taken at another school may be used to satisfy elective and/or second major or concentration area requirements. Transfer credit intended to meet School of Journalism and Mass Communication requirements must be approved by the head of undergraduate studies.

Graduate Programs

Master of Arts

The School of Journalism and Mass Communication offers the Master of Arts with two emphases: professional journalism and media communication. The M.A. with professional journalism emphasis requires 30-35 s.h., including successful completion of a master's project. The M.A. with media communication emphasis requires 32 s.h., including completion of a thesis. Each emphasis is described below. For more detailed descriptions, see the Graduate Studies Handbook or contact the School of Journalism and Mass Communication.

Admission to the M.A. is for fall entry.

Professional Journalism Emphasis

The Master of Arts with professional journalism emphasis is designed for students who have an academic or professional background in media communication and who wish to enhance their careers through specialized study in a specific area. It is a terminal degree, not preparation for doctoral study. Exceptional applicants without the required background may be accepted if they complete one noncredit preparatory course.

In consultation with an academic advisor, each student creates an individual program of courses chosen from inside and outside the school. Examples of areas inside the school are narrative writing, investigative reporting, publication design, and broadcast news. Some areas outside the school are the arts, law, political science, business, medicine, science, the environment, book arts, and race, gender, and sexuality studies.

Students who have a journalism background might develop a focus in an outside area for some of their electives. Those new to journalism and media communication may wish to focus their study on areas inside the school.

Building on conceptual and advanced skills courses, students complete the program with a master's project in a professional area, such as an in-depth reporting series; a design, multimedia, video, or documentary photography project; or applied research in mass communication.

All courses are chosen in consultation with the student's academic advisor.

The following courses are required.

019:225 Contemporary Problems in Journalism	3 s.h.
019:226 Master's Advanced Reporting and Writing	3 s.h.
019:229 Master's Media Project	3 s.h.
One conceptual course from 019:140-019:169, or 019:250 and above	3 s.h.
Two advanced writing or workshop courses from the 019:120, 019:130, 019:170, and 019:220 series	6-8 s.h.
*Three electives in journalism and mass communication or an outside focus area	9-12 s.h.
019:299 Master's Research (professional project)	3 s.h.

*Students who have not taken a recent U.S. media law class must enroll in 019:140 Legal and Ethical Issues in Communication or an alternative media law course, with the instructor's consent and the advisor's approval.

Media Communication Emphasis

The Master of Arts with media communication emphasis offers specialization in mass communication phenomena and emphasizes communication research, theory, and methodology. It prepares students for doctoral studies.

Students in the media communication emphasis take foundation courses in common with beginning Ph.D. students. Because of the program’s interdisciplinary nature, students are expected to take courses outside the school, as determined in consultation with their advisors. The course work should provide students theoretical and methodological preparation to complete the thesis.

The following courses are required.

019:231 Media Communication Theory I	3 s.h.
019:232 Media Communication Theory II	3 s.h.
019:235 Media Communication Research Methods I	3 s.h.
019:236 Media Communication Research Methods II	3 s.h.
019:220 Master’s Seminar (1 s.h. for 2 semesters)	2 s.h.
Advanced methods courses	3 s.h.
Electives (at least 6 s.h. in journalism and mass communication)	12 s.h.
019:299 Master’s Research (thesis)	3 s.h.

Doctor of Philosophy

The Doctor of Philosophy in mass communications requires 80 s.h. of graduate credit. It emphasizes interdisciplinary inquiry into media communication phenomena from cultural, historical, and social perspectives.

The program is defined by the scholarly interests of its faculty, which include historical, legal, critical, cultural, social, feminist, and international aspects of media communication, both verbal and visual; comparative communication; convergence; new media; health communication; popular culture; and globalization. Faculty members use qualitative or quantitative methods in their research and teaching.

The program is highly individualized. In consultation with his or her advisor, each student draws on courses offered by the School of Journalism and Mass Communication as well as other academic units to develop a course of study that reflects his or her academic background,

experience, professional goals, and intellectual interests.

The Ph.D. is designed for students who have completed an M.A. thesis. Students may count up to 30 s.h. of master’s degree credit toward the 80 s.h. required for the Ph.D., with the graduate committee’s approval, as long as the credit was earned in courses relevant to the Ph.D. study plan. The Graduate College does not accept transfer credit for professional skills courses. Students who have earned professional master’s degrees must take additional Ph.D. course work.

The following courses are required.

019:231 Media Communication Theory I	3 s.h.
019:232 Media Communication Theory II	3 s.h.
019:235 Media Communication Research Methods I	3 s.h.
019:236 Media Communication Research Methods II	3 s.h.
019:265 Approaches to Teaching	3 s.h.
019:320 Ph.D. Seminar (taken four semesters for 1 s.h.)	4 s.h.
Advanced research methods courses	3 s.h.
Advanced theory courses	3 s.h.
Journalism and mass communication electives	6 s.h.
Outside concentration courses	9 s.h.
Credit from master’s degree and/or additional Ph.D. courses	30 s.h.
019:399 Dissertation	10 s.h.

For more detailed descriptions, see the Graduate Studies Handbook or contact the School of Journalism and Mass Communication.

Admission to the Ph.D. is for fall entry.

Joint M.A./J.D. and Ph.D./J.D.

The School of Journalism and Mass Communication and the College of Law offer a joint degree program that leads to a Master of Arts or a Doctor of Philosophy, and a Juris Doctor. Separate application must be made to the School of Journalism and Mass Communication and the College of Law. Applicants must be admitted to each program before they may enroll in the joint program.

Students in the joint program may count some J.D. credit toward the M.A. or Ph.D., and some M.A. or Ph.D. credit toward the J.D. This enables them to earn both degrees in less time than they would need to earn each degree separately.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Admission for School of Journalism and Mass Communication graduate programs is for fall entry.

Facilities

The School of Journalism and Mass Communication moved into the Philip D. Adler Journalism and Mass Communication Building in January 2005. The 65,000-square-foot building has computer laboratories for audio, video, design, writing, web publishing, and a resource center. Photography and typography laboratories are located nearby. The building also is home to offices of the Iowa High School Press Association; the Quill and Scroll Society, an international honor society for high school journalists; the University's award-winning student newspaper, *The Daily Iowan*, and DITV, a student-run newscast.

Iowa Center for Communication Study

The Iowa Center for Communication Study encourages and facilitates student and faculty research in communication. It also sponsors publications and provides editorial oversight for two periodicals, the *Journal of Communication Inquiry* and *The Iowa Guide: Scholarly Journals in Mass Communication and Related Fields*.

Financial Support

More than \$100,000 in scholarships and awards is disbursed to journalism and mass communication students each year. Scholarship information and applications are available each fall. Visit Journalism & Mass Communication Scholarships or contact the School of Journalism and Mass Communication.

The school offers research and teaching assistantships for graduate students; preference is given to Ph.D. students. Journalism and mass communication students have been successful in winning competitive fellowships open to all graduate students; applicants must be nominated by the graduate committee.

The school has a program of modest financial support for undergraduate and graduate student research projects.

Professional Enrichment

The school encourages professional students to complete at least one internship during their study program. The school's internship and assessment coordinator helps students find appropriate internships.

Undergraduate students may earn up to 3 s.h. of internship credit, registering with appropriate faculty sponsorship for 019:099 Journalism Internship (1-3 s.h.). Internships do not fulfill requirements for the major, but internship credit counts toward the maximum 40 s.h. of journalism and mass communication credit that may be applied toward the bachelor's degree. Students may take additional internships for no credit through 409:019 Internship in Journalism. M.A. students in the professional journalism emphasis may work with the internship and assessment coordinator to find internship opportunities.

In addition to internships, students may find opportunities for journalism experience on campus through student-operated media, including *The Daily Iowan*, DITV, and KRUI-FM radio.

Job Placement

The school's internship and assessment coordinator helps students seeking career guidance and employment opportunities. The school posts notices of professional jobs open to journalism students and graduates and publicizes them on its electronic mailing list. It cooperates with the University's Pomerantz Career Center in providing career guidance and placement services as well as workshops and programs on job-seeking skills.

Special Activities

The school engages in a variety of activities for the enrichment of students, faculty, and the entire campus. Speakers visit campus each year under lectureships funded by the John F. Murray and Leslie G. Moeller Fund. In addition, guest speakers are funded through the Hearst Visiting Professionals Program and the Hageboeck Daily Iowan Visiting Professionals Program. Campus organizations for students include Kappa Tau

Alpha (KTA, a national society honoring scholarship in journalism), the National Association of Black Journalists (NABJ), the Public Relations Student Society of America (PRSSA), the Society of Professional Journalists (SPJ), the Radio and Television News Directors' Association (RTNDA), and Ed on Campus (EOC).

Courses

Primarily for Undergraduates

019:029 First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

019:090 Social Scientific Foundations of Communication 3 s.h.

Introduction to mass communication theory as it relates to practical applications in the media industry and American society. GE: social sciences.

019:091 Cultural and Historical Foundations of Communication 3 s.h.

Historical development of journalism in the United States; cultural, historical content. GE: historical perspectives.

019:095 Media and Consumers 3 s.h.

Representations media in historical, political, economic contexts and their relationships with audiences; criteria for evaluating media content in relation to nature and consequences of news, entertainment, advertising. GE: social sciences.

019:096 Communication and Public Relations 3 s.h.

Theory and practice of public relations; cultural, social, organizational roles of public relations, opportunities, problems, and solutions. Prerequisite: journalism major or consent of undergraduate director.

019:098 Journalistic Reporting and Writing 4 s.h.

Fundamentals of journalistic reporting and writing: sophisticated news writing, basic to complex; emphasis on reporting techniques, enterprise, beat coverage. Prerequisite: journalism major or consent of undergraduate director.

019:099 Journalism Internship 1-3 s.h.

Faculty-supervised professional work experience in journalism and mass communication. Prerequisites: 019:098, journalism major, and consent of instructor.

019:101 Methods: Secondary School Journalism 3 s.h.

Same as 07S:113.

019:102 Workshop for Secondary School Journalism/Communication Teachers 1-3 s.h.

Workshops on journalism/mass media curriculum, audio/video production, photojournalism, publication design, journalistic writing techniques, advising student publications. Same as 07S:130.

019:120 Specialized Reporting and Writing 4 s.h.

Representative topics: public affairs, law, science, business, medicine, intercultural affairs, education, lifestyles, opinion, computer-assisted reporting. Repeatable. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:121 Depth Reporting and Writing 4 s.h.

Enterprise reporting; emphasis on reporter as researcher, organizer, writer of complex stories in a variety of contexts. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:122 Magazine Reporting and Writing 4 s.h.

Finding ideas, researching, interviewing; problems of organization and style; identification of audiences and markets; development of writing skills. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:123 Broadcast Journalism Reporting and Writing 4 s.h.

Principles; gathering, writing, editing, reporting the news; techniques and concepts as a foundation for understanding, successfully writing, and delivering broadcast news. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:124 Persuasive Writing 4 s.h.

Principles and practices of persuasive writing in editorials, op-ed pieces, magazine essays, reviews, public relations. Prerequisites: 019:096, 019:098, and journalism major; or consent of undergraduate director.

019:125 Freelance Reporting and Writing 4 s.h.

Approaches to writing and marketing articles to magazines, newspapers, other publications; developing ideas, researching periodical markets, writing queries, writing and rewriting articles for publication. Prerequisites: 019:098 and journalism major, or consent of undergraduate director. Same as 08N:125.

019:126 Arts and Culture Reporting and Writing 4 s.h.

Writing about arts and culture in a range of formats (e.g., news, profiles, features, criticism, essays); emphasis on original reporting that draws on resources, issues, people, and events on campus and in the community, especially in visual and performing arts. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:127 Narrative Journalism 4 s.h.

Process of writing the true story; development of skills in researching, interviewing, information gathering, organization, story-telling techniques, writing final story; story publication in magazines, newspapers, journals, online. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:128 Writing Across Cultures 4 s.h.

Forms of travel writing and other types of crosscultural reporting; skills, knowledge, understandings vital to writing well about an increasingly multicultural and diverse world. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:130 Media Workshop 4 s.h.

Analysis and solution of problems with communication strategies and/or media products; public relations, newsletter production, radio, media research, web basics, global media, interviewing, PR fund-raising. Repeatable. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:131 Publication Design Workshop 4 s.h.

Problems of design, layout and production; practical and aesthetic considerations; digital techniques; creative projects. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:132 Photojournalism Workshop 4 s.h.

Techniques; basic craft, location shooting, editing photographs; group critiques of assignments. Prerequisite: consent of instructor.

019:133 Typography Workshop 4 s.h.

Fonts and their use in design; letterform terminology; special typographical practices; digital techniques; creative projects. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:134 Television News 4 s.h.

Electronic news gathering (ENG); conceptualization, shooting, editing basic news packages. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

- 019:135 Public Relations Practice Workshop** 4 s.h.
Development and presentation of public relations campaigns for client organizations; communication theory and research techniques applied to analyzing and solving public relations problems through objectives-based strategic planning. Prerequisites: 019:096, 019:098, and journalism major; or consent of undergraduate director.
- 019:136 Editing** 4 s.h.
Principles and process of editing content for publication; micro- and macroediting, headline writing, other aspects of editing. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.
- 019:137 Book Design Workshop** 4 s.h.
Specialized problems and practices of book design; digital typesetting and pagination technology; creative projects. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.
- 019:138 Online Journalism** 4 s.h.
Creation of original journalistic web sites incorporating writing, design, and structure; contemporary online media issues. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.
- 019:140 Legal and Ethical Issues in Communication** 4 s.h.
Issues affecting the media: freedom of expression, libel, privacy, access to information, protection of news sources, free press/fair trial, copyright, government regulation of broadcasting.
- 019:141 Classic and Contemporary Sports Writing** 3 s.h.
Critical reading of sports reportage, including historical and current examples; social and cultural preoccupations and problems viewed through the prism of sports journalism.
- 019:142 Public Relations Case Studies** 3 s.h.
Public relations concepts applied to analysis of public relations situations; development of solutions for public relations problems and opportunities. Prerequisite: 019:096.
- 019:150 Visual Communication** 3 s.h.
History of modern visual communication from a cultural perspective; visual form, composition, spatial representation, color and other topics; in-depth study of selected artists, designers, photographers.
- 019:151 Communication Research Methods** 3 s.h.
Fundamentals of scientific inquiry in the study of communication and mass communication behavior; language, concepts, procedures, application of behavioral research methods; field and experimental approaches.
- 019:152 History of Mass Communication in the U.S.** 3 s.h.
Historical analysis of professional practices. Prerequisite: 019:091 or consent of instructor.
- 019:153 Popular Culture and Mass Communication** 3 s.h.
Relationships between popular media practices and American cultural realities as they influence contemporary social existence.
- 019:155 Mass Media and Society** 3 s.h.
Critical analysis of mass media in all forms (news, film, video, popular television, online communication); gender, race, class, sexual orientation, politics, current events.
- 019:156 Comparative Communication Systems** 3 s.h.
Culture and communication as central to examining media in different social and political settings; emphasis on contemporary problems.
- 019:158 News-Editorial Problems** 3 s.h.
Current issues in journalism, editing strategies; emphasis on press performance and practical problems journalists confront in their work.
- 019:159 Elections and the Media** 3 s.h.
Relationship between political campaigns and mass media; critical evaluation of nature, role, function of media political coverage.
- 019:160 Media and Health** 3 s.h.
Potential and limits of mass media's ability to educate the public about health; research and theory on the influence of information and entertainment media; theories, models, assumptions of mass communication in relation to public health issues. Same as 172:140.
- 019:161 Law, Media, and Current Issues** 3 s.h.
Current topics in communication law. Prerequisite: 019:140 or consent of instructor.
- 019:163 History of Books and Printing** 3 s.h.
Invention and development of printing and its social and cultural consequence in the West; case studies of selected printers, designers, publishers; books and other printed media.
- 019:164 Images and Society** 3 s.h.
Treatment and uses of photography, film, and television as technologies of reproduction in contemporary American or Western culture.
- 019:165 African Americans and Mass Communication** 3 s.h.
Racialism in varied genres of mass communication (music, television, film, print); analysis of images and messages related to African American culture. GE: cultural diversity. Same as 129:122.
- 019:166 Communication Technology and Society** 3 s.h.
Implications and effects of computer-based forms of communication, especially the Internet, for journalists, the media audience, and society at large.
- 019:167 Gender and Mass Media** 3 s.h.
Media images and representations of the body in terms of gender; impact on people, society; media and body image, sexuality, gender roles, gender and power, race, ethnicity, class, age; critical analysis of mediated images.
- 019:168 Journalism Ethics** 3 s.h.
Application of ethical principles in journalistic decision making; consideration of potentially conflicting values, loyalties, and goals that force professional journalists to make difficult choices.
- 019:169 Topics in Mass Communication** 3 s.h.
Focus on particular area, issue, approach, or body of knowledge; may include international media, media criticism, new technologies, history of documentary photography, literary journalism, media management. Repeatable.
- 019:171 Advanced Reporting and Writing** 4 s.h.
Project journalism; extended magazine pieces, explanatory/investigative journalism, series for newspapers, or task-force projects by entire class on a major issue, with goal of publication. Repeatable. Prerequisites: 019:098, one course from 019:120 through 019:128, and journalism major; or consent of undergraduate director.
- 019:172 Advanced Photojournalism** 4 s.h.
Photojournalism skills; may include documentary photography, advanced photojournalism methods and techniques. Repeatable. Prerequisite: 019:132 or consent of instructor.
- 019:173 Advanced Media Workshop** 4 s.h.
Journalism and mass communication skills; may include editing, broadcasting, design, multimedia. Repeatable. Prerequisites: 019:098, one course from 019:120 through 019:138, and journalism major; or consent of undergraduate director.
- 019:174 Advanced Television News** 4 s.h.
Advanced training and experience in producing, writing, and reporting television news packages and newscasts; emphasis on meeting professional standards. Repeatable. Prerequisites: 019:098, 019:123, 019:134, and journalism major; or consent of instructor.

019:175 Advanced Public Relations Writing 4 s.h.

Case-based study of corporate public relations practice; globalization issues, branding and integrated communication, crisis management. Prerequisites: 019:096, 019:098, 019:124, and journalism major; or consent of undergraduate director.

019:176 Visual Storytelling 4 s.h.

Experience with journalistic storytelling techniques, generating story ideas, researching, writing, producing, editing, and critiquing documentary features and other visual narratives; use of digital video and archival material to produce visual narrative pieces for broadcast and other media platforms. Prerequisites: 019:098, 019:123, 019:134, and journalism major; or consent of undergraduate director.

019:177 Convergence Journalism 4 s.h.

Use of multiple technologies for journalistic storytelling across media platforms, such as print, television, and Internet. Prerequisites: 019:098, 019:138, and journalism major; or consent of instructor.

019:178 Iowa Journalist 4 s.h.

Experience in photojournalism and desktop publishing software consistent with real-world media and public relations objectives; students write, edit, design, and produce *Iowa Journalist* magazine. Prerequisites: 019:098, one course from 019:120-019:139, and journalism major; or consent of undergraduate director.

019:180 Special Projects in Mass Communication arr.

Research and readings to fit needs, interests of students. Prerequisite: consent of instructor.

019:181 Readings in Communication and Mass Communication 1-3 s.h.

Focus on a problem or issue. Prerequisite: consent of instructor.

019:190 Honors Readings 1-3 s.h.

Topic in journalism or mass communication, chosen by student. Repeatable. Prerequisites: honors standing and consent of instructor.

019:191 Honors Project 3 s.h.

Independent research or project for honors students. Prerequisites: honors standing and consent of instructor.

Primarily for Graduate Students

019:220 Master's Seminar 1 s.h.

Theoretical or methodological problems in mass communication. Repeatable.

019:225 Contemporary Problems in Journalism 3 s.h.

Current issues in journalism and mass communication in the United States and the world.

019:226 Master's Advanced Reporting and Writing 3 s.h.

Writing workshop for new M.A. professional journalism emphasis students.

019:227 Master's Journalism Workshop 3 s.h.

Advanced work in the student's visual or broadcast area of interest. Repeatable. Prerequisite: consent of instructor.

019:228 Master's Journalism Laboratory 3 s.h.

Advanced writing; topics from student's focus area, approaches, or techniques of inquiry. Repeatable. Prerequisite: consent of instructor.

019:229 Master's Media Project 3 s.h.

Group project on topic chosen by students and instructor; research, investigation, and dissemination of findings in several media formats; advanced writing, visual, broadcast, or multimedia interest area.

019:231 Media Communication Theory I 3 s.h.

Introduction to theory used by communication scholars.

019:232 Media Communication Theory II 3 s.h.

Continuation of 019:231; social scientific theories.

019:235 Media Communication Research Methods I 3 s.h.

Interpretive media studies research methods that involve field observation, interviews, textual analysis; use of contemporary, historical, legal resources.

019:236 Media Communication Research Methods II 3 s.h.

Journalism and media communication research methods that involve collection of quantifiable data, including surveys, content analyses, experiments.

019:249 Graduate Media Workshop 3 s.h.

019:252 Social Meanings of News 3 s.h.

How concept of news and news work has been studied in occupational, organizational, social, cultural contexts.

019:254 Communication and Change 3 s.h.

Diverse perspectives on changing communication forms and their implications for media and society; theoretical and methodological approaches to research involving innovation.

019:255 Problems in International Communication 3 s.h.

Representative topics: communication systems in national development and globalization; international and cross-cultural communication structure and theory; human rights; images, values; mass persuasion; laws, agreements; information channels, content, flow, effects; censorship, language, literacy.

019:256 Gender and Mass Communication 3 s.h.

Approaches to the study of gender and communication; topics vary.

019:257 Communication and Social Theory 3 s.h.

Social theorists who emphasize communication processes in their analyses of social interaction, society.

019:259 Theory of Popular Culture 3 s.h.

Major theoretical notions about popular culture and its intersection with the mass media.

019:265 Approaches to Teaching 3 s.h.

Institutional and disciplinary issues that influence the journalism/mass communication classroom, philosophies of teaching, and use of teaching strategies, techniques, and classroom technologies; for students planning to work in academia.

019:279 Mass Communication Seminar 3 s.h.

Readings, research.

019:280 Master's Tutorial arr.

Topics in communication and mass communication inquiry. Prerequisite: consent of instructor.

019:281 Master's Practicum arr.

Research, readings, projects to fit needs, interests of students. Prerequisite: consent of instructor.

019:299 Master's Research arr.

Independent research for projects, theses. Repeatable. Prerequisites: consent of sponsoring faculty member, director of graduate studies, and instructor.

019:320 Ph.D. Seminar 1 s.h.

Forum on theoretical or methodological problems in mass communication. Repeatable. Prerequisite: consent of instructor.

019:331 Advanced Communication Theory 3 s.h.

Topics vary. Repeatable. Prerequisites: 019:231 and 019:232, or consent of instructor.

019:332 Advanced Research Methods 3 s.h.

Topics vary. Repeatable. Prerequisites: 019:235 and 019:236, or equivalents.

019:333 Seminar in Media Communication 3 s.h.

Topics vary. Repeatable.

019:334 Proseminar in Media Communication 3 s.h.

Topics vary. Repeatable.

019:341 Mass Communication and Cultural Theory 3 s.h.

Basic theoretical approaches to mass communication; emphasis on role of cultural traditions in shaping mass media; attention to contemporary British, and continental scholarship.

019:380 Ph.D. Tutorial arr.

Communication and mass communication inquiry. Prerequisite: consent of instructor.

019:381 Ph.D. Research Practicum arr.

Conceptualization and execution of research projects. Prerequisite: consent of instructor.

019:399 Dissertation arr.

Repeatable.

Bachelor of Liberal Studies

Coordinator: Dian Gottlob

Undergraduate degree: B.L.S.

Web site: <http://www.continuetolearn.uiowa.edu/ccp/bls>

The Bachelor of Liberal Studies (B.L.S.) program is offered by each of the three Board of Regents, State of Iowa, universities (The University of Iowa, Iowa State University, and The University of Northern Iowa) to serve adults whose job, family, geographic location, or other personal circumstances prevent them from attending college as full-time, on-campus students. The B.L.S. program has no on-campus residence requirement.

Students may complete the degree without attending a course on campus, but they must complete 30 s.h. of University of Iowa course work.

Credit applicable toward the degree may be earned through several types of courses, including Saturday & Evening Classes, print- and web-based independent study courses, semester-based web courses, extension courses at sites throughout Iowa, interactive and broadcast televised courses, and regular session courses. Courses from any of the three Regents universities may be applied toward the degree, as may appropriate courses from other accredited institutions.

At The University of Iowa, the B.L.S. is awarded by the College of Liberal Arts and Sciences and administered by the Division of Continuing Education. Since the B.L.S. is a general undergraduate degree without a traditional major, B.L.S. students may not earn minors. However, the requirements are sufficiently flexible to allow students, with the assistance of a B.L.S. advisor, to structure a program that meets their individual needs and objectives. Many B.L.S. students plan programs designed to help them advance in their chosen career, begin a new career, or prepare for graduate or professional study. Students who have specific career goals or advanced degree programs in mind should learn what educational background they will need in order to achieve their goals, and they should include appropriate courses in their B.L.S. programs.

Bachelor of Liberal Studies

The Bachelor of Liberal Studies requires 120 s.h., including at least 30 s.h. earned at The University of Iowa after admission to the B.L.S. program. Students must earn at least 60 s.h. at four-year colleges, including 45 s.h. defined as upper-level. For the B.L.S., University of Iowa courses are considered upper-level if they are numbered 100 and above. Some courses numbered below 100 may be considered upper-level for the B.L.S.; for a list of these courses, contact the Center for Credit Programs.

B.L.S. students are required to complete the General Education Program (contact the College of Liberal Arts and Sciences for more information).

Since there are no traditional majors available through the B.L.S. program, students organize their study by earning at least 12 s.h. of credit, including 6 s.h. of upper-level credit, in each of three of the following distribution areas.

Humanities (e.g., literature, history, philosophy, religion)

Communication and arts (e.g., journalism, speech, drama, art, music)

Natural sciences and mathematics (e.g., geology, biological sciences, statistics, computer science)

Social sciences (e.g., geography, psychology, economics, political science, anthropology)

Professional fields (e.g., business, education, nursing, social work, library science)

Semester hours applied toward completion of the General Education Program may not be used to meet the B.L.S. distribution area requirements, but they may be counted toward the required 45 s.h. of upper-level course work, if applicable.

Students must maintain a g.p.a. of 2.00 or higher in all course work applied toward the degree, all course work completed after admission to the program, and all upper-level course work.

All other College of Liberal Arts and Sciences policies regarding pass/nonpass and satisfactory/fail grading, academic standards, and so forth apply to B.L.S. students.

Contact the Center for Credit Programs for more information about the B.L.S. program.

Admission

Students who want to graduate with a B.L.S. must make a formal application for admission to the program. Prospective students should contact the Center for Credit Programs office before applying.

All applications to the program are screened. Students who have access to the full range of the University's daytime classes should seek admission to the College of Liberal Arts and Sciences in order to pursue a major leading to a degree other than the B.L.S. Non-B.L.S. students interested in tailoring a degree program to their individual interests should consider pursuing the interdepartmental studies major (see Interdepartmental Studies in the Catalog).

To be eligible for admission to the B.L.S. program, students must have earned either:

- an Associate in Arts (A.A.) degree from an Iowa area community college that participates in the Iowa Community College/Regents Articulation Agreement, with a g.p.a. of 2.00 or higher; or

- at least 60 s.h. of collegiate work acceptable for credit toward graduation, with a g.p.a. of 2.25 or higher.

Students admitted to The University of Iowa must have a g.p.a. of at least 2.00 to qualify for admission to the B.L.S. program.

Linguistics

Chair: Catherine O. Ringen

Professors: William D. Davies, Catherine O. Ringen, Jerzy Rubach

Professor emeritus: Robert S. Wachal

Associate professors: Jill Beckman, Alice L. Davison, Elena Gavrusseva, Roumyana Slabakova

Undergraduate degree: B.A. in Linguistics

Undergraduate nondegree program: Minor in Linguistics

Graduate degrees: M.A., Ph.D. in Linguistics

Web site: <http://www.uiowa.edu/~linguist/>

Linguistics is the scientific study of human languages, which are highly complex systems. Areas of study include word structure (morphology), speech sounds (phonetics) and their patterns of combination and contrast (phonology), sentence structure (syntax), and meaning relations (semantics).

Linguists study well-known and familiar languages, such as English, Spanish, Russian, and Chinese. They also study less well-known languages and even those languages about which little has been discovered. While human languages are different from one another in many ways, there are broad similarities among them, supporting the idea that the capacity for language is part of human cognitive functions.

The description of formal patterns of human language has a number of applications. Linguistics is connected to psychology, and to speech and hearing, in studying how children learn language, how speakers process and interpret language, and how injuries and disorders affect both production and perception of speech. It is linked with anthropology and other social sciences in studying how language use relates to culture, region, class, and gender. Linguists and computer scientists collaborate to construct computational representations of syntax and semantics for processing natural languages.

Linguistics has important ties with instruction in foreign languages and in English as a second language. Studies of how languages are learned are based in part on analysis of the languages in question. They also are grounded strongly in theories of second language acquisition, which in turn are related to theories of how linguistic knowledge is represented in the mind.

People with linguistic training teach English as a second language and help clinicians retrain people with linguistic disabilities. Some help design school programs for minority groups or intelligence and achievement tests. Linguists also work in occupations related to law, the computer industry, and foreign languages.

Undergraduate Program

High scores on verbal, analytic, and quantitative aptitude tests are indicators of success in linguistics. Although few aspects of the field deal with numbers, students must be able to reason logically and explicitly and deal with formulas and abstract symbols. Depending on their vocational goals, prospective linguistics students should consider pursuing their studies either through the M.A. in linguistics with a professional focus or through the Ph.D.; or they should take a second major. Appropriate companion fields include foreign languages, English, anthropology, sociology, speech pathology, psychology, mathematics, computer science, philosophy, and elementary and secondary education.

Bachelor of Arts

The B.A. in linguistics prepares students to do basic language analysis in syntax-semantics (sentence patterns and their relation to meanings) and phonology (sound patterns). Elective courses in a variety of subspecialties enable students to tailor the program to their own interests.

The Bachelor of Arts in linguistics requires 24 s.h. of course work in the major, as follows.

103:100 Introduction to Linguistics	3 s.h.
103:110 Articulatory and Acoustic Phonetics	3 s.h.
103:111 Syntactic Analysis	3 s.h.
103:112 Phonological Analysis	3 s.h.

A course in language history (e.g., 103:131 or 103:139)
or

A course in an old language (classical Greek, Latin, Old English, Sanskrit)

Electives (chosen in consultation with undergraduate advisor)

Students must complete no fewer than 15 s.h. of the major, including 103:110, 103:111, and 103:112, at The University of Iowa.

TESL Emphasis

As part of the B.A. in linguistics, students can earn an emphasis in Teaching English as a Second Language (TESL). This emphasis can prepare students to teach English to non-native speakers abroad. This emphasis is also excellent preparation for graduate work in second language acquisition. To earn the TESL emphasis, students take the five required courses plus the following.

Both of these:

103:141 The Structure of English	3 s.h.
103:145 Methods of Teaching English as a Second Language	3 s.h.

One of these:

103:107 Practicum in Teaching English as a Second Language	3 s.h.
103:147 Research Methods	3 s.h.
103:156 Child Language—Linguistic Perspectives	3 s.h.
103:161 Practical Phonetics	3 s.h.
103:173 Generative Second Language Acquisition	3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: Introduction to Linguistics (103:100) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: two more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Members of the University Honors Program may graduate with honors in linguistics by completing the major course work plus an honors thesis, which must be prepared in consultation with the student's academic advisor. Membership in the University Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Minor

The undergraduate minor in linguistics requires 15 s.h. of linguistics courses, including at least 12 s.h. taken at The University of Iowa in advanced courses (numbered 103:100 and above). The minor must include 103:100, 103:110, 103:111, and 103:112. Course work toward the minor may not be taken pass/nonpass.

Joint B.A./M.A. with TESL Focus

Qualified undergraduate linguistics majors may apply to the joint B.A./M.A. program, in which they receive an M.A. in linguistics with TESL (Teaching English as a Second Language) focus one year after receiving the B.A. To enter the program, a student must:

- be a University of Iowa undergraduate student majoring in linguistics;
- complete at least 80 s.h. of undergraduate work, typically by the end of the fifth semester; and
- have a g.p.a. of at least 3.50.

As part of the undergraduate major, students take 103:141 The Structure of English, a course in language history, 103:100 Introduction to Linguistics, and 103:110 Articulatory and Acoustic Phonetics.

Joint B.A./M.A. students may count 12 s.h. toward both the B.A. and the M.A. Instead of taking 103:111 Syntactic Analysis to fulfill the B.A. syntax requirement, they take 103:201 Introduction to Syntax, the first course in the mandatory two-course syntax sequence for M.A. students. Instead of taking 103:112 Phonological Analysis to fulfill the B.A. phonology requirement, they take 103:203 Introduction to Phonology, the first in the graduate two-course phonology sequence.

In addition, 103:145 Methods of Teaching English as a Second Language and 103:202 Syntactic Theory count toward both degrees and typically are taken during the senior year.

Graduate Programs

The graduate programs emphasize theory and research. Students interested in nonuniversity careers also may take courses in applied linguistics and other fields, either in connection with doctoral work or as an option in the M.A. program.

Master of Arts

All students take a required set of core courses in phonology and syntax. Comprehensive examinations cover phonology, syntax, (and applied linguistics for students who choose this option). The required core courses are as follows.

103:110 Articulatory and Acoustic Phonetics	3 s.h.
103:173 Generative Second Language Acquisition	3 s.h.
103:200 Proseminar: Morphosyntax	1 s.h.
103:201 Introduction to Syntax	3 s.h.
103:202 Syntactic Theory	3 s.h.
103:203 Introduction to Phonology	3 s.h.
103:204 Phonological Theory	3 s.h.

One of these:

103:113 Linguistic Field Methods	3 s.h.
103:210 Linguistic Structures	3 s.h.
103:217 Language Universals and Linguistic Typology	3 s.h.

The M.A. with thesis requires at least 8 s.h. of elective courses and up to 6 s.h. of thesis credit. The nonthesis option requires at least 37 s.h., including the 22 s.h. departmental core and 15 s.h. of course work in the department. The 15 s.h. may include a 9 s.h. focus (e.g., teaching English as a second language). All courses that count toward the degree must be approved by the student's advisor.

For students with a linguistics background, up to 6 s.h. of course work can be waived if the department determines that the student completed comparable work before enrolling in the program.

All students must earn a minimum of 30 s.h. of graduate credit to receive the degree, regardless of prior preparation.

Doctor of Philosophy

The highly selective Ph.D. program provides students with a strong foundation in theoretical linguistics and helps them develop the skills they will need to explore the close relationship between linguistics and related disciplines. The core is as follows (total of 18 s.h.).

- Two upper-level syntax courses numbered 103:212 or above
- Two upper-level phonology courses numbered 103:214 or above
- At least two seminars

An approved specialty area of 18 s.h. also is required, and students must achieve proficiency in a foreign language, as specified by department regulations.

To pass the comprehensive examination for the Ph.D., a student must gain approval for two papers of publishable quality. One must be in phonology or syntax. The other should be in an area of the student's choosing and must be distinct from the area of the first paper.

An oral defense of the dissertation and three years of residence also are required. In addition, all candidates are required to gain supervised experience in teaching and research.

Admission

Applicants to the graduate program in linguistics must complete an application form, submit GRE General Test scores, and have three letters of recommendation sent to the Department of Linguistics. Students whose first language is not English must submit Test of English as a Foreign Language (TOEFL) scores. Applications for admission should be submitted as early as possible for the following academic year.

Financial Support

Fellowships, teaching assistantships, and research assistantships are available to qualified graduate students. Applications are due no later than March 1 for the following academic year; earlier submission is strongly encouraged.

University of Iowa Fellowships are available for exceptionally well-qualified applicants. Those interested in being nominated for a University of Iowa Fellowship should submit all application materials by January 15 for the following academic year.

Applications for all awards are considered only for students whose application for admission is complete.

Language Instruction

Instruction in Swahili is provided by native-speaking teachers through the department. Elementary and intermediate Swahili are taught every year. The classroom emphasis on oral communication skills is augmented by discussion of various aspects of the cultures.

Students may use the four-semester sequence in Swahili to complete the College of Liberal Arts and Sciences General Education Program foreign language component. The sequences also satisfy requirements for certain undergraduate programs, for example, those in the African American Studies Program.

English as a Second Language

ESL instruction is offered in three distinct, but related, programs: the ESL credit classes, the Iowa Intensive English Program (IIEP), and the Teaching Assistant Preparation in English Program (TAPE). These programs meet the needs of students whose first language is not English. The ESL credit support courses help students raise their English proficiency so they can complete a degree successfully. The IIEP provides intensive instruction for students who must raise their English proficiency to gain admission to a university or college. The TAPE program helps students improve their oral competence in English so they may assume classroom teaching responsibilities.

ESL Credit Classes

English as a Second Language Credit Classes bridge the gap between full-time language instruction and full-time academic work, serving students who score 530-599 (paper-based), 197-250 (computer-based), or 71-100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). ESL courses are offered to increase proficiency in five skill areas: reading, writing, speaking, pronunciation, and grammar. Each course grants 3 s.h. of credit, which count toward graduation. Courses are taught by teaching assistants pursuing advanced degrees in linguistics.

Courses taken to meet the College of Liberal Arts and Sciences English proficiency requirement may not be taken P/N. ESL courses may not be taken S/U. All required ESL courses must be completed before registration in rhetoric courses. Once enrolled, students may not drop ESL courses.

Iowa Intensive English Program (IIEP)

The IIEP primarily serves students on conditional admission and persons who have not yet been admitted to the University and who score below 530 (paper-based), 197 (computer-based), or 71 (Internet-based) on the Test of English as a Foreign Language (TOEFL). The program offers intensive English instruction and a cultural, social, and academic orientation to the United States. Instruction emphasizes proficiency in spoken and written English, which is crucial to college and university work. Grammar and the basic language skills of writing, reading, listening comprehension, and speaking are taught each day at all levels—beginning, intermediate, and advanced.

Each student receives 20 hours of classroom instruction each week plus individual work in the language laboratory. Field trips and cultural and social experiences are an integral part of the program. Students enrolled in the IIEP have full access to all University facilities. The program welcomes international students preparing to enter universities and colleges as well as other adults who want to improve their English skills. Instruction is by full-time professional ESL instructors.

International students admitted to the IIEP receive a certificate of eligibility (Form I-20), which enables them to apply for a student visa at the nearest U.S. consulate or embassy. Application materials are available from the ESL Programs Office and on the Iowa Intensive English Program web site.

Teaching Assistant Preparation in English (TAPE)

The Teaching Assistant Preparation in English (TAPE) program is designed for graduate students whose first language is not English, who need additional work on English communication, and who will hold teaching assistantships while at The University of Iowa. Only students who need the program and who have sufficient competence in English to profit from it are eligible. TAPE courses are open to graduate students who have been evaluated for TA certification and to others if space is available. Students are taught by full-time professional ESL instructors.

Facilities

The Department of Linguistics has two laboratories. One is equipped with 12 computer workstations for small group instruction, individual work, and student research in speech analysis, second language acquisition, computational linguistics, and other areas. The other has a soundproof booth connected to a computer with software for speech analysis. Remote terminals and personal computers are also available to students.

The departmental reading room, which contains a modest library, provides a common meeting place for faculty and students. Students have considerable influence on departmental affairs and enjoy a high degree of individual instruction.

Courses

Primarily for Undergraduates

- 103:011 Language and Society** 3 s.h.
Correlations between social and linguistic behavior; methods for discovering and describing socially significant language behavior; educational and political implications of findings. GE: social sciences.
- 103:013 Language and Formal Reasoning** 3 s.h.
Semantics and sentence structure of English; word meanings, meaning connected to truth conditions, reasoning based on logical connectives and quantifiers, evaluation of valid and invalid arguments. GE: quantitative or formal reasoning.
- 103:020 Introduction to the Study of Language** 3 s.h.
Nontechnical introduction: classification of languages, writing systems, language and the brain, acquisition of first and second languages, bilingualism, animal communication, language and computing.
- 103:028 English Grammar** 3 s.h.
Recognizing nouns, verbs, adverbs, adjectives, and other parts of speech; sentence analysis; subjects, objects; types of sentences; passives, relative clauses; for students with little or no background in English grammar study.
- 103:035 English Words** 3 s.h.
English word formation, basic units of English vocabulary; vocabulary skill expansion; word structure.
- 103:045 Language Rights** 3 s.h.
Language minorities and linguistic human rights in the United States and the world; language and identity, culture, power; case studies of language rights deprivation.
- 103:055 Languages of the World** 3 s.h.
Overview of structural similarities and differences in human language; survey of the world's major language families; emphasis on sentence and word structure, sound systems, and modes of classification. GE: social sciences.
- 103:095 Research Practicum** arr.
Individual participation in faculty research projects. Prerequisite: consent of instructor.
- 103:099 Special Project** arr.

For Undergraduate and Graduate Students

- 103:100 Introduction to Linguistics** 3 s.h.
Introduction to the study of human language: sounds and their contrasts and variation, words and meaningful subunits, sentence structure, historical change. Same as O8L:100, 113:100.
- 103:107 Practicum in Teaching English as a Second Language** 3 s.h.
Practical experience in TESL, observation and participation in intensive English classes; design and teaching of ESL classes under supervision. Prerequisites: 103:145 and consent of instructor.
- 103:110 Articulatory and Acoustic Phonetics** 3 s.h.
Production and transcription of sounds in human languages; physics of sound, computer analysis of speech sounds. Offered fall semesters.
- 103:111 Syntactic Analysis** 3 s.h.
Introduction to sentence structures and basic abstract relations that characterize them, including word category, word order, hierarchical organization; problem sets from English and other languages as basis for discussion, analysis. Offered spring semesters.
- 103:112 Phonological Analysis** 3 s.h.
Introduction to analysis of sound systems; generative phonological theory; practice in phonological analysis using data from a variety of languages. Offered spring semesters. Prerequisite: 103:110.
- 103:113 Linguistic Field Methods** 3 s.h.
Collection and analysis of primary linguistic data from unfamiliar language; methods of elicitation, theory, practical problems; extensive practice in eliciting data from a consultant. Prerequisites: 103:110, 103:111, and 103:112.
- 103:125 Elementary Swahili I** 3-4 s.h.
GE: foreign language.
- 103:126 Elementary Swahili II** 3-4 s.h.
GE: foreign language.
- 103:127 Intermediate Swahili I** 3-4 s.h.
GE: foreign language.
- 103:128 Intermediate Swahili II** 3-4 s.h.
GE: foreign language.
- 103:129 Advanced Swahili** 3-4 s.h.
Advanced speaking, listening, reading, and writing skills. Prerequisite: 103:128 or equivalent.
- 103:131 History of the English Language** 3 s.h.
Development of phonological and grammatical structure of English, from Old to Modern English; dialectal differentiation in English. Prerequisite: 103:100 or equivalent. Same as O8L:131.
- 103:132 Elementary Old English** 4 s.h.
Structure; historical position in the Germanic group of languages; selected texts. Same as O08:140.
- 103:139 Chinese Historical Phonology** 3 s.h.
Same as O39:139.
- 103:140 Introduction to Computational Linguistics** 3 s.h.
Introduction to computational linguistics; focus on theory and practice of natural language processing and syntactic and semantic analysis. Same as 22C:146.
- 103:141 The Structure of English** 3 s.h.
Descriptive analysis of English, including word and sentence structure; focus on relevance to teaching English as a second language. Offered fall semesters. Pre- or corequisite: 103:111 or consent of instructor.

103:144 Introduction to Chinese Linguistics	3 s.h.
Same as 039:144.	
103:145 Methods of Teaching English as a Second Language	3 s.h.
Observations of ESL and intensive English classes at the University; design and presentation of short lessons, text evaluation, demonstrations of innovative approaches of the last decade; materials. Offered spring semesters. Prerequisites: 103:110 and 103:141.	
103:147 Research Methods	3 s.h.
Research tools of linguistics, language acquisition, and English as a Second Language; emphasis on design of research experiments based on specific linguistic hypotheses; evaluation of research methodologies; basic statistical analysis, work with linguistic databases through problem sets. Prerequisite: 103:100.	
103:150 Language and Gender	3 s.h.
Gender-related language variation; current research on gender-specific linguistic forms and usage in the United States and other language communities; introduction to relevant principles of linguistic theory and analysis. GE: cultural diversity. Same as 113:173.	
103:155 Morphology	3 s.h.
Lexicon and principles of word formation; principal processes of inflection, derivation, and compounding found in the world's languages; relation to phonology, syntax; practice in morphological analysis from a variety of languages. Prerequisite: 103:100.	
103:156 Child Language—Linguistic Perspectives	3 s.h.
Linguistic theory as applied to first-language learning, including acquisition of sounds, syntax and word meaning, acquisition strategies, properties of input, theories of first-language acquisition. Prerequisite: 103:100.	
103:157 Electronic Corpora and Linguistic Analysis	3 s.h.
Aspects of electronic corpora and their use for linguistics, language acquisition, and language technology; creation and nature of corpora; tools for using a corpus.	
103:161 Practical Phonetics	3 s.h.
Contemporary articulatory and acoustic research, including second-language acquisition, elicitation and computer analysis of primary linguistic data. Prerequisite: 103:110.	
103:163 Philosophy of Language	3 s.h.
Prerequisite: consent of instructor. Same as 026:189.	
103:172 Psychology of Language	3 s.h.
GE: social sciences. Same as 003:117.	
103:173 Generative Second Language Acquisition	3 s.h.
Overview of current second-language acquisition research in the generative linguistic framework; focus on characterizing second language learners' linguistic competence and how it is constrained by principles of universal grammar. Offered fall semesters. Prerequisite: 103:100 or equivalent.	
103:175 Introduction to Semantics	3 s.h.
Overview of meaning in natural language mapped onto lexical and syntactic structures; formal logical and set theory description; discussion of truth conditions, compositionality, presupposition, definiteness, quantification in natural language. Prerequisite: 103:111 or equivalent.	
103:176 Language Development	1-3 s.h.
GE: social sciences. Prerequisite: 103:172 or 103:100 or consent of instructor. Same as 003:118.	
103:177 Basic Neuroscience for Speech and Hearing	3 s.h.
Same as 003:116.	
103:199 Special Projects	arr.
Theoretical and applied topics.	

Primarily for Graduate Students

103:200 Proseminar: Morphosyntax	1 s.h.
Basic morphological analysis of languages other than English; morphological markers of syntactic relations (morphosyntax), such as case/agreement, possession, switch reference and other inflectional marking. Corequisite: 103:201.	
103:201 Introduction to Syntax	3 s.h.
Methods and argumentation for formal analysis of sentence structure through induction from language data of central concepts and relations; hypothesis testing, empirical bases of theoretical concepts. Corequisite: 103:200.	
103:202 Syntactic Theory	3 s.h.
Current syntactic theory examined through analysis of data sets, readings in recent research; emphasis on argument construction, statement of formal principles. Offered spring semesters. Prerequisite: 103:201.	
103:203 Introduction to Phonology	3 s.h.
Analysis of sound systems, focus on early generative phonological theory; extensive practice in analysis using data from a variety of languages; linguistic argumentation. Prerequisite: 103:110.	
103:204 Phonological Theory	3 s.h.
Post-SPE phonological theory, including autosegmental phonology, feature geometry, the syllable, optimality theory. Prerequisite: 103:203.	
103:206 First Language Acquisition	3 s.h.
Child language from a crosslinguistic perspective. Prerequisites: 103:110, and 103:141 or 103:201.	
103:210 Linguistic Structures	3 s.h.
Grammatical and/or phonological structure of a selected language or language family. Repeatable with different language. Prerequisite: consent of instructor.	
103:212 Advanced Syntactic Theory	2-3 s.h.
Recent developments in syntax; comparison of theories, argumentation, and uses of data. Repeatable.	
103:214 Advanced Phonological Theory	2-3 s.h.
Current issues. Repeatable. Prerequisite: 103:204.	
103:215 Historical and Comparative Linguistics	3 s.h.
Principles of linguistic change; comparative method, genetic classification of languages; internal reconstruction, language typology. Prerequisites: 103:203 and 103:204. Same as 08L:215.	
103:216 Topics in Second Language Acquisition	3 s.h.
Recent developments of selected issues in second language acquisition. Repeatable. Prerequisite: 103:173 or consent of instructor.	
103:217 Language Universals and Linguistic Typology	3 s.h.
Proposed universal principles of linguistic structure; approaches to classification of languages on the basis of grammatical and phonological structure. Prerequisites: 103:100 or equivalent, and consent of instructor.	
103:218 Psycholinguistics	3 s.h.
Prerequisite: 003:117 or consent of instructor. Same as 003:218.	
103:220 Seminar: Linguistic Anthropology	3 s.h.
Same as 113:271.	
103:221 Seminar: Language and Gender	3 s.h.
Role of language and discourse in cultural constructions of gender identities and relations, including domination and subordination; theoretical perspective and methodological approaches that have shaped thought on language/gender nexus. Prerequisites: 113:220 or 131:220, and consent of instructor. Same as 113:273.	

103:222 Special Topics: Linguistic Anthropology 3 s.h.
Same as 113:272.

103:230 Advanced Hearing Science and Speech Perception 4 s.h.
Classical, contemporary theories; perception in auditory, visual, tactile modalities. Offered fall semesters of even years. Prerequisites: background in phonetics, speech science, and hearing science; or consent of instructor. Same as 003:230.

103:231 History of the German Language 3 s.h.
Same as 103:241.

103:232 Special Topics in German Linguistics 3 s.h.
Same as 013:299, 164:299.

103:262 Topics in Comparative Romance Linguistics 3 s.h.
Repeatable. Prerequisite: 035:204 or equivalent. Same as 20E:201, 035:207.

103:275 Acoustics of Speech 4 s.h.
Prerequisites: 003:112 and 003:219, or consent of instructor. Same as 003:250.

103:277 Physiology of Speech Production 5 s.h.
Prerequisites: 003:112 and 003:219, or consent of instructor. Same as 003:252.

103:300 Seminar: Spanish Linguistics 3 s.h.
Same as 035:300.

103:312 Seminar: Problems in Linguistics 2-3 s.h.
Intensive study of theoretical and practical problems.

103:390 Special Projects arr.

103:400 Master's Thesis arr.

103:450 Ph.D. Thesis arr.

Special English Courses

ESL Credit Classes

The following courses are for students whose first language is not English. Courses taken to meet the College of Liberal Arts and Sciences English proficiency requirement may not be taken P/N. English as a Second Language (ESL) courses may not be taken S/U. In order to enroll in ESL courses, undergraduates must score 530 (paper-based), 197 (computer-based), or 71 (Internet-based) or higher on the Test of English as a Foreign Language (TOEFL), or the equivalent; graduate students must score 550 (paper-based), 215 (computer-based), or 81 (Internet-based) or higher on TOEFL, or the equivalent. Consent of ESL coordinator is required for all courses.

103:184 English as a Second Language: Conversation Skills 3 s.h.
Speaking skills for the U.S. academic setting and society; pronunciation, grammar, vocabulary; structured opportunity to develop fluency. Prerequisite: consent of ESL coordinator.

103:185 English as a Second Language: Pronunciation and Oral Skills 3 s.h.
Development of skills appropriate to formal speaking; diagnosis and correction of persistent pronunciation problems; correct stress, intonation. Prerequisite: consent of ESL coordinator.

103:186 English as a Second Language: Grammar 3 s.h.
English structure; troublesome grammar patterns. Prerequisite: consent of ESL coordinator.

103:187 English as a Second Language: Writing 3 s.h.
Complex grammatical constructions, discourse considerations, formal vocabulary use expected of university students; organization styles, types of argumentation, analytic methods used in academic writing. Prerequisites: undergraduate standing and consent of ESL coordinator.

103:188 English as a Second Language: Oral Skills for M.B.A. Students 3 s.h.
Improvement of M.B.A. students' oral skills; focus on career-oriented situations (interviews, presentations, discussions, meetings). Prerequisites: full-time M.B.A. study, enrollment by test, and consent of ESL coordinator.

103:189 English as a Second Language: Reading Skills 3 s.h.
Increasing reading speed and comprehension of university-level writing and vocabulary; exercises, discussion, and note-taking assignments to develop critical analysis skills. Prerequisite: consent of ESL coordinator.

103:190 English as a Second Language: Writing Skills for Graduate Students 3 s.h.
Discourse considerations; styles of organization, types of argumentation, methods of analysis expected of graduate students. Prerequisites: TOEFL score of at least 550 (paper-based) or 213 (computer-based) or 81 (Internet-based) or equivalent, and graduate standing.

Iowa Intensive English Program (IIEP)

These courses are for students whose first language is not English. The Iowa Intensive English Program primarily serves students on conditional admission, those who have not yet been admitted to the University, and those who score below 530 (paper-based), 197 (computer-based), or 71 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

103:001 Iowa Intensive English: Communication Skills 0 s.h.
Aural comprehension, spoken English; U.S. culture; information exchange, talking with Americans; cultural differences; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

103:002 Iowa Intensive English: Communication Skills for Professionals 0 s.h.
Listening and speaking skills for international professionals; conversational fluency, language for professional interactions (e.g., discussions and presentations). Prerequisite: consent of ESL coordinator.

103:003 Iowa Intensive English: Reading 0 s.h.
Effective reading: skills and practice of reading strategies using newspapers, popular magazines, schedules, documents, academic textbooks, correspondence, literature; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

103:004 Iowa Intensive English: Grammar 0 s.h.
Correct use of English grammatical structures; extensive practice to achieve competence in English communication; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

103:005 Iowa Intensive English: Writing 0 s.h.
Personal and formal writing; journal entries, letters, critiques, essay exams, short papers involving library use; revising and editing; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

Teaching Assistant Preparation in English (TAPE)

The TAPE program is designed for prospective teaching assistants whose first language is not English and who need additional work on English communication skills. Entry to the program is determined by a test.

103:006 TA Preparation in English: Fluency Building 0 s.h.
Pronunciation, fluency building, knowledge of the University of Iowa classroom. Prerequisite: consent of ESL coordinator.

103:007 TA Preparation in English: Pronunciation 0 s.h.
Intensive work toward maximum intelligibility; emphasis on stress, timing, intonation. Prerequisite: consent of ESL coordinator.

103:008 TA Preparation in English: Presentation Skills 0 s.h.
Intelligibility of speech and clarity of expression in presenting and responding; practice in videotaped lectures. Prerequisite: consent of ESL coordinator.

103:009 TA Preparation in English: Orientation 0 s.h.
Student expectations, typical teacher/student relationships, basic classroom management at the University. Prerequisite: consent of ESL coordinator.

Mathematics

Chair: David Manderscheid

Professors: Daniel D. Anderson, Victor P. Camillo, Raúl Curto, Charles D. Frohman, Kent R. Fuller, Juan Gatica, Fred Goodman, Weimin Han, Norman L. Johnson, Palle Jorgensen, Surjit S. Khurana, William A. Kirk, William H. Klink, Philip C. Kutzko, Yi Li, Bor-Luh Lin, Eugene W. Madison, David Manderscheid, Paul S. Muhly (Mathematics/Statistics and Actuarial Science), George C. Nelson, Florin Radulescu, Richard Randell, Dennis M. Roseman, Jonathan K. Simon, Gerhard O. Strohmeyer, Keith D. Stroyan, Tuong Ton-That, Lihe Wang, Ying-Qing Wu, Yangbo Ye

Professors emeriti: Kendall E. Atkinson, Nguyen P. Cac, Herbert W. Hethcote, Eugene W. Johnson, Erwin Kleinfeld, Margaret Kleinfeld, Harold L. Schoen, Marilyn Zweng

Associate professors: Richard Baker, Frauke Bleher, Oguz Durumeric, Laurent Jay, John P. Lediaev, Tong Li, Walter Seaman, David Stewart

Associate professor emeritus: Michael A. Geraghty

Assistant professors: Isabel Darcy, Hao Fang, Colleen Mitchell

Assistant professor emerita: Matilde Macagno

Undergraduate degrees: B.A., B.S. in Mathematics

Undergraduate nondegree program: Minor in Mathematics

Graduate degrees: M.S., Ph.D. in Mathematics

Web site: <http://www.math.uiowa.edu>

Mathematics is a basic tool for understanding modern society as well as a crucial requirement for many careers in science, engineering, business, and the professions. Research in this living, dynamic subject is at the highest level in history.

An undergraduate degree in mathematics prepares students for a variety of careers in government and business, for secondary teaching, for graduate study, and with proper planning, for a variety of professional programs. Graduate study is advisable for some business and governmental positions and for college and university teaching and research.

Undergraduate Programs

The department offers two undergraduate degrees in mathematics, the Bachelor of Science and the Bachelor of Arts. Students seeking either the B.A. or B.S. enroll in one of three programs: Program A is for students who plan to work in business or government or pursue graduate study

in mathematics; program B is for students who seek secondary school teaching licensure; and program C is for those seeking specialization in a math-related area, such as actuarial science, biomathematics, business, computer science, economics, physics, statistics, and so forth. Program C may be especially appropriate for students who plan to seek a math-related job after earning a B.A. or B.S. in mathematics, rather than going on to graduate study.

Students may choose to combine a degree in mathematics with one in computer science, statistics, actuarial science, or other disciplines. The department also offers a minor in mathematics.

All students working toward Department of Mathematics undergraduate degrees must complete the College of Liberal Arts and Sciences General Education Program. The department encourages students to choose courses that complement their mathematics interests.

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts in mathematics requires a minimum of 37-39 s.h. in the major (11 courses). The Bachelor of Science in mathematics requires a minimum of 43-45 s.h. in the major (13 courses). The semester hour requirement for each degree varies, depending on the student's choice of program A, B, or C.

At least 15 s.h. of post-calculus course work applied toward the major requirements must be taken at The University of Iowa. Post-calculus courses are those numbered 22M:027 and higher that have a calculus prerequisite.

Students must maintain a g.p.a. of at least 2.00 in all course work for the major to earn a degree in mathematics.

For policies concerning transfer credit, correspondence credit, credit by examination, cumulative grade-point average, rules relating to regression and duplication, and so forth, see the College of Liberal Arts and Sciences Student Academic Handbook. For information about duplication, regression, and use of the second-grade-only option for mathematics courses, contact the Department of Mathematics.

The Handbook for Undergraduate Majors is available from the Department of Mathematics and on its web site. The handbook provides details about schedule planning and career options. For more information on admission, financial support, employment opportunities, the faculty, facilities, and other topics, visit The University of Iowa and Department of Mathematics web sites.

Program A

Program A is primarily for students who plan to work in business or government or to pursue graduate study in mathematics.

Students must complete seven core courses. In addition, B.A. students must complete at least four electives, and B.S. students must complete at least six.

CORE COURSES

A two-semester sequence of calculus I-II (8 s.h.) is required. Advanced placement credit, CLEP credit, and credit obtained through the Mathematics Incentive Program is accepted for all or part of the calculus requirement.

All of these:

22M:025-22M:026 Calculus I-II	8 s.h.
22M:027 Introduction to Linear Algebra	4 s.h.
22M:050 Introduction to Abstract Algebra I	3 s.h.
22M:055-22M:056 Fundamental Properties of Spaces and Functions I-II	7 s.h.
22M:100 Introduction to Ordinary Differential Equations	3 s.h.

More advanced courses may be substituted for the core courses, with Department of Mathematics approval.

ELECTIVES

For the B.A. degree: four electives (each 3-4 s.h.) chosen from the following list, including at least one upper-level mathematics course

For the B.S. degree: six electives from the following list, including at least three upper-level mathematics courses

Mathematics

All courses 22M:070 and above, except 22M:081, 22M:095, 22M:104, 22M:105, 22M:109, and 22M:195 (upper-level mathematics courses include 22M:115 and above, except 22M:195 through 22M:199)

Computer Science

22C:016 Computer Science I: Fundamentals	4 s.h.
Any course numbered above 22C:020 that counts toward an undergraduate major in computer science, except 22C:197 and 22C:198	

Statistics and Actuarial Science

Students can count only one of these: 22S:120 or 22S:130. Neither of them can be counted if taken after 22S:153.

22S:120 Probability and Statistics	4 s.h.
22S:130 Introduction to Mathematical Statistics I	3 s.h.
22S:131 Introduction to Mathematical Statistics II	3 s.h.
22S:138 Bayesian Statistics	3 s.h.
22S:150 Regression, Time Series, and Forecasting	3 s.h.
22S:153 Mathematical Statistics I	3 s.h.
22S:154 Mathematical Statistics II	3 s.h.
22S:156 Applied Time Series Analysis	3 s.h.
22S:158 Experimental Design and Analysis	3 s.h.
22S:174 Quantitative Methods for Actuaries	3 s.h.
22S:175 Actuarial Models	3 s.h.
22S:176 Credibility and Loss Distributions	4 s.h.
22S:180 Mathematics of Finance	4 s.h.
22S:181 Life Contingencies I	3 s.h.
22S:182 Life Contingencies II	3 s.h.
22S:193 Statistical Inference I	3 s.h.
22S:194 Statistical Inference II	3 s.h.
22S:195 Probability and Stochastic Processes I	3 s.h.
22S:196 Probability and Stochastic Processes II	3 s.h.

Program B

Program B is intended for students seeking secondary school teaching licensure. See the department's Handbook for Undergraduate Majors, and see Teaching and Learning (College of Education) in the Catalog.

CORE COURSES

A two-semester sequence of calculus I-II (8 s.h.) is required. Advanced placement credit, CLEP credit, and credit earned through the Mathematics Incentive Program is accepted for part or all of the calculus requirement.

All of these:

22C:016 Computer Science I: Fundamentals	4 s.h.
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22M:025-22M:026 Calculus I-II	8 s.h.
22M:027 Introduction to Linear Algebra	4 s.h.
22M:028 Calculus III	4 s.h.
22M:050 Introduction to Abstract Algebra I	3 s.h.
22M:055 Fundamental Properties of Spaces and Functions I	3 s.h.
22S:120 Probability and Statistics	4 s.h.

Students who wish to take 22M:055 and 22M:056 instead of 22M:028 and 22M:055 should consult their advisor.

One of these:

22M:070 Foundations of Geometry	3 s.h.
22M:106 Transformation Geometry	3 s.h.

One of these:

22M:150 Introduction to Discrete Mathematics	3 s.h.
22M:151 Discrete Mathematical Models	3 s.h.

More advanced courses may be substituted for the core courses, with Department of Mathematics approval.

ELECTIVES

B.A. students in Program B must take at least one additional course beyond calculus. B.S. students in Program B must take at least three additional courses beyond calculus, of which two must be numbered 22M:106 or above. With their advisor's approval, capable students are encouraged to substitute more advanced courses in the same subject area for any of the electives. The Handbook for Undergraduate Majors offers advice on course selection.

Program C

Program C provides a degree with specialization in a math-related area, for instance, mathematics of optimal business decision making, economics, physics, biostatistics, biomathematics, computer science, and statistics and actuarial science. In consultation with the faculty advisor, each student prepares a program of studies tailor-made to his or her interests and academic or career goals. Building on a core of mathematics courses, students have considerable freedom to design their curriculum. The proposed program of studies must be approved by the mathematics department undergraduate committee. Students should submit their study plans on a Program C Plan of Study form, available at the mathematics department office. The Handbook for Undergraduate Majors has plans for choosing electives in several areas; students may use these or propose other plans.

CORE COURSES

A two-semester sequence of calculus I-II (8 s.h.) is required. Advanced placement credit, CLEP credit, and credit earned through the Mathematics Incentive Program is accepted for part or all of the calculus requirement.

22M:025-22M:026 Calculus I-II	8 s.h.
22M:027 Introduction to Linear Algebra	4 s.h.

One of these:

22M:028 Calculus III	4 s.h.
22M:056 Fundamental Properties of Spaces and Functions II	4 s.h.

One additional proof course (e.g., 22M:050 or 22M:055)

More advanced courses may be substituted for the core courses, with Department of Mathematics approval.

ELECTIVES

Students choose six electives for the B.A. and eight for the B.S. Students choose electives according to their specialization area. At least three of the courses must be in mathematical sciences (prefixes 22C, 22M, and 22S).

For a list of suggested subtracks, consult the Handbook for Undergraduate Majors.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Much of the work in mathematics must be taken in sequence, so students must begin major requirements as early as possible, and individual plans of study must be worked out carefully. The B.A. in mathematics typically requires 11 courses, and the B.S. requires 13. Students must choose program A, B, or C by the end of the third semester and must remain in their chosen program until they graduate in order to stay on track for the four-year graduation plan.

Before the third semester begins: course work through second-semester calculus and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: two or three more courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: three or four more major courses and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two or three more major courses

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

In order to graduate with honors in mathematics, a student must be a member of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students in mathematics also must complete the regular requirements for an undergraduate major in mathematics with a g.p.a. of at least 3.40, and must complete either an honors project or the courses 22M:115-22M:116 and 22M:120-22M:121 with a g.p.a. of 3.00 or higher. Other sequences, such as 22M:170-22M:171, may be substituted with the approval of the honors advisor.

Students planning an honors project are responsible for finding a faculty member willing to supervise the project. For help finding a project supervisor, contact the department. Students typically register for 22M:197 Individual Study and Honors in Mathematics for at least 3 s.h.

For more information, contact the mathematics department honors advisor.

Double Majors

Students who wish to combine a major in mathematics with a major in computer science, statistics, or actuarial science must satisfy the requirements of program A, program B, or program C in mathematics. Students are advised to seek the same degree (B.A. in both areas or B.S. in both); otherwise the University requires additional semester hours for graduation.

Transfer from Engineering to Mathematics

Certain students who have completed 22M:031, 22M:032, 22M:033, 22M:034, 22M:037, 22M:047, or 22M:048 may count these courses toward a bachelor's degree in mathematics. See

the department's Handbook for Undergraduate Majors.

Minor

The minor in mathematics requires a minimum of 15 s.h. earned in Department of Mathematics courses, including at least 12 s.h. in advanced courses at The University of Iowa. Neither transfer credit nor credit by examination is accepted toward the 12 s.h. of advanced work; advanced courses are 22M:027 and 22M:028, and all courses numbered 22M:033 or above, except 22M:081, 22M:095, 22M:104, 22M:105, 22M:109, and 22M:195. See the department's Handbook for Undergraduate Majors.

Students seeking a mathematics minor must maintain a g.p.a. of at least 2.00 in all work attempted in the department. No course counted toward the minor may be taken pass/nonpass.

Graduate Programs

The department offers the Master of Science and the Doctor of Philosophy in mathematics.

Master of Science

Students earn the M.S. through courses and comprehensive examinations. There is no M.S. thesis.

Four different programs lead to the M.S. in mathematics. Each requires a minimum of 30 s.h. of graduate-level work. The requirements (courses and comprehensive examination areas) may be modified with the department's consent.

Program I

Program I prepares students for further study of pure and applied mathematics and for employment in government and business. The program requires a minimum of 30 s.h. of graduate credit. M.S. students in program I take several courses and pass two comprehensive examinations. Students must earn a grade of B-minus or higher in six of the courses and maintain a g.p.a. of at least 2.75 in all mathematics courses taken for the M.S.

The following courses are required.

22M:115-22M:116 Introduction to Analysis I-II	6 s.h.
22M:120-22M:121 Abstract Algebra I-II	6 s.h.
22M:132 General Topology	3 s.h.

22M:133 Introduction to Smooth Manifolds	3 s.h.
22M:142 Nonlinear Dynamics with Numerical Methods	3 s.h.
22M:144 Partial Differential Equations with Numerical Methods	3 s.h.

Each student must pass two comprehensive exams at the M.S. level, chosen from algebra, analysis, differential equations with numerical methods, and topology.

Program II

Program II is designed for secondary school teachers. It requires a minimum of 30 s.h. of graduate credit. Program II requirements are the same as those for programs I and III, except that two mathematics education courses are required. All mathematics courses numbered 22M:100 or above may be used to satisfy the required 24 s.h. of course work. Students are encouraged to consult with the mathematics education faculty when planning their course of study.

Program III

Program III focuses on applied mathematics. It requires a minimum of 30 s.h. of graduate credit. Students in program III take several courses and pass two comprehensive examinations. Students must earn a grade of B-minus or higher in six of the courses and maintain a g.p.a. of at least 2.75 in all mathematics courses taken for the M.S.

The following courses are required.

22M:115-22M:116 Introduction to Analysis I-II	6 s.h.
22M:142 Nonlinear Dynamics with Numerical Methods	3 s.h.
22M:144 Partial Differential Equations with Numerical Methods	3 s.h.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory	3 s.h.
22M:171 Numerical Analysis: Differential Equations and Linear Algebra	3 s.h.
22M:174 Optimization Techniques	3 s.h.
22M:140 Continuous Mathematical Models	3 s.h.
or	
22M:151 Discrete Mathematical Models	3 s.h.

Each student must pass two comprehensive exams at the M.S. level, chosen from differential equations with numerical methods, numerical analysis, and analysis.

Program IV

Program IV is designed for nondepartmental students working toward the Ph.D. in areas that require mathematical knowledge. It requires a minimum of 30 s.h. of graduate credit. The program has no specific required courses. Course distribution requirements are the same as those for program I.

Students in program IV are considered to have passed the comprehensive examination for the master's degree in mathematics if they have maintained a g.p.a. of at least 3.00 in all mathematics courses taken for the M.S. in mathematics and have successfully completed the Ph.D. comprehensive examination in their chosen area.

Students in program IV are assigned a mathematics advisor, who works with them and their major advisor to plan an appropriate curriculum for the M.S. in mathematics. A suitable program of study should be approved by a mathematics advisor before the student takes the Ph.D. comprehensive examination, and a member of the mathematics faculty should serve on the Ph.D. comprehensive examination committee.

Admission

Admission to M.S. programs I, II, and III is based on a combination of undergraduate course work and grades, letters of recommendation, and GRE General Test scores (and Test of English as a Foreign Language scores for international applicants). Numerical standards change every year or so. Exceptions may be made to the following guidelines.

Applicants must have completed work in an undergraduate program equivalent to the bachelor's degree offered by the mathematics department. Those whose preparation does not meet this requirement may be admitted conditionally and are asked to take specific courses that cover the deficiency.

Applicants are expected to have an undergraduate g.p.a. of at least 3.20. Relevance and difficulty of courses are considered when evaluating grades; grades of C or lower in mathematics courses need to be balanced by grades of A.

Applicants must submit three letters of recommendation.

They also are expected to score at least 650 on the quantitative section of the GRE General Test.

International applicants are required to demonstrate their competence in English, normally by scoring at least 550 (paper-based), 215 (computer-based), or 88 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Doctor of Philosophy

The Ph.D. program places strong emphasis on preparation for research and teaching. The department maintains no division between “pure” and “applicable” mathematics. It cooperates in interdisciplinary doctoral programs with the College of Education and the Program in Applied Mathematical and Computational Sciences.

Ph.D. students in mathematics must satisfy the following requirements for course work (credits and breadth), examinations, foreign language, and the Ph.D. thesis.

Students must earn at least 72 s.h. of graduate credit and spend at least three years in residence at a graduate college, including at least one year at The University of Iowa. They also should enroll in specific courses designated as preparatory for the Ph.D. examinations (consult the Department of Mathematics graduate studies director).

To further encourage mathematical breadth, students must earn at least 33 s.h. of graduate credit in regular courses equivalent to or more advanced than Ph.D. comprehensive examination preparatory courses. For a list of accepted 200-level and 300-level courses, and rules to ensure proper distribution, contact the department.

The Ph.D. examinations consist of a qualifying exam and a comprehensive exam. Students choose three areas from the department’s list of qualifying examination areas: algebra, analysis, differential equations with numerical methods, and topology. For each qualifying area, there is a two-semester, 100-level course sequence designated as preparatory, although exams may differ from course content. The three parts of the qualifying exam are taken over a two-week period. One grade (pass, fail, conditional pass) is given on the entire three-part qualifying examination by a committee consisting of six faculty members, two from each area. If the grade is fail, the committee has the option to consider each part of the exam separately, offering the student the option of pass in one or two of the areas and fail in the other(s).

The Ph.D. comprehensive exam tests students on research-related topics.

Candidates also take an oral final examination on their dissertation material.

Ph.D. students are required to demonstrate reading proficiency in French, German, or Russian by passing a reading test administered by the appropriate language department, earning a grade of B or higher in the second semester of a sequence offered by the appropriate language department, or passing a special examination approved by the Department of Mathematics graduate committee. Courses that do not carry graduate credit can be used to satisfy this requirement, but they do not count toward the required 72 s.h. of graduate credit. Students must demonstrate language competence after enrolling in graduate school.

The most distinctive aspect of a Ph.D. is the thesis. The department expects the thesis to be an original mathematical work comparable in content and writing quality to that found in standard published research journals. The thesis is written under the supervision of a mathematics department faculty member and is approved by a committee.

Admission

Admission to the Ph.D. program is based on a combination of undergraduate or graduate course work and grades, letters of recommendation, Graduate Record Examination scores, and for international applicants, the Test of English as a Foreign Language. Admission requirements are similar to those for the Master of Science programs, but the department generally seeks stronger grades and scores for doctoral admission: undergraduate or graduate g.p.a. of at least 3.40, GRE General Test quantitative score of at least 700, and scores of at least 575 (paper-based), 230 (computer-based), or 88 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Courses

For Lower-Division Undergraduates

These courses are not open to graduate students except by special arrangement with the department chair. Credit earned in 22M:001, 22M:002, and 22M:003 does not count toward degree requirements.

*Although the sequences 22M:025-22M:026 and 22M:031-22M:032 are similar, they cover the material in a different order and with

different emphases. Students must consult with their advisor before taking the second semester of one sequence after taking the first semester of another. Students who consider taking 22M:026 after 22M:011, 22M:016, or 22M:017 must consult with their advisor.

22M:001 Basic Algebra I 3 s.h.

Percent, ratio and proportion, algebraic expressions and operations, simple products, linear and quadratic equations, simultaneous equations, exponents and radicals; emphasis on verbal problems.

22M:002 Basic Algebra II 3 s.h.

Algebraic techniques, equations and inequalities, functions and graphs, exponential and logarithmic functions, systems of equations and inequalities. Prerequisite: 22M:001 or satisfactory score on math placement exam or one year of high school algebra.

22M:003 Basic Geometry 3 s.h.

Angles, triangles, polygons, areas, Pythagorean theorem, similar triangles, circles, loci, related topics. Offered spring semesters. Prerequisite: 22M:001 or satisfactory score on math placement exam or one year of high school algebra.

22M:005 Trigonometry 3 s.h.

Trigonometric functions, solutions of right and oblique triangles, complex numbers. Prerequisite: 22M:002, or satisfactory score on math placement exam, or two years of high school algebra and one year of high school geometry.

22M:006 Logic of Arithmetic 3 s.h.

Mathematical and conceptual foundations of the natural numbers used in elementary school arithmetic teaching; multiple algorithmic approaches to arithmetic and its mathematical and contextual relationships, extensions to integers, rational and irrational numbers, multiple representations. GE: quantitative or formal reasoning. Prerequisite: 22M:001 or satisfactory score on math placement exam or equivalent or consent of instructor.

22M:009 Elementary Functions 4 s.h.

Functions, relations, coordinate systems; properties and graphs of algebraic, trigonometric, logarithmic, exponential functions; inverse trigonometric functions; properties of lines, conic sections. GE: quantitative or formal reasoning. Prerequisite: 22M:005, or satisfactory score on math placement exam, or two years of high school algebra and one year of high school geometry.

22M:010 Finite Mathematics 4 s.h.

Introduction to logic, set theory, linear equations and inequalities, linear programming, matrix algebra, combinatorial probability. GE: quantitative or formal reasoning. Prerequisite: 22M:002 or satisfactory score on math placement exam or two-and-a-half years of high school mathematics.

22M:011 Introduction to Calculus with Applications 4 s.h.

Short course in derivatives and integrals with applications. GE: quantitative or formal reasoning. Offered spring semesters. Prerequisite: 22M:002 or satisfactory score on math placement exam or 22M:010 or two and one-half years of high school mathematics.

22M:012 Theory of Arithmetic 3 s.h.

Sets, cardinalities, reasoning in proofs, counterexamples, arithmetic with integers, rationals, irrationals, number theory, functions, algebraic expressions. GE: quantitative or formal reasoning. Prerequisite: 22M:009 or a more advanced course or satisfactory score on math placement exam or equivalent or consent of instructor.

22M:013 Mathematics for Business 4 s.h.

Algebraic techniques, functions and functional models, exponential and logarithmic functions and models, linear programming, informal introduction to calculus; examples and

applications from management, economic sciences, related areas. GE: quantitative or formal reasoning. Prerequisites: 22M:002, or satisfactory score on math placement exam, or two years of high school algebra and one year of high school geometry.

22M:014 First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

22M:015 Mathematics for the Biological Sciences 4 s.h.

Relations, functions, coordinate systems, graphing, polynomials, trigonometric functions, logarithmic and exponential functions; discrete mathematics, probability; examples and applications from biological sciences. GE: quantitative or formal reasoning. Prerequisite: 22M:002 or satisfactory score on math placement exam or three years of high school mathematics.

22M:016 Calculus for the Biological Sciences 4 s.h.

Differential, integral calculus; differential equations, multivariable calculus; applications to life sciences. GE: quantitative or formal reasoning. Prerequisite: 22M:015; or satisfactory score on math placement exam; or three and one-half years of high school mathematics, including trigonometry.

22M:017 Calculus and Matrix Algebra for Business 4 s.h.

Quantitative methods for treating problems arising in management, economic sciences, related areas; introduction to differential and integral calculus, systems of linear equations and matrix operations. GE: quantitative or formal reasoning. Prerequisite: 22M:002 or 22M:013 or satisfactory score on math placement exam.

***22M:025 Calculus I** 4 s.h.

Fundamental concepts, methods, techniques of single-variable differential and integral calculus; differentiation, techniques of integration, series, applications. GE: quantitative or formal reasoning. Prerequisite: 22M:009; or 22M:002 and 22M:005; or three and one-half years of high school mathematics, including analytic geometry and trigonometry.

***22M:026 Calculus II** 4 s.h.

Continuation of 22M:025. Prerequisite: 22M:025 or consent of advisor.

22M:027 Introduction to Linear Algebra 4 s.h.

Vector algebra and geometry of three-dimensional Euclidean space and extensions to n-space and vector spaces; lines and planes, matrices, linear transformations, systems of linear equations, reduction to row echelon form, dimension, rank, determinants, eigenvalues and eigenvectors. Prerequisite: 22M:025 or 22M:031 or consent of instructor.

22M:028 Calculus III 4 s.h.

Multivariable calculus; vector functions, line integrals, total differentials, gradient, implicit functions, coordinate systems, Taylor's expansion, extrema, multiple integrals, vector fields, surface integrals, Stokes' theorem. Prerequisite: 22M:026 or consent of instructor.

***22M:031 Engineering Mathematics I: Single Variable Calculus** 4 s.h.

Limits, derivatives, max/min, other applications, mean-value theorem, approximating functions, concavity, curve sketching, exponential models; Riemann sums, fundamental theorem; integration techniques, improper integrals, approximations. GE: quantitative or formal reasoning. Prerequisite: 22M:005 or 22M:009; or three and one-half years of high school mathematics, including introduction to analytic geometry and trigonometry.

***22M:032 Engineering Mathematics II: Multivariable Calculus** 4 s.h.

Vector geometry; functions of several variables; polar coordinates; partial derivatives, gradients, directional derivatives; tangent lines and planes; max/min/parametric curves, curvilinear motion; multiple integrals; vector fields, flows; integration on curves,

work; divergence, flux, Green's theorem. Prerequisite: 22M:031, or score of 4 or higher on AP Calc (AB) exam, or score of 3 or higher on AP Calc (BC) exam, or consent of instructor.

22M:033 Engineering Mathematics III: Matrix Algebra 2 s.h.

Applications, computers for matrix calculations; matrix, vector arithmetic; linear independence, basis, subspace (in R^2 , R^3); systems of equations, matrix reduction; rank, dimension; determinants, applications; eigenvalues, eigenvectors; diagonalization, principal axis theorem. Prerequisites: 22M:031, and engineering major or consent of department head.

22M:034 Engineering Mathematics IV: Differential Equations 3 s.h.

Ordinary differential equations and applications, with integrated use of computing, student projects; first-order equations; higher order linear equations; systems of linear equations, Laplace transforms; introduction to nonlinear equations and systems, phase plane, stability. Prerequisites: 22M:032, 22M:033, and engineering major or consent of department head.

22M:037 Engineering Mathematics V: Vector Calculus 3 s.h.

Partial derivatives, max-min problems, integrals along curves, surfaces and solids, vector fields and conservation of energy; curl, divergence, Stokes' theorem and the divergence theorem; the classical partial differential equations and qualitative behavior of their solutions. Prerequisites: 22M:034 or consent of instructor, and engineering major or consent of department head.

22M:047 Linear Algebra and Differential Equations for Scientists 3 s.h.

First-order linear differential equations, matrices and linear equations, vector spaces and linear transformations, eigenvalues and eigenvectors, higher-order linear differential equations, systems of differential equations, stability and phase plane analysis, Laplace transforms, series solutions to differential equations. Prerequisite: a two-semester calculus sequence. Recommended: subsequent enrollment in 22M:048.

22M:048 Vector Calculus for Scientists 3 s.h.

Vectors, lines and planes, vector-valued functions, partial derivatives, optimization, multiple integrals, calculus of vector fields, Kepler's laws of planetary motion, Gauss' laws, Maxwell's equations. Prerequisite: a two-semester calculus sequence. Recommended: enrollment as a sequel to 22M:047.

Elementary Topics of General Interest

These courses are not open to graduate students except by special arrangement with the department chair.

22M:050 Introduction to Abstract Algebra I 3 s.h.

Basic logic, proof methods, sets, functions, relations, mathematical induction; gradual transition from familiar number systems to abstract structures—division algorithm, unique factorization theorems; groups, subgroups, quotient groups, homomorphisms. Prerequisite: 22M:027. Corequisite: second-semester calculus or consent of instructor.

22M:055 Fundamental Properties of Spaces and Functions I 3 s.h.

Elementary topological and analytic properties of real numbers; emphasis on ability to handle definitions, theorems, proofs. Prerequisite: second-semester calculus. Corequisite: 22M:027 or consent of instructor.

22M:056 Fundamentals Properties of Spaces and Functions II 4 s.h.

Multivariable analysis; Bolzano-Weierstrass theorem in three-dimensional Euclidean space, differential calculus, inverse and implicit function theorems, multiple integrals, surface and line integrals, differential forms and Stokes' theorem in n -dimensional Euclidean space. Prerequisites: 22M:055; closed to students who have taken 22M:028.

22M:070 Foundations of Geometry 3 s.h.

Axiomatic development of common foundation for Euclidean, non-Euclidean geometry; constructions of non-Euclidean models, independence of parallel postulate. Prerequisite: 22M:026 or equivalent.

22M:072 Elementary Numerical Analysis 3 s.h.

Computer arithmetic, root finding, polynomial approximation, numerical integration, systems of linear equations, ordinary differential equations; use of higher-level computer language such as Matlab, Maple, Mathematica. Prerequisite: grade of C- or higher in 22M:026 or 22M:032. Same as 22C:072.

22M:081 Geometry for Elementary Teachers 3 s.h.

Points, lines, planes; measurement, two- and three-dimensional coordinate geometry, transformational geometry and vectors; applications of geometry to solve real-world problems. Offered spring semesters. Prerequisites: 22M:001 or equivalent, and elementary teacher certificate candidacy or certification.

22M:095 Introduction to Research Opportunities 1 s.h.

Modern mathematics research areas and activities; seminar. Prerequisite: 22M:027 or consent of instructor.

For Upper-Division Undergraduates

Graduate students in mathematics may not receive credit for 22M:100, 22M:104, 22M:105, or 22M:109.

22M:100 Introduction to Ordinary Differential Equations 2-3 s.h.

First-order ordinary differential equations; second-order linear differential equations; series solutions; higher-order linear and matrix differential equations; existence and uniqueness theorems. Prerequisites: 22M:027 and 22M:028, or 22M:056 or equivalent; or consent of instructor.

22M:104 Introduction to Matrix Theory 3 s.h.

Vector algebra and geometry of three-dimensional Euclidean space and extensions to n -space and vector spaces; lines and planes, matrices, linear transformations, systems of linear equations, reduction to row-echelon form, dimension, rank, determinants, eigenvalues, eigenvectors. Prerequisite: graduate standing.

22M:105 Basic Analysis 3 s.h.

Elementary topological and analytical properties of real numbers; emphasis on ability to handle definitions, theorems, proofs; same material as 22M:055 for non-mathematics graduate students. Prerequisites: graduate standing, one year of calculus, and one semester of linear algebra.

22M:106 Transformation Geometry 3 s.h.

Euclidean geometry through automorphisms of the plane; geometry and algebra connected through group structure of important sets of transformations; emphasis on plane isometries, similarities, and problem-solving techniques they provide. Prerequisite: 22M:050 or equivalent or consent of instructor.

22M:107 History of Mathematics 3 s.h.

May include numerical systems; Babylonian, Egyptian, and Greek mathematics; mathematics of other cultures; calculus; 19th- and 20th-century mathematics. Prerequisites: two semesters of calculus and one semester of linear algebra, or consent of instructor.

- 22M:108 Philosophy of Mathematics** 3 s.h.
 Role of formalism, intuitionism, logicism, Platonism in shaping foundations of mathematics; nature of mathematical existence and truth; Gödel's incompleteness theorems; axiom of choice; philosophical differences between various set theories (e.g., Zermelo-Fraenkel, Gödel-von Neumann), category theory, other viable foundations of mathematics; relationship between mathematics, science. Prerequisites: two semesters of calculus, and 22M:027 or equivalent; or consent of instructor.
- 22M:109 Classical Analysis** 3 s.h.
 Multivariable calculus, vector functions, line integral, total differentials, gradient, implicit functions, coordinate systems, Taylor's expansion, extrema, multiple integrals, vector fields, surface integrals, Stoke's theorem. Prerequisites: graduate standing, and one year of calculus or consent of instructor.
- 22M:115 Introduction to Analysis I** 3 s.h.
 Real numbers, fundamentals of limits and continuity in the context of metric spaces; Lebesgue theory of functions of one real variable. Prerequisite: 22M:055 or graduate standing or consent of instructor.
- 22M:116 Introduction to Analysis II** 3 s.h.
 Local theory of analytic functions of one complex variable, power series, classical transcendental functions; spaces of functions. Prerequisite: 22M:115 or consent of instructor.
- 22M:118 Complex Variables** 3 s.h.
 Geometry of complex plane, analytic functions; Cauchy-Goursat theorem, applications; Laurent series, residues, elementary conformal mapping. Prerequisite: 22M:028 or 22M:056 or 22M:109 or equivalent or consent of instructor.
- 22M:120 Abstract Algebra I** 3 s.h.
 Groups and homomorphisms, Sylow Theorems, rings, finitely generated modules over a PID, Galois theory, vector spaces, linear transformations and matrices, canonical forms. Prerequisite: 22M:050 or equivalent or consent of instructor.
- 22M:121 Abstract Algebra II** 3 s.h.
 Continuation of 22M:120. Prerequisite: 22M:120.
- 22M:123 Foundations of Set Theory** 3 s.h.
 Set theory as used in abstract mathematics; equivalent forms of axiom of choice, cardinal numbers and their arithmetic, ordinal numbers and transfinite induction. Prerequisite: 22M:050 or 22M:055 or graduate standing or consent of instructor.
- 22M:124 Foundations of Logic** 3 s.h.
 Propositional calculus, Boolean algebras, introduction to axiomatic theories. Prerequisite: 22M:050 or 22M:055 or graduate standing or consent of instructor.
- 22M:125 Master's Comprehensive Examination Preparation Seminars** 0 s.h.
 Exam preparation in pure and applied mathematics. Prerequisite: consent of instructor.
- 22M:126 Elementary Theory of Numbers** 2-3 s.h.
 Factorization, congruence, Diophantine equations, law of quadratic reciprocity. Prerequisite: 22M:050 or equivalent or consent of instructor.
- 22M:127 Matrix Theory** 3 s.h.
 Vector spaces, linear transformations, matrices, equivalence of matrices, eigenvalues and eigenvectors, canonical forms, similarity, orthogonal transformations, bilinear and quadratic forms. Prerequisite: 22M:027 or 22M:104 or equivalent or consent of instructor.
- 22M:130 Elementary Topology** 3 s.h.
 Introduction to topology of Euclidean spaces and manifolds, emphasis on basic sets (disks, spheres, annuli, Cantor sets) in dimensions 1, 2, 3: continuous maps, homeomorphisms, and embeddings; connectedness and paths; convergence and compactness; manifolds; homotopy, contractible sets, Brouwer fixed-point theorem, covering spaces. Prerequisite: 22M:055 or equivalent or consent of instructor.
- 22M:132 General Topology** 3 s.h.
 Basic concepts of general topological spaces and continuous functions: countability of sets, topological space, comparing topologies; subspace, order, and product topologies; closed sets and limit points, continuous functions, metric topology, quotient topology (including projective spaces and gluing cells), connectedness in the real line and in general spaces, components and local connectedness, compactness in Euclidean and general spaces, limit point compactness, local compactness, countability axioms, separation axioms, normal spaces and Urysohn's Lemma complete metric spaces, convergence in function spaces. Prerequisite: 22M:055 or consent of instructor.
- 22M:133 Introduction to Smooth Manifolds** 3 s.h.
 Calculus on smooth manifolds; smooth functions, mean value theorem, chain rule, smooth manifolds, tangent vectors, tangent spaces, inverse and implicit functions theorems, submersions and immersions, vectorfields, flows, multilinear algebra, differential forms, Stokes theorem. Prerequisites: 22M:027, 22M:055, and 22M:028 or 22M:056 or consent of instructor.
- 22M:140 Continuous Mathematical Models** 3 s.h.
 Building and analyzing mathematical models involving differential equations for specific problems from engineering and the sciences; modeling project. Prerequisite: 22M:100 or equivalent or consent of instructor.
- 22M:142 Nonlinear Dynamics with Numerical Methods** 3 s.h.
 Nonlinear differential equations, one- and two-dimensional flows, stability, phase plane analysis, limit cycles, bifurcations, chaos, fractals; Euler's, multistep, and Runge-Kutta numerical methods. Prerequisites: 22M:055 and 22M:100, or consent of instructor.
- 22M:144 Partial Differential Equations with Numerical Methods** 3 s.h.
 Conservation laws, weak solutions, diffusion equation, Laplace's equation, finite difference methods, variational methods, finite element method. Prerequisite: 22M:028, 22M:055, and 22M:100 or consent of instructor.
- 22M:150 Introduction to Discrete Mathematics** 3 s.h.
 Basic methods of enumerative combinatorics, inclusion-exclusion and generating functions, applications of group theory (Polya-Burnside theorem). Offered fall semesters. Prerequisite: 22M:050 or equivalent or consent of instructor.
- 22M:151 Discrete Mathematical Models** 3 s.h.
 Case history approach to discrete models from various fields (e.g., genetics, psychology, health care, scheduling); construction, interpretation, analysis, simulation, testing of models; development of discrete mathematics. Prerequisite: 22M:027 or equivalent or consent of instructor.
- 22M:152 Theory of Graphs** 3 s.h.
 Connectivity properties, including Euler, Hamilton cycle problems; graph colorings, matchings; characterization of families of graphs such as trees, planar graphs, networks; graph algorithms, their applications. Prerequisite: 22M:050 or equivalent or consent of instructor. Same as 22C:137.
- 22M:160 Introduction to Differential Geometry I** 3 s.h.
 Space curves, differentiable manifolds, vector and tensor fields, integration of forms, covariant differentiation, intrinsic geometry of surfaces. Prerequisites: 22M:028 and 22M:055, or 22M:056 or 22M:100 or equivalent or consent of instructor.
- 22M:161 Introduction to Differential Geometry II** 3 s.h.
 May include Riemannian geometry, rigidity theorems, minimal surfaces, connections, elementary Lie groups, relativity. Prerequisite: 22M:160 or equivalent or consent of instructor.
- 22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory** 3 s.h.
 Root finding for nonlinear equations; polynomial interpolation; polynomial approximation of functions; numerical integration. Prerequisites: 22M:027 and 22M:028, or 22M:037 or 22M:056 or equivalent or consent of instructor; and knowledge of computer programming. Same as 22C:170.

22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.

Numerical methods for initial value problems for ordinary differential equations; direct and iterative methods for linear systems of equations; eigenvalue problems for matrices. Prerequisites: 22M:027 and 22M:028, or 22M:037 or 22M:056 or equivalent or consent of instructor; knowledge of computer programming and 22M:100. Same as 22C:171.

22M:174 Optimization Techniques 3 s.h.

Basic theory of optimization, use of numerical algorithms in solution of optimization problems; linear and nonlinear programming, sensitivity analysis, convexity, optimal control theory, dynamic programming, calculus of variations. Prerequisite: 22M:100 or equivalent or consent of instructor. Same as 22C:174.

22M:178 High Performance and Parallel Computing 3 s.h.

Design and implementation of computational linear algebra algorithms for high performance computers. Basic knowledge of a computer language and basic linear algebra required. Prerequisites: a linear algebra course and a numerical analysis course. Same as 22C:177.

22M:191 Topics in Technology Uses in Mathematics 2 s.h.

22M:195 Current Issues in Mathematics Education 2-3 s.h.

Philosophy and objectives, curricular problems, review and evaluation of current literature, special methods. Prerequisite: consent of instructor. Same as 07E:235, 07S:235.

22M:196 Topics in Mathematics arr.

Prerequisite: consent of instructor.

22M:197 Individual Study and Honors in Mathematics arr.

Prerequisite: consent of advisor.

22M:199 Readings in Mathematics arr.

Prerequisite: consent of instructor.

Core Graduate Courses

22M:200 Introduction to Differential Topology 3 s.h.

Manifolds, functions: tangent bundle, Morse-Sard theorem, transversality, submanifolds, tubular neighborhoods, normal bundles, vector fields, degree and intersection theory, fixed-point theory, Morse theory. Prerequisite: 22M:132 or equivalent or consent of instructor.

22M:201 Introduction to Algebraic Topology 3 s.h.

Homotopy, fundamental group and covering spaces, CW and simplicial complexes, simplicial homology, Euler characteristic. Prerequisite: 22M:132 or equivalent or consent of instructor.

22M:203 Topology of Manifolds 3 s.h.

Embedding, knotting, immersions; isotopy, homotopy, regular neighborhoods, engulfing, surgery, cobordism; three-, four-, and higher dimensional manifolds. Prerequisites: 22M:200 and 22M:201, or equivalents or consent of instructor.

22M:205 Introduction to Algebra I 3 s.h.

Abstract algebra: semigroups, groups, rings, integral domains, polynomial rings, division rings, fields, vector spaces, matrices, modules over rings, lattices, categories. Prerequisite: 22M:120 or equivalent or consent of instructor.

22M:206 Introduction to Algebra II 3 s.h.

Continuation of 22M:205. Prerequisite: 22M:205 or equivalent or consent of instructor.

22M:210 Analysis I 3 s.h.

Lebesgue measure and integral, fundamental theorem of calculus, abstract measures and integration, Fubini's theorem, Radon-Nikodym theorem, Riesz representation theorem, L-p spaces. Prerequisite: 22M:116 or equivalent or consent of instructor.

22M:211 Analysis II 3 s.h.

Hilbert space, Banach space techniques; Hahn-Banach theorem, open mapping theorem, principle of uniform boundedness; reflexivity, H-p spaces, Paley-Wiener theorem, space of functions analytic on the open unit disk. Prerequisites: 22M:118 and 22M:210, or equivalents or consent of instructor.

22M:213 Ordinary Differential Equations I 3 s.h.

Existence, uniqueness, continuous dependence of solutions to initial value problems, autonomous systems; Poincare-Bendixon theory, linear systems and linearizations, perturbation, stability, periodic solutions, bifurcation, comparison and oscillation theorems, boundary value problems. Prerequisite: 22M:116 or equivalent or consent of instructor.

22M:214 Ordinary Differential Equations II 3 s.h.

Continuation of 22M:213. Prerequisite: 22M:213 or equivalent or consent of instructor.

22M:216 Partial Differential Equations I 3 s.h.

Elliptic equations; potential theory, maximum principle, a priori estimate, Dirichlet problem; initial value problem for parabolic equations; hyperbolic equations; Duhamel's principle, Cauchy problem; nonlinear equations, characteristics, canonical form, first-order systems. Prerequisite: 22M:116 or equivalent or consent of instructor.

22M:217 Partial Differential Equations II 3 s.h.

Continuation of 22M:216. Prerequisite: 22M:216 or equivalent or consent of instructor.

22M:220 Introduction to Mathematical Logic I 3 s.h.

Propositional calculus, first-order predicate calculus, Gödel completeness theorem, formal elementary number theory, Gödel incompleteness theorem. Prerequisite: graduate standing or consent of instructor.

22M:221 Introduction to Mathematical Logic II 3 s.h.

Formal number theory, arithmetic hierarchy, Post theorem, formal recursive functions, Turing machines, Thü systems, world problems. Prerequisite: 22M:220 or equivalent or consent of instructor.

22M:224 First-Year Graduate Seminar 1 s.h.

Introduction to mathematics graduate program. Prerequisite: first-year math graduate student.

22M:225 Comprehensive Exam Preparation Seminars 0 s.h.

Ph.D. comprehensive exam preparation in algebra, analysis, logic, partial differential equations, topology. Repeatable. Prerequisite: consent of instructor.

Primarily for Graduate Students

22M:260 Differential Geometry I 3 s.h.

Differential manifolds and functions, form, connections, curvature, related topics. Prerequisite: consent of instructor.

22M:261 Differential Geometry II 3 s.h.

Continuation of 22M:260. Prerequisite: 22M:260 or equivalent or consent of instructor.

22M:270 Theoretical Numerical Analysis I 3 s.h.

Theoretical foundations of numerical analysis, within framework of functional analysis; application areas including approximation theory, numerical methods for partial differential equations, integral equations; introduction to functional analysis. Prerequisites: 22M:115, 22M:116, 22M:170, and 22M:171; or equivalents; or consent of instructor.

22M:271 Theoretical Numerical Analysis II 3 s.h.

Continuation of 22M:270. Prerequisite: 22M:270 or equivalent or consent of instructor.

22M:303 Topics in Analysis	2-3 s.h.	22M:391 Seminar: Logic and Foundations of Mathematics	arr.
Measure theory, integration, general topology. Repeatable. Prerequisite: consent of instructor.		Repeatable. Prerequisite: consent of instructor.	
22M:305 Topics in Topology	2-3 s.h.	22M:392 Seminar: Topology	arr.
May include homotopy theory, topology of 3-manifolds, 4-manifolds, or higher-dimensional manifolds, knotting and embedding problems, fiber bundles and characteristic classes, K-theory, PL manifolds, infinite-dimensional manifolds. Repeatable. Prerequisite: consent of instructor.		Repeatable. Prerequisite: consent of instructor.	
22M:313 Functional Analysis I	3 s.h.	22M:393 Seminar: Mathematical Physics	arr.
Locally convex topological vector spaces, duality, tensor products and nuclear spaces; Krein-Millman theorem, Choquet's theory; geometry of Banach spaces, nonlinear functional analysis; operators on Hilbert spaces, spectral theorem, algebras of operators. Prerequisite: 22M:211 or equivalent or consent of instructor.		Repeatable. Prerequisite: consent of instructor.	
22M:314 Functional Analysis II	3 s.h.	22M:394 Seminar in Mathematical Biology	arr.
Continuation of 22M:313. Prerequisite: 22M:313 or equivalent or consent of instructor.		Repeatable. Prerequisite: consent of instructor.	
22M:321 Topics in Applied Mathematics	arr.	22M:395 Seminar: Analysis	arr.
Application of mathematics to other disciplines. Repeatable. Prerequisite: consent of instructor.		Repeatable. Prerequisite: consent of instructor.	
22M:324 Topics in Partial Differential Equations	2-3 s.h.	22M:396 Seminar: Functional Analysis	arr.
Regularity theory, nonlinear analysis in partial differential equations, fluid dynamics, harmonic analysis, conservation laws, other topics. Repeatable. Prerequisite: consent of instructor.		Repeatable. Prerequisite: consent of instructor.	
22M:328 Topics in Logic	3 s.h.	22M:397 Seminar: Partial Differential Equations	arr.
Theory of models, recursive functions, sets, deductions. Repeatable. Prerequisite: 22M:221 or equivalent or consent of instructor.		Repeatable. Prerequisite: consent of instructor.	
22M:330 Topics in Algebra	2-3 s.h.	22M:398 Seminar: Numerical Analysis	arr.
May include algebraic number theory, groups, representation theory, algebras, ideal theory, lattice theory. Repeatable. Prerequisite: 22M:206 or equivalent or consent of instructor.		Repeatable. Prerequisite: consent of instructor.	
22M:340 Homological Algebra	3 s.h.	22M:399 Reading Research	arr.
Modules, tensor products, groups of homomorphisms, categories, functors, homology functors, projective and injective modules, derived functors, torsion and extension functors, homological dimension. Prerequisite: 22M:206 or equivalent or consent of instructor.		Repeatable. Prerequisite: consent of instructor.	
22M:371 Topics in Numerical Analysis	3 s.h.		
Repeatable. Prerequisites: 22M:170 and 22M:171, or equivalents or consent of instructor.			
22M:383 Seminar: Commutative Ring Theory	arr.		
Repeatable. Prerequisite: consent of instructor.			
22M:384 Seminar: Fourier Analysis	arr.		
Repeatable. Prerequisite: consent of instructor.			
22M:385 Seminar: Representation Theory	arr.		
Repeatable. Prerequisite: consent of instructor.			
22M:386 Seminar in Undergraduate Mathematics Education	arr.		
Varied topics in teaching, learning, curriculum; philosophy, objectives, strategies, methods; use of technology, group learning, projects, discovery method, multiple approaches, other current issues. Repeatable. Prerequisite: consent of instructor.			
22M:387 Seminar: Differential Geometry	arr.		
Repeatable. Prerequisite: consent of instructor.			
22M:389 Seminar: Algebra	arr.		
Repeatable. Prerequisite: consent of instructor.			
22M:390 Seminar: Operator Theory	arr.		
Repeatable. Prerequisite: consent of instructor.			

Division of Performing Arts

Interim director: Alan MacVey

Undergraduate degree: B.A. in Performing Arts
Entrepreneurship

The Division of Performing Arts includes the Department of Dance, the School of Music, and the Department of Theatre Arts. The division fosters interdisciplinary collaboration among these units, coordinates artistic and academic activities, and sponsors a full array of performances and symposia. Performances are supported by professional staff in the division's Performing Arts Production Unit.

The division's individual academic units offer undergraduate and graduate courses and degree programs in creative, performance, scholarly, and theoretical areas. They present an extensive schedule of dance productions, faculty and student recitals, ensemble concerts, and mainstage and gallery theater productions.

The division also is home to the Bachelor of Arts program in performing arts entrepreneurship.

Performing Arts Entrepreneurship

Director: Kristin Thelander (Music)

Advisor: James P. Birder (Theatre Arts)

Undergraduate degree: B.A. in Performing Arts Entrepreneurship

Web site: <http://www.uiowa.edu/~dpa>

The Division of Performing Arts, in partnership with the John Pappajohn Entrepreneurial Center in the Tippie College of Business, offers a Bachelor of Arts in performing arts entrepreneurship.

The program leading to the B.A. offers students the opportunity to pursue professional studies in two areas of the performing arts, in the framework of a liberal arts education. It also helps them develop the skills required for creating market-based opportunities in the arts.

The program's focus is not arts management. Rather, the major is intended for students who plan to start or operate their own businesses in the performing arts. The program's goals are to enhance students' understanding of the entrepreneurial process in the performing arts and to nurture developing artists who will be leaders in arts innovation.

Bachelor of Arts

The Bachelor of Arts in performing arts entrepreneurship requires 53-59 s.h. in the major. All students pursuing the major choose a primary area of study in dance, music, or theatre arts. They also choose a secondary area different from their primary area. All students complete three required courses in entrepreneurship, a capstone course, and an internship.

Students may apply a maximum of 24 s.h. earned at other institutions toward the major in performing arts entrepreneurship. In order to be counted toward the major, all transfer course work must be reviewed and approved by the program.

Performing arts entrepreneurship students are advised by the Academic Advising Center until they have earned 24 s.h. Then they are assigned a faculty advisor from their primary area in the Division of Performing Arts as well as an advisor from the Tippie College of Business.

The curriculum is as follows.

PRIMARY AREA

Students complete the requirements for the primary area of their choosing.

Dance Studies

This primary area requires a total of 26 s.h. A placement audition is required. Contact the Department of Dance for more information.

All of these:

137:034 Beginning Contact	
Improvisation	2 s.h.
137:050 Dance Production	3 s.h.
137:080 Dance and Society	3 s.h.
Dance technique (e.g., ballet, modern, tap)	9 s.h.
Dance electives	6 s.h.

One of these:

137:147 Dance Kinesiology	3 s.h.
137:181 Dance History	3 s.h.

Music

This primary area requires a total of 26 s.h. An audition is required. Contact the School of Music for details.

All of these:

025:001 Fundamentals of Music for Majors (unless exempted by proficiency exam)	3 s.h.
025:002 Musicianship and Theory I	4 s.h.
025:003 Musicianship and Theory II	4 s.h.
025:071 Group Instruction in Piano I (unless exempted by proficiency exam)	1 s.h.
025:072 Group Instruction in Piano II (unless exempted by proficiency exam)	1 s.h.

Music history—one of these:

025:103 World Music	3 s.h.
025:104 Music of Latin America and the Caribbean	3 s.h.
025:141 History of Jazz	3 s.h.
025:144 History of Music I	3 s.h.
025:146 History of Music II	3 s.h.
025:178 Music, Culture and Identity	3 s.h.

All of these:

Applied music for lower-level undergraduates (students must audition to be accepted by a professor—register for 2 s.h. each for two semesters)	4 s.h.
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Ensemble participation (placement by audition in choral, orchestra, band, or jazz ensembles) 4 s.h.
 025:074 Recital Attendance 2 s.h.

Students who are exempted by proficiency exam from 025:001 (3 s.h.), 025:071 (1 s.h.), or 025:072 (1 s.h.) must earn an equal number of semester hours in music electives.

Theatre Arts

This primary area requires a total of 27 s.h.

All of these:

- 049:025 Acting I 3 s.h.
- 049:043 Elements of Design 3 s.h.
- 049:044 Theatre Crafts 3 s.h.
- 049:060 Playscript Analysis 3 s.h.
- 049:112 History of Theatre and Drama I 4 s.h.
- 049:113 History of Theatre and Drama II 4 s.h.

One of these:

- 049:045 Production: Run Crew 1 s.h.
- 049:047 Production: Construction 1 s.h.

One of these:

- 049:130 Directing I 3 s.h.
- 049:172 Senior Seminar 3 s.h.
- 049:194 Dramaturgy 3 s.h.

A playwriting course (049:063 or 049:165) 3 s.h.

One of these:

- 049:109 Introduction to Arts Management 3 s.h.
- 049:125 Voice for the Actor 3 s.h.
- 049:127 Theatre Movement 3 s.h.
- 049:132 Stage Management 3 s.h.
- 049:133 Theatre Design I 3 s.h.
- 049:134 Scene Design I 3 s.h.
- 049:135 Costume Design I 3 s.h.
- 049:136 Lighting Design I 3 s.h.
- 049:140 Sound Design for the Theatre 3 s.h.
- 049:147 Technical Production I 3 s.h.
- 049:148 Technical Production: Special Topics 3 s.h.

SECONDARY AREA

Students complete the requirements for the secondary area of their choosing.

Dance

This secondary area requires at least 15 s.h. of course work in dance. The following courses are suggested.

- 137:034 Beginning Contact 2 s.h.
- Improvisation 2 s.h.
- 137:080 Dance and Society 3 s.h.
- Dance technique 7 s.h.
- Dance electives 3 s.h.

Music

This secondary area requires at least 18 s.h. of course work (15 s.h. for students who are exempted from 025:001 by proficiency exam). The following courses are required.

All of these:

- 025:001 Fundamentals of Music for Majors (unless exempted by proficiency exam) 3 s.h.
- 025:002 Musicianship and Theory I 4 s.h.
- 025:064 Recital Attendance 2 s.h.
- Ensemble or applied music courses 3 s.h.
- Music electives 3 s.h.

Music history—one of these:

- 025:103 World Music 3 s.h.
- 025:104 Music of Latin America and the Caribbean 3 s.h.
- 025:141 History of Jazz 3 s.h.
- 025:144 History of Music I 3 s.h.
- 025:146 History of Music II 3 s.h.
- 025:178 Music, Culture, and Identity 3 s.h.

Theatre Arts

This secondary area requires at least 15 s.h. of course work in theatre arts, excluding 049:001, 049:002, and 049:003. At least 12 of the 15 s.h. must be earned in University of Iowa courses numbered 049:021, 049:025, 049:043, 049:044, 049:060, 049:062, 049:063, 049:100, and above.

ENTREPRENEURIAL STUDIES

Required courses total 9 s.h., but students also must satisfy the prerequisites to the required courses. Prerequisites may be taken through Guided Independent Study.

Prerequisites:

- 06T:113 Basics of Small Business Accounting (online course) 1 s.h.
- 06T:116 Basics of Small Business Marketing (online course) 1 s.h.

Required courses:

- 06T:120 Entrepreneurship and New Business Formation 3 s.h.
- 06T:133 Capital Acquisition and Cash Flow Management 3 s.h.
- 06T:134 Entrepreneurial Marketing 3 s.h.

CAPSTONE COURSE

One of these:	
033:161 The Arts in Performance	3 s.h.
049:175/025:176 Nonprofit Organizational Effectiveness I	3 s.h.
049:176/025:177 Nonprofit Organizational Effectiveness II	3 s.h.

INTERNSHIP

409:188 Internship in the Performing Arts	0 s.h.
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Four-Year Graduation Plan

The Four-Year Graduation Plan is not available to students pursuing the performing arts entrepreneurship major. Many students need an extra semester to complete the internship requirement. But some students may be able to graduate in four years by taking summer course work or a summer internship. Advisors work with students to develop individual graduation plans.

Honors

Students who are members of the University Honors Program, have a g.p.a. of at least 3.33 in the major, and have approval from their primary advisor may undertake an honors project. Projects may be analytical, creative, or a combination of the two. They ordinarily require an oral presentation or performance for designated faculty members as well as a research and writing component, which is due upon the project's completion.

Performing arts entrepreneurship majors who are members of the University Honors Program may take honors courses in their primary and secondary areas. Courses can be designated honors courses with permission of the faculty member who teaches the course, the department offering the course, and the University Honors Program.

Membership in the University Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Performing Arts Learning Community

First-year students majoring in performing arts entrepreneurship may apply to live in the Performing Arts Learning Community, a coed floor in Currier Hall, across the Iowa River from the fine arts campus. The community includes students from art and art history, dance, film, music, and theatre arts.

Courses

188:001 Cultural Connections	1 s.h.
Forum for an interdisciplinary perspective on culture; exposure to all art forms; classtime presentations of live music, dance, and theater performances or rehearsals in conjunction with film and art.	
188:182 Historical Perspectives in Dance	3 s.h.
Same as 137:182.	

Dance

Chair: Alan Sener

Professors: Alan Sener, Armando Duarte

Professor emerita: Françoise Martinet

Associate professors: Charlotte Adams, George de la Peña

Associate professors emeritae: Alicia Brown, Helen Chadima

Assistant professors: Eloy Barragan, Deanna Carter, Jennifer Kayle, Rebekah Kowal

Adjunct assistant professors: Paul Cunliffe, Lyle Juracek

Visiting assistant professor: Daniel Stark

Lecturer: Jim Albert

Undergraduate degrees: B.A., B.F.A. in Dance

Undergraduate nondegree program: Minor in Dance

Graduate degree: M.F.A. in Dance

Web site: <http://www.uiowa.edu/~dance>

Undergraduate Programs

The undergraduate major in dance provides a liberal arts and sciences education and thorough preparation for careers in professional dance, choreography, and education, as well as preparation for graduate studies. The department offers as many as 18 concerts every year, providing dance students with numerous opportunities for performance and choreography. Periodic master classes with noted guest teachers, choreographers, and touring companies add diversity to the dance experience. The University of Iowa Dance Company performs its annual Dance Gala in Hancher Auditorium on The University of Iowa campus, and since 1986, the department's touring company, Dancers in Company, has given students an opportunity to perform in Iowa and surrounding states. Dance faculty members regularly present their choreography in national venues, giving University student performers the opportunity to develop their performance skills.

The Department of Dance also participates in offering a major in performing arts entrepreneurship, offered through the Division of Performing Arts in cooperation with the Pappajohn Entrepreneurial Center of the Tippie College of Business. For more information, see Performing Arts Entrepreneurship in the Catalog.

Bachelor of Arts

The Bachelor of Arts in dance requires 53 s.h. in the major, including 50 s.h. in dance and 3 s.h. in a required anatomy course. The program is designed for students who want to acquire a strong liberal arts and sciences background while pursuing a comprehensive undergraduate dance education. The degree stresses performance and choreography as well as dance theory courses, including dance history, dance kinesiology, and dance production.

Students must audition for placement in dance classes before registration. No student is admitted to the dance major without a placement audition. Students are encouraged to audition on campus for class placement and scholarship in the semester before entry to the University. Those who cannot come to campus for a placement audition may send an audition videotape or DVD. Contact the Department of Dance, the undergraduate program coordinator, or the Office of Admissions for additional information.

The B.A. in dance requires 50 s.h. in Department of Dance courses and an anatomy course, 027:053 Human Anatomy (3 s.h.). B.A. students must complete two semesters of 137:113 Major Ballet II or 137:114 Major Modern Dance II with a grade of B-minus or higher. Two semesters of 137:123 Major Ballet III, 137:124 Major Modern Dance III, or 137:130 Major Modern Dance IV also satisfy this requirement. At least half of all semester hours in the major must be earned at The University of Iowa. No more than 50 s.h. in Department of Dance courses may be counted toward the 120 s.h. required for the B.A.

Students who select cross-referenced, non-dance department courses to satisfy the core course requirements must take additional dance electives to complete the required 50 s.h. in Department of Dance courses.

CORE COURSES

027:053 Human Anatomy	3 s.h.
137:040 Introduction to Dance Studies	1 s.h.
137:050 Dance Production	3 s.h.
137:080 Dance and Society	3 s.h.
137:147/049:108 Dance Kinesiology	3 s.h.
137:181 Dance History	3 s.h.

025:010 Fundamentals of Music	3 s.h.
or	
137:060 Music Fundamentals in Dance (preferred)	2 s.h.
049:045 Production: Run Crew (2 s.h. are required)	1-2 s.h.
or	
137:051 Production: Run Crew (2 s.h. are required)	1-2 s.h.

STUDIO COURSES

137:034 Beginning/Contact Improvisation	2 s.h.
or	
137:134 Improvisation I	2 s.h.
137:070 Choreography I	2 s.h.
137:071 Choreography II	2 s.h.

DANCE TECHNIQUE

Dance majors must take 6 s.h. each of ballet and of modern dance technique; students choose 20 s.h. from the following. All courses may be repeated.

137:022 Intermediate Jazz	2 s.h.
137:023 Intermediate Ballet	2 s.h.
137:024 Intermediate Modern	2 s.h.
137:103 Major Ballet I	1-3 s.h.
137:104 Major Modern Dance I	1-2 s.h.
137:113 Major Ballet II	1-3 s.h.
137:114 Major Modern Dance II	1-3 s.h.
137:123 Major Ballet III	1-3 s.h.
137:124 Major Modern Dance III	1-3 s.h.
137:130 Major Modern Dance IV	1-2 s.h.
137:133 Ballet Pointe	1 s.h.

DANCE ELECTIVES

Credit earned in dance courses (prefix 137) that is not used to satisfy core, studio, or dance technique degree requirements is counted toward the dance elective requirement. Dance electives complete the 50 s.h. of dance courses required for the Bachelor of Arts.

The required number of semester hours in dance electives varies depending on whether the student completes the core with dance courses or with cross-referenced courses from another department, or has a core requirement waived.

Bachelor of Fine Arts

The Bachelor of Fine Arts in dance requires 65 s.h. in the major, including 62 s.h. in dance and 3 s.h. in a required anatomy course. In contrast to the B.A., the B.F.A. emphasizes choreography and performance through an additional 14 s.h. of choreography, performance,

and technique. Students may be admitted to the B.F.A. program after they have completed a minimum of 30 s.h. at The University of Iowa. Students who have achieved the equivalent of "Major II" technique and who show academic and professional promise are selected by department faculty for admission to the program.

The B.F.A. in dance requires 62 s.h. in Department of Dance courses and an anatomy course, 027:053 Human Anatomy (3 s.h.). B.F.A. students must complete three semesters of 137:123 Major Ballet III, 137:124 Major Modern Dance III, or 137:130 Major Modern Dance IV with a grade of B-minus or higher. B.F.A. students are required to maintain a cumulative g.p.a. of at least 3.50 in dance department courses. They also must earn at least half of the semester hours in the major at The University of Iowa. No more than 62 s.h. in Department of Dance courses may be counted toward the 120 s.h. required for the B.F.A.

Students who select cross-referenced, non-dance department courses to satisfy the core course requirements must take additional dance electives to complete the required 62 s.h. in Department of Dance courses.

CORE COURSES

027:053 Human Anatomy	3 s.h.
137:040 Introduction to Dance Studies	1 s.h.
137:050 Dance Production	3 s.h.
137:080 Dance and Society	3 s.h.
137:147/049:108 Dance Kinesiology	3 s.h.
137:181 Dance History	3 s.h.
025:010 Fundamentals of Music	3 s.h.
or	
137:060 Music Fundamentals in Dance (preferred)	2 s.h.
049:045 Production: Run Crew (2 s.h. required)	1-2 s.h.
or	
137:051 Production: Run Crew (2 s.h. required)	1-2 s.h.

STUDIO COURSES

137:034 Beginning/Contact Improvisation	2 s.h.
or	
137:134 Improvisation I	2 s.h.
137:070 Choreography I	2 s.h.
137:071 Choreography II	2 s.h.
137:106 Dance Performance (6 s.h. are required)	1 s.h.
137:170 Choreography III	2 s.h.

DANCE TECHNIQUE

Students are required to complete 12 s.h. each of ballet and modern dance courses and a total of 28 s.h. of technique, chosen from the following (all courses are repeatable).

137:103 Major Ballet I	1-3 s.h.
137:104 Major Modern Dance I	1-2 s.h.
137:113 Major Ballet II	1-3 s.h.
137:114 Major Modern Dance II	1-3 s.h.
137:123 Major Ballet III	1-3 s.h.
137:124 Major Modern Dance III	1-3 s.h.
137:130 Major Modern Dance IV	1-2 s.h.
137:133 Ballet Pointe	1 s.h.

DANCE ELECTIVES

Credit earned in dance courses (prefix 137) that is not used to satisfy core, studio, or dance technique degree requirements is counted toward the dance elective requirement. Dance electives complete the 62 s.h. of dance courses required for the Bachelor of Fine Arts.

The required number of semester hours in dance electives varies depending on whether the student completes the core with dance courses or with cross-referenced courses from another department, or has a core requirement waived.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Department of Dance course work beyond 50 s.h. for a B.A. and 62 s.h. for a B.F.A. does not apply toward semester hours required for graduation. These checkpoints indicate the range of semester hours required for the B.A. and the B.F.A.

Before the third semester begins: 12-16 s.h. of courses in the major and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 24-32 s.h. of courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: 36-48 s.h. of courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 42-50 s.h. of courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors Program

In order to pursue honors studies in the Department of Dance, a student must be a member of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students in dance must maintain a g.p.a. of at least 3.50 in UI dance department courses.

The honors program in dance is designed to reward and recognize outstanding students in the areas of choreography, performance, and special projects. It requires 8-10 s.h. To complete the honors program in dance, students must take two courses for honors credit and complete an honors project. All honors projects must be approved by the dance department faculty.

Minor

A minor in dance requires 15 s.h. of credit in dance department courses with a g.p.a. of 2.00 or higher. At least 12 s.h. must be in University of Iowa courses numbered 137:100 and above. Students contemplating a minor in dance must attend a placement audition. Auditions are offered twice each semester.

Graduate Program

Master of Fine Arts

The Master of Fine Arts in dance requires a minimum of 60 s.h. of graduate credit. The program is designed to be completed in four to six semesters in residence. Students who demonstrate accomplishment in dance performance and/or choreography may apply for admission to the M.F.A. program. Applicants select the choreography or the performance track before they are admitted.

Admission is based on an interview, a teaching and technique audition, review of videotaped choreographic and performance work, and letters of recommendation.

Advanced technique (ballet or modern) and demonstrated accomplishment in performance or

choreography are prerequisites for admission to the M.F.A. program.

The M.F.A. requires the following course work.

DANCE CORE

A total of 19 s.h. of core course work is required for both the performance and the choreography track.

- 137:143 Elementary Ballet Pedagogy 3 s.h.
- or
- 137:144 Teaching of Modern Dance 3 s.h.
- 137:200 Graduate Seminar in Dance 2 s.h.
- 137:201 Graduate Production Practicum 1 s.h.
- 137:202 Theories of Dance and the Body 3 s.h.
- 137:234 Graduate Improvisation I 2 s.h.
- or
- 137:235 Graduate Improvisation II 2 s.h.
- 137:277 Thesis 8 s.h.

DANCE TECHNIQUE

The performance track requires 18 s.h. from the following; the choreography track requires 12 s.h.; courses may be repeated. Performance track students must take a minimum of 4 s.h. of modern dance and 4 s.h. of ballet.

- 137:103 Major Ballet I 1-3 s.h.
- 137:104 Major Modern Dance I 1-2 s.h.
- 137:213 Graduate Majors Ballet II 1-3 s.h.
- 137:214 Graduate Majors Modern II 1-3 s.h.
- 137:223 Graduate Majors Ballet III 1-3 s.h.
- 137:224 Graduate Majors Modern III 1-3 s.h.
- 137:230 Graduate Majors Modern IV 1-2 s.h.

EMPHASIS COURSES

A total of 14 s.h. is required for both the choreography and the performance track.

Choreography Track

- 137:206 Graduate Dance Performance (1 s.h. each performance, 2 s.h. total) 1 s.h.
- 137:274 Graduate Independent Choreography (1 s.h. each project, 4 s.h. total) 1 s.h.

A total of 8 s.h. from these:

- 137:270 Graduate Choreography I 2 s.h.
- 137:271 Graduate Choreography II 2 s.h.
- 137:272 Graduate Choreography III 2 s.h.
- 137:273 Graduate Choreography IV 2 s.h.
- 137:275 Advanced Choreographic Design 1-4 s.h.

Performance Track

M.F.A. performance track candidates must earn 12 s.h. in performance courses and 2 s.h. in choreography courses.

- 137:107 Repertory Dance Company (4 s.h. per year, 0-8 s.h. total) 0-4 s.h.
- 137:206 Graduate Dance Performance (1 s.h. each performance, 4-12 s.h. total) 1 s.h.
- 137:274 Graduate Independent Choreography (1 s.h. each project, 2 s.h. total) 1 s.h.
- or
- A course from the choreography sequence (137:270-137:273) 2 s.h.

ELECTIVES

M.F.A. candidates in performance must earn a total of 9 s.h. in elective courses numbered 100 or higher. A minimum of 6 s.h. must be earned in nondance courses; the remaining 3 s.h. may be earned in dance or nondance courses.

M.F.A. candidates in choreography must earn a total of 15 s.h. in elective courses numbered 100 or higher. A minimum of 6 s.h. must be earned in a course or courses that provide research material for the thesis; the remaining 3 s.h. may be earned in dance or nondance courses.

Facilities

The Department of Dance houses six technique studios, a movement training lab, a media classroom and library, a media laboratory, and its own theater for dance concerts. The annual Dance Gala is staged in Hancher Auditorium, the University's premier performance hall.

Courses

Primarily for Undergraduates

- 137:001 Beginning Tap 1-2 s.h.**
Elementary techniques, steps, and performance skills for rhythm and show tap styles; enhancement of rhythmic ability through exercises, improvisation, creative activities; may include history of tap. Tap shoes required. GE: fine arts.
- 137:002 Beginning Jazz 1-2 s.h.**
Basic movement fundamentals, terminology, performance skills of jazz dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of jazz dance. GE: fine arts.
- 137:003 Beginning Ballet 1-2 s.h.**
Basic movement fundamentals, terminology, performance skills of ballet; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; barre and center combinations; terminology; may include history of ballet. GE: fine arts.

- 137:004 Beginning Modern Dance** 1-2 s.h.
Basic movement fundamentals, terminology, performance skills of modern dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of modern dance. GE: fine arts.
- 137:011 Continuing Tap** 1-2 s.h.
Continuation of 137:001. GE: fine arts.
- 137:012 Continuing Jazz** 1-2 s.h.
Continuation of 137:002; skills for technique and performance of jazz dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of jazz dance. GE: fine arts.
- 137:013 Continuing Ballet** 1-2 s.h.
Continuation of 137:003; skills necessary for technique and performance of ballet; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; barre and center combinations; terminology; may include history of ballet. GE: fine arts.
- 137:014 Continuing Modern Dance** 1-2 s.h.
Continuation of 137:004; skills necessary for the technique and performance of modern dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of modern dance. GE: fine arts.
- 137:022 Intermediate Jazz** 1-2 s.h.
Low intermediate technique and performance training in jazz dance; flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including mobility, musicality, style; warm-up, locomotion, center combinations; may include history of jazz dance. GE: fine arts.
- 137:023 Intermediate Ballet** 1-2 s.h.
Low intermediate technique and performance training in ballet; flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including more difficult steps, musicality, mobility, balance; basic ballet terminology, including steps, head, body, arm positions; variations in timing, changes of facing. GE: fine arts.
- 137:024 Intermediate Modern** 1-2 s.h.
Low intermediate technique and performance training in modern dance; flexibility, strength, body alignment, and breath as foundation for more advanced dance artistry, including musicality, mobility, balance, improvisation; variations in timing, changes of facing. GE: fine arts.
- 137:029 First-Year Seminar** 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.
- 137:030 Ballet Pointe I** 1 s.h.
Basic techniques and training for ballet pointe; repetition and analysis of steps and combinations, assimilation of new material; barre and center exercises, pirouettes and turns commonly performed *en pointe*, learning and performing variations drawn from repertoire. Prerequisite: previous ballet training and experience.
- 137:034 Beginning/Contact Improvisation** 1-2 s.h.
Concepts of dance improvisation and contact improvisation; cultivation of creative freedom through the use and invention of movement; range of expression broadened through personal movement capacity, spontaneity and imagination, ability to make and commit to movement choices; new approaches to moving and movement elements such as time, space, motion, qualities, dynamics; shared weight, support, counter-balancing, elementary partnering; studio course.
- 137:040 Introduction to Dance Studies** 1 s.h.
Introduction to dance studies in the liberal arts; breadth and diversity of contemporary scholarship on dance; dance history, criticism, ethnography, theory, conditioning and injury prevention, improvisation, choreography, technology.
- 137:047 Mat Pilates** 2 s.h.
Stott Pilates mat progression, with focus on dynamic alignment and core conditioning; experience and theoretical understanding of muscle balance and ideal postural alignment, strengthening exercises to improve both; exercises to tone and elongate muscles, increase abdominal and back strength, and achieve balanced mobility, flexibility, stability, endurance.
- 137:050 Dance Production** 3 s.h.
Scenic design, costuming, lighting, audio/video, publicity; visits by professional guest lecturers, field trips to creative shops; projects.
- 137:051 Production: Run Crew** 1-2 s.h.
Hands-on experience in production work for live performance; work as run-crew staff for departmental productions. Same as 049:045.
- 137:060 Music Fundamentals in Dance** 2 s.h.
Relationship between dance and music; basic musical concepts, including rhythm, melody, major and minor scales, key signatures and intervals, triads, seventh chords, tonality; concepts experienced through free and guided movement exploration and improvisation; visits by performers and presenters.
- 137:070 Choreography I** 2 s.h.
Elementary skills used to explore choreographic process and form short dance works.
- 137:071 Choreography II** 2 s.h.
Continuation of 137:070; development of choreographic skills through elements of movement at intermediate level; emphasis on personal discovery and invention through improvisation and creation of compositional studies.
- 137:080 Dance and Society** 3 s.h.
Role of dance and other forms of physical culture in nations worldwide, including the United States, Brazil, West Africa, Japan, France, Germany; relationships between dance and culture (e.g., function of dance in spiritual, celebratory, social, political contexts) examined through ethnographic techniques; exchange of dance forms and ideas about the body from old to new worlds and back; aesthetic issues related to concert dance (e.g., performance, choreography, spectatorship, criticism, production). GE: fine arts or humanities.
- 137:103 Major Ballet I** 1-3 s.h.
Builds on 137:023; intermediate technical and performance training in ballet; flexibility, strength, body alignment, and coordination as foundation for introduction of more advanced aspects of dance artistry, including steps, musicality, mobility, balance; terminology related to barre and center vocabulary, including steps, head, body, and arm positions; practice of steps and combinations, variations in timing, changes of facing. GE: fine arts. Prerequisite: consent of instructor.
- 137:104 Major Modern Dance I** 1-2 s.h.
Builds on 137:024; intermediate technical and performance training in modern dance; physical and mental skills for transition to more advanced dance—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing; basic physical concepts underlying clear and efficient movement; assimilation of new movement material; center of gravity and its role in body mobilization and control; personal movement choices, and expressive range. GE: fine arts. Prerequisite: consent of instructor.
- 137:106 Dance Performance** 0-1 s.h.
Credit for rehearsal hours and performance of dance works in produced dance concerts. GE: fine arts. Prerequisite: audition and/or concert adjudication.

137:107 Repertory Dance Company 0-4 s.h.

Studio course's repertory of works by faculty, graduate students, guest artists, and works recorded in dance notation. Prerequisites: audition and membership in University's touring dance company.

137:113 Major Ballet II 1-3 s.h.

High intermediate training in ballet technique and performance; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. GE: fine arts. Prerequisite: consent of instructor.

137:114 Major Modern Dance II 1-3 s.h.

High intermediate technical and performance training in modern dance; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range. GE: fine arts. Prerequisite: consent of instructor.

137:120 Floor Barre 2 s.h.

Introduction to Beamish-based floor barre technique. Prerequisites: 137:023 and consent of instructor.

137:123 Major Ballet III 1-3 s.h.

Advanced training in ballet technique and performance; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. GE: fine arts. Prerequisite: consent of instructor.

137:124 Major Modern Dance III 1-3 s.h.

Advanced technical and performance training in modern dance; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range; may include partnering exercises for investigation of weight exchange, timing, expressivity. GE: fine arts. Prerequisite: consent of instructor.

137:130 Major Modern Dance IV 1-2 s.h.

Professional technique and performance training in modern dance. Prerequisite: consent of instructor.

137:133 Ballet Pointe II 1-2 s.h.

Intermediate/advanced techniques and training for ballet pointe work; repetition and analysis of steps and combinations, assimilation of new material; barre and center exercises, pirouettes and turns commonly performed *en pointe*, learning and performing variations drawn from repertory. Prerequisite: consent of instructor.

137:134 Improvisation I 1-2 s.h.

Cultivation of creative freedom through the use and invention of movement; broadening of dancer's range of expression through awareness of personal movement capacity, sense of spontaneity and imagination, ability to make and commit to movement choices; new approaches to moving and thinking about elements of movement such as time, space, shape, motion, qualities, and dynamics. Prerequisite: consent of instructor.

137:135 Improvisation II 2 s.h.

Advanced concepts in compositional improvisation; indepth individual exploration, spontaneous ensemble composition; increasing authenticity, depth, and range; integrity in relating to

the whole ensemble; connecting creative process to other bodies of knowledge; making contact with emerging premise; reading and discussion as integration of conceptual and experiential; speaking and writing as improvisational process. Prerequisites: 137:134 and consent of instructor.

137:136 Character Dance 1 s.h.

Steps, style, and temperament of theatrical character dancing; distinctions among dances of various Eastern European countries when applied to the stage; barre and center exercises, steps and patterns associated with the Mazurka, Czardas, Polka, Gopak.

137:137 Partnering Class 1 s.h.

The art of partnering in dance, from salsa to Swan Lake; power sharing on the dance floor, including supported poses, balance, musical and physical timing, unity of movement, eloquence of gesture; for advanced dancers with strong coordination skills.

137:140 Honors Project in Dance arr.

Research, choreographic, reconstructions, or performance project under guidance of a faculty advisor. Prerequisite: senior standing.

137:143 Elementary Ballet Pedagogy 3 s.h.

Methods, materials, concepts for teaching ballet techniques.

137:144 Teaching of Modern Dance 3 s.h.

Practices of teaching modern dance; information and experience for developing an individualized approach to teaching; educational methodology for defining essential elements of a modern class, approaches for planning and structuring classes.

137:147 Dance Kinesiology 3 s.h.

Body movement related to demands of dance; structural and muscular analysis for efficient, effective dance training and prevention of injuries; investigation of skeletal and ligamentous structure for working knowledge of how the body produces movement; joint actions and restrictions, common injuries to those sites; attachments of the voluntary muscles, pathways and potential actions; neuromuscular analysis of an action; ideal skeletal alignment; how individual differences may affect movement performance. Prerequisite: 027:053. Same as 049:108.

137:149 Honors Studies in Dance arr.

Choreography, performance, production, Labanotation, dance history, or pedagogy. Prerequisite: g.p.a. of 3.33 or higher.

137:160 Movement for Performers 2-3 s.h.

Same as 025:167, 049:105.

137:170 Choreography III 2 s.h.

Third semester; choreographic concepts, process, composition.

137:171 Choreography IV 2 s.h.

Advanced choreographic concepts, methods, applications; the choreographic process and how it relates to other artistic practices in the performing arts; creative ideas, movement concepts, choreographic statements; creation of an extended dance work that gives form and shape to an idea and generates a response from viewers.

137:172 Independent Choreography arr.

Credit for creation of independent choreographic project, developed under guidance of faculty advisor, that results in production of a dance work. Prerequisite: consent of faculty project advisor.

137:174 Afro-Cuban Dance 2 s.h.

Dancing, drumming, songs from folkloric and ceremonial Afro-Cuban forms; emphasis on dance; may include participation in Afro-Cuban drum and dance ensemble. Prerequisite: consent of instructor.

137:175 Afro-Cuban Dance Performance 1 s.h.

Dance, drumming, and songs from folkloric, ceremonial Afro-Cuban forms; emphasis on dance; participation in Afro-Cuban Drum and Dance Ensemble performances. Prerequisite: consent of instructor.

137:181 Dance History 3 s.h.

Dance history in the 19th and 20th centuries; changes in dance training and technique, theory, composition, performance practices in context of broader social, political, and cultural trends; how dance and choreographic practices have changed over time, relationships between social ideas about embodiment and production of dance forms, precedents for contemporary dance practices in past forms.

137:182 The Contemporary Dance Scene 3 s.h.

Contemporary dance scene; careers and work of Mark Morris, Trisha Brown, Twyla Tharp, Bill T. Jones, Paul Taylor, Merce Cunningham, Pina Bausch, William Forsythe, Jowle Willa Jo Zollar, Anna Halprin, Miguel Gutierrez; (auto)biography, bodies, site/sight of performance (venue and vantage point), reading (interpretation), including historical, political, and social implications); new ways of looking at and thinking about contemporary dance, artistic trends, directions for choreographic production. Same as 188:182.

137:190 Independent Study arr.

Credit for an individual student-designed project coordinated with a faculty advisor. Prerequisites: sophomore or higher standing and consent of instructor.

Primarily for Graduate Students

137:200 Graduate Seminar in Dance 2 s.h.

Research, careers, administrative and educational topics.

137:201 Graduate Production Practicum 1 s.h.

Scenery and costume design, lighting, audio/video, publicity.

137:202 Theories of Dance and the Body 3 s.h.

Theoretical trends in studies of dance and physical bodies; performative and choreographic aspects of being.

137:206 Graduate Dance Performance 0-1 s.h.

Credit for rehearsal hours and performance of dance works in produced dance concerts. Repeatable. Prerequisite: audition and/or concert adjudication.

137:213 Graduate Majors Ballet II 1-3 s.h.

High intermediate technique and performance training; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. Repeatable.

137:214 Graduate Majors Modern II 1-3 s.h.

High intermediate technical and performance training in modern dance; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range. Repeatable.

137:223 Graduate Majors Ballet III 1-3 s.h.

Advanced ballet technique and performance training for proficient dancers; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, understanding of basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. Repeatable.

137:224 Graduate Majors Modern III 1-3 s.h.

Advanced technical and performance training in modern dance; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, understanding of basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range. Repeatable.

137:230 Graduate Major Modern IV 1-2 s.h.

Professional technique and performance training in modern dance. Prerequisite: consent of instructor.

137:234 Graduate Improvisation I 1-2 s.h.

Dance improvisation. Prerequisite: consent of instructor.

137:235 Graduate Improvisation II 2 s.h.

Advanced improvisation. Prerequisite: consent of instructor.

137:270 Graduate Choreography I 2 s.h.

The craft of choreography and the creative process; elements of gesture, motion, shape, space, form; vocabulary for discussing and analyzing choreographic works; enhancement of ability to invent and develop movement ideas.

137:271 Graduate Choreography II 2 s.h.

Continuation of 137:270.

137:272 Graduate Choreography III 2 s.h.

Continuation of 137:271; advanced choreographic concepts, methods, and applications with focus on the creative mind and choreographic process; concepts and experiences that support development of advanced choreographic skills and innovative dances.

137:273 Graduate Choreography IV 2 s.h.

Advanced choreography concepts, methods, applications.

137:274 Graduate Independent Choreography arr.

Credit for creation of an independent choreographic project, developed under guidance of faculty advisor, that results in production of a dance work. Prerequisite: consent of faculty project advisor.

137:275 Advanced Choreographic Design 1-4 s.h.

Collaborative experience with advanced artists from varied disciplines that culminates in a final performance; emphasis on sharing and investigating ideas, artistic intent, personal vision, and creating collaborative projects.

137:277 Thesis arr.**137:290 Graduate Independent Study arr.**

Credit for individually designed project coordinated with a faculty advisor. Prerequisite: consent of faculty project advisor.

Music

Director: Kristin Thelander

Associate directors: Benjamin Coelho, David Gier, Mark Weiger

Professors: Elizabeth Aubrey, Don Coffman, Delbert Disselhorst, Katherine Eberle, Kate Gfeller (Music/Speech Pathology and Audiology), David K. Gompper, David Greenhoe, William LaRue Jones, Maurita Murphy Mead, Dan Moore, David Nelson, John Rapson, Stephen Swanson, Kristin Thelander, Ingo Titze (Speech Pathology and Audiology/Music), Uriel Tsachor, Mark Weiger, Myron D. Welch

Professors emeriti: Kenneth Amada, Paul Anderson, W.T. Atcherson, Delores Bruch-Cannon, Frederick Crane, Lowell Cross, Thomas Davis, James Dixon, Robert Eckert, Beaumont Glass, Sven Hansell, William Hatcher, Richard B. Hervig, Edward L. Kottick, Betty Bang Mather, Kenneth Phillips, Frank Piersol, Eldon Obrecht, Ronald Tyree, Himie Voxman, Charles Wendt

Associate professors: Mary Adamek, Benjamin Coelho, Michael Eckert, Lawrence Fritts, Christine Getz, David Gier, Rachel Joselson, Kevin Kastens, Rene Lecuona, John Muriello, Ksenia Nosikova, Christine Rutledge, T.M. Scruggs, Timothy Stalter, Kenneth Tse, Marian Wilson-Kimber, Katherine Wolfe

Associate professors emeriti: Richard J. Bloesch, Don Haines, Carole Thomas, Robert Yeats

Assistant professors: Jeffrey Agrell, Anthony Arnone, Nicole Biamonte, Jerry Cain, Scott Conklin, Robert Cook, Alan Huckleberry, John Manning, José Martins, Volkan Orhon, David Puderbaugh

Adjunct assistant professors: Joel Boyer, Donna Parsons, Brent Sandy, Rachelle Tsachor, Joey Walker, Brett Wolgast

Lecturers: James Dreier, Steven Grismore, Hannah Holman, Zoran Jakovic, Elizabeth Oakes, Susan Jones, Tricia Park, Shari Rhoads

Undergraduate degrees: B.A. in Music; B.M.

Undergraduate nondegree program: Minor in Music

Graduate degrees: M.A., M.F.A., Ph.D. in Music; D.M.A.

Graduate nondegree program: Certificate in Sacred Music

Web site: <http://www.uiowa.edu/~music>

The University of Iowa School of Music is prominent in a fine arts community of international repute. It has long been recognized as one of the excellent university-based schools of music in the United States.

The school's on-campus enrollment of approximately 450 music majors is large enough to sustain strong programs in all areas of specialization, yet small enough to ensure the individual attention essential to each student's development.

The faculty consists of highly trained artist-teachers in each area of specialization and scholars of international distinction. Faculty ensembles in residence include the Iowa Woodwind Quintet, the Iowa Brass Quintet, and the Maia String Quartet. Private lessons with faculty members are offered in all band and orchestra instruments, voice, piano, and organ.

The school's undergraduate curricula offer all qualified students, whether music majors or nonmajors, the opportunity for further study of music. In addition to its comprehensive course offerings for majors, the school provides a substantial selection of courses especially recommended for nonmajors (see "Music for Nonmajors").

The graduate curricula are designed primarily as preparation for teaching in secondary schools, colleges, and universities and for careers in performance and music therapy.

The School of Music is a charter member of the National Association of Schools of Music. The requirements for entrance and for graduation are in accordance with the published standards of the National Association of Schools of Music.

Undergraduate Programs

The school offers Bachelor of Arts and Bachelor of Music degrees. B.M. students may count more than 50 s.h. of course work in music toward the minimum 120 s.h. required for graduation; B.A. students may not. Areas of concentration for the B.M. are composition, music therapy, and performance; a second emphasis in jazz studies may be added to a performance track. Professional certification in music education and music therapy are available only through the B.M. program.

The School of Music also participates in offering the major in performing arts entrepreneurship, offered through the Division of Performing Arts in cooperation with the John Pappajohn Entrepreneurial Center of the Tippie College of Business. For more information, see Performing Arts Entrepreneurship in the Catalog.

All undergraduate enrollments require School of Music approval. Entering first-year and transfer

students who plan to major in music must be accepted into a performance area through audition either in person or by recording before they register. Students who plan to major in composition must submit examples of creative work; for details, see “Composition Concentration” below. All entering students must complete a theory diagnostic exam and a piano proficiency exam to determine appropriate placement in related courses.

Transfer students admitted into the School of Music must complete a minimum of one year of applied music (lower- or upper-level) and one year of major ensemble at the University of Iowa in order to earn a degree in music. Transfer students who have not completed the equivalent of the four-semester sequence of Musicianship and Theory I-IV (025:002-025:005) must complete a theory diagnostic exam to determine appropriate placement in the musicianship and theory sequence. Transfer students who have not completed the equivalent of two semesters of class piano or a piano proficiency exam must meet piano proficiency requirements at The University of Iowa.

Bachelor of Music

GENERAL COURSE REQUIREMENTS

All Bachelor of Music candidates must complete the College of Liberal Arts and Sciences General Education Program as well as the following School of Music course requirements.

025:001 Fundamentals of Music for Majors (or successful completion of the undergraduate theory examination)	3 s.h.
025:002-025:005 Musicianship and Theory I-IV	16 s.h.
025:071-025:072 Group Instruction in Piano I-II (or successful completion of proficiency exams I and II)	2 s.h.

Registration in 025:071-025:072 Group Instruction in Piano I-II is corequisite with 025:002-025:003 Musicianship and Theory I and II, unless exempted by proficiency exam. Transfer students should complete this requirement in their first year of residence, unless exempted by proficiency exam.

025:074 Recital Attendance	7 s.h.
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Seven semesters of 025:074 are required for all B.M. students, except music therapy students, who are required to take four semesters. Transfer students should plan to enroll in this course each of their remaining semesters.

025:107 Techniques of Conducting	2 s.h.
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025:144 History of Music I (western music of the Middle Ages, Renaissance, and Baroque)	3 s.h.
025:146 History of Music II (western music 1750-present)	3 s.h.
025:154 Senior Recital	1 s.h.

To complete the senior recital, students must have achieved upper-level applied status or be enrolled in upper-level applied music courses (see “Applied Music”). Music therapy students may complete a senior recital or a senior research project. Composition students substitute 025:099 Bachelor’s Thesis for the senior recital. The senior recital, research project, or thesis must be completed at The University of Iowa.

One of these:	
025:103 World Music	3 s.h.
025:104 Music of Latin America and the Caribbean	3 s.h.
025:141 History of Jazz	3 s.h.
025:178 Music, Culture, and Identity	3 s.h.

At least 4 s.h. from these:	
025:101 Introduction to Improvisation	3 s.h.
025:102 Jazz Improvisation	2 s.h.
025:117 Arranging for Band	2 s.h.
025:118 Jazz Theory	2 s.h.
025:145 Counterpoint Before 1600	3 s.h.
025:147 Counterpoint After 1600	3 s.h.
025:148 Instrumentation	2 s.h.
025:153 Keyboard Harmony	2 s.h.
025:155 Composition	2 s.h.
025:157 Orchestration	2 s.h.
025:243 Advanced Jazz Improvisation	2 s.h.
025:244 Transcription	2 s.h.
025:247 Analysis of Music Literature 1890-present	3 s.h.
025:249 Analysis of Tonal Music	3 s.h.
025:256 Analysis of Music Literature: Special Topics	3 s.h.

APPLIED MUSIC

Four years of applied music are required. Instruction is provided on two levels, lower and upper. Students must achieve upper-level status before they may present the senior recital. Readiness for upper-level applied music is determined in the student’s areas of instruction, usually by a jury examination in the area. The eighth semester of applied music may be waived for students who are enrolled in the Teacher Education Program and are student teaching. Students are allowed a maximum of six semesters (not including summer) in lower-level applied instruction. Those who want to continue lessons beyond the maximum allowable lower-level registration must do so under the nonmajor category.

Music therapy students who complete a senior research project rather than a senior recital are required to take three years of lower-level applied music.

ENSEMBLE PARTICIPATION

Eight semesters of major ensemble participation are required. Students normally enroll in major ensemble participation during consecutive semesters, beginning early in their degree work, to ensure completion of the requirement in a timely manner. Ensemble assignments are made at the discretion of the major teacher and ensemble director. String students participate in University Orchestra and Chamber Orchestra. Wind and percussion students participate in the Symphony Band/Concert Band/University Band. Voice students participate in Camerata Singers, University Choir, Kantorei, and/or University Chorale. Keyboard students may substitute accompanying for major ensemble participation for two semesters during their junior and/or senior years, with their major applied teacher's consent. Composition students may, with their advisor's consent, substitute other ensembles.

Music therapy students who complete a senior research project rather than a senior recital are required to complete 6 s.h. of major ensemble participation.

Any student who wants to request adjustment of the major ensemble requirement must submit his or her request in writing to a review committee consisting of the ensemble director(s) involved, the studio instructor, and the associate director for undergraduate studies.

Major ensembles are as follows.

025:142 Camerata Singers	1 s.h.
025:181 University Choir	1 s.h.
025:185 Kantorei	1 s.h.
025:191 University Chorale (Women's Chorale)	1 s.h.
025:192 Orchestra	0-1 s.h.
025:194 Symphony Band/Concert Band/University Band	0-1 s.h.

ELECTIVES

Students may take advanced electives in performance (including chamber music and piano accompanying), theory, composition, cultural diversity, music education, music therapy, music history, music literature, conducting, and orchestration.

Performance Concentrations

A performance concentration is available in each of the orchestral areas—strings, brass, woodwinds, and percussion—and in voice and keyboard. Students must take at least an additional 17 s.h. beyond the School of Music general course requirements. This course work is chosen from a list of electives unique to each performance area. Course listings for each of the respective areas are available from the School of Music Academic Office.

JAZZ STUDIES EMPHASIS

Students with a performance concentration may add a second emphasis in jazz studies. To be admitted to the jazz studies emphasis, students must audition after they complete their first year. Students admitted to the emphasis are assigned to the jazz studies advisor in addition to their regular faculty advisor.

Senior recital and recital attendance requirements are the same as those for the B.M. Course requirements are the same as those for the B.M., plus an additional 18 s.h. of jazz courses.

Music Therapy Concentration

Admission to the music therapy concentration is based on successful completion (grade of C-plus or higher) of 025:114 Orientation to Music Therapy. In addition to the core courses in music therapy listed below, specific courses are required in biological sciences, psychology, and music.

A six-month internship in an approved off-campus clinical facility is required. Following successful completion of the internship, students are eligible to take the board certification examination in music therapy.

Specific course requirements for music therapy are as follows.

All of these:	
07S:144 Psychology of Music	2 s.h.
07S:149 Introduction to Music Research	2 s.h.
025:017 Secondary Performance—Voice	1 s.h.
025:071 Group Instruction in Piano I	1 s.h.
025:072 Group Instruction in Piano II	1 s.h.
025:073 Group Instruction in Piano III	1 s.h.
025:074 Recital Attendance (four semesters required)	4 s.h.
025:091 Music Foundations in Therapy I	2 s.h.
025:092 Music Foundations in Therapy II	2 s.h.
025:094 Music Therapy Practicum (three semesters, for 1, 2, and 2 s.h., respectively)	5 s.h.

025:096 Music Techniques in Special Education and Recreation	3 s.h.
025:114 Orientation to Music Therapy	2 s.h.
025:138 Music Therapy Techniques: Atypical Children	3 s.h.
025:139 Music Therapy Techniques: Adult Clients	3 s.h.
025:140 Internship in Music Therapy	2 s.h.
One of these:	
025:117 Arranging for Band	2 s.h.
025:148 Instrumentation	2 s.h.
One of these:	
025:098 Senior Project in Music Therapy	1 s.h.
025:154 Senior Recital	1 s.h.

Music therapy students who elect the senior recital option must take four years of applied music and attain upper-level status; they also must take 8 s.h. of major ensemble participation. Those who elect the senior research project option must take three years of applied music, 6 s.h. of major ensemble, and the following courses.

025:101 Introduction to Improvisation	3 s.h.
025:103 World Music	3 s.h.
or	
025:178 Music, Culture, and Identity	3 s.h.

Composition Concentration

Applicants to the composition concentration must submit a portfolio of creative work for evaluation by the composition faculty and must audition in a performance area. Upon admission to the program, students are assigned a faculty advisor. Accomplished students may gain admission as entering first-year students, but most complete the four-semester sequence Musicianship and Theory I-IV (025:002-025:005) before admission.

Composition students must satisfy the degree requirements stated under “Bachelor of Music.” The composition concentration requires additional course work in composition and music theory; contact the School of Music or visit <http://www.uiowa.edu/~music/current/undergraduate.htm>.

The Bachelor’s Thesis (025:099) replaces the recital required of applied music students. It consists of one or more compositions, approved by a committee of three faculty members and performed on regularly scheduled School of Music recitals.

Teacher Certification (B.M. with Teacher Licensure)

Undergraduate students seeking teacher certification must be enrolled in a B.M. program in performance. Teacher licensure in music education is earned by completing the appropriate licensure program (e.g., band, choral, string) in addition to the School of Music requirements for the Bachelor of Music. Students must be admitted to the College of Education’s Teacher Education Program (TEP) before they may take required professional education courses. See “Admission to TEP” below.

Music TEP students must maintain a University of Iowa g.p.a. and a cumulative g.p.a. of at least 2.70 in all course work, and a cumulative g.p.a. of at least 3.00 in course work for the music major. They must have a cumulative g.p.a. of at least 2.70 at the time of recommendation for licensure.

Music TEP students must complete at least 20 s.h. at The University of Iowa in order to be recommended for licensure. For more information, see Teaching and Learning (College of Education) in the Catalog.

In addition to the B.M. requirements in music, TEP students must take College of Liberal Arts and Sciences General Education Program courses that fulfill licensure requirements. The certification program requires music methods and techniques courses, professional education courses, and student teaching.

The following courses are required for all music TEP students. Courses 07S:096, 07E:102/07S:102, 07S:190, and 07S:195 are prerequisites for all other certification courses; students must take them during their first semester in the Teacher Education Program.

One college-level math course (excluding 22M:001, 22M:002, 22M:003)	
07B:180 Human Relations for the Classroom Teacher	3 s.h.
07E:100/07S:100 Foundations of Education	3 s.h.
07E:102/07S:102 Technology in the Classroom	2 s.h.
07E:145 Methods and Materials: General Music	3 s.h.
07E:192 Special Area Student Teaching	6 s.h.
07P:075 Educational Psychology and Measurement	3 s.h.
07S:096 Introduction and Practicum: Music	2 s.h.
07S:187 Seminar: Curriculum and Student Teaching	1 s.h.

07S:190 Orientation to Secondary Education	1 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School	6 s.h.
07S:195 Teaching Reading in Secondary Content Areas	1 s.h.
07U:100 Foundations of Special Education	3 s.h.

BRASS, WOODWIND, AND PERCUSSION STUDENTS

Brass, woodwind, and percussion students in the TEP participate in 02S:193 Marching Band for one semester. Exceptions must be approved by the head of the music education area.

The following courses are required.

07S:140 Band Methods and Materials	3 s.h.
07S:143/02S:105 Instrumental Techniques	7 s.h.
07S:145/02S:108 Instrumental Conducting	2 s.h.
02S:100 Class Strings	1 s.h.
02S:182 Marching Band Techniques	1 s.h.
02S:193 Marching Band	1 s.h.
02S:196 Jazz Band Techniques	2 s.h.
or	
02S:197 Jazz Band	arr.

STRING STUDENTS

String majors take two semesters of secondary performance on each of three string instruments other than their primary instrument (total of 6 s.h.). For example, violin majors take two semesters of each of these: 02S:022 Secondary Performance—Viola, 02S:023 Secondary Performance—Cello, and 02S:024 Secondary Performance—String Bass.

The following courses are required.

07S:143/02S:105 Instrumental Techniques (1 s.h. each of brass, woodwind, percussion)	3 s.h.
07S:145/02S:108 Instrumental Conducting	2 s.h.
07S:150/02S:112 String Methods and Materials	3 s.h.
Secondary performance (six semesters chosen from 02S:021, 02S:022, 02S:023, or 02S:024)	6 s.h.

VOCAL AND KEYBOARD STUDENTS

Vocal majors register for 02S:018 Secondary Performance—Piano for two semesters. Keyboard students register for 02S:017 Secondary Performance—Voice for two semesters.

The following courses are required.

07S:143/02S:105 Instrumental Techniques (1 s.h. each of brass, woodwind, percussion)	3 s.h.
07S:147/02S:109 Choral Methods	3 s.h.
07S:148/02S:110 Choral Conducting and Literature	3 s.h.
02S:100 Class Strings	1 s.h.
Secondary performance (two semesters chosen from 02S:017, 02S:018)	2 s.h.

KEYBOARD STUDENTS (NONVOCAL)

Keyboard students who plan to teach in nonvocal areas complete the requirements in either the brass-woodwind-percussion area or the string area, as stated above.

Admission to TEP

Application forms for admission to the Teacher Education Program are available from the Office of Teacher Education and Student Services at the College of Education. Application deadlines for the secondary Teacher Education Program are October 15 for entry the following spring and March 15 for entry the following fall. The Teacher Education Program in music accepts a limited number of applicants; meeting the minimum requirements (stated below) does not guarantee admission. Application also requires a proficiency exam and a personal statement.

Minimum requirements for admission to the music TEP are:

- a University of Iowa g.p.a. and a cumulative g.p.a. of at least 2.70 at the time of admission to the program; and

- completion of at least 40 s.h. of college credit, a 10-hour volunteer practicum in a secondary school setting, and the PRAXIS I exam.

Bachelor of Arts

Requirements for the B.A. in music have changed. Students who entered the college in or after summer 2006, or who declared the major on or after the first day of fall semester 2006, must complete the program described below. Students who declared the major before the first day of fall semester 2006 may choose to complete the old requirements, but they must complete all requirements and graduate by August 2010.

The Bachelor of Arts degree in music is a nonprofessional degree for students who have strong abilities and interest in music but are not planning on a career as a musician, or who want

to combine a major in music with another major in a liberal arts and sciences discipline. Students must audition and be accepted into a performance area. They develop musicianship and performance skills and choose from a wide variety of music electives.

Students in many areas, from engineering and physics to history, art, and English, find that a B.A. in music is a good addition to their studies. Other students choose the B.A. in music to complement course work in business (especially the minor in business administration), foreign language and literature, or interdisciplinary fields like American studies and literature, science, and the arts. Some students combine a B.A. in music with undergraduate preparation to study law or medicine.

The B.A. in music requires 42-47 s.h. in music course work. All B.A. students must complete the College of Liberal Arts and Sciences General Education Program and satisfy all other college requirements for graduation. For more information, contact the School of Music and the Academic Advising Center.

The B.A. in music requires the following course work.

- 025:001 Fundamentals of Music for Majors (or successful completion of the undergraduate theory examination) 3 s.h.
- 025:002-025:003 Musicianship and Theory I-II 8 s.h.
- 025:071-025:072 Group Instruction in Piano I-II (or successful completion of proficiency exams I and II) 2 s.h.

Registration for 025:071-025:072 Group Instruction in Piano I-II is corequisite with 025:002-025:003 Musicianship and Theory I-II, unless exempted by proficiency exam. Transfer students should complete this requirement in their first year of residence, unless exempted by proficiency exam.

- 025:074 Recital Attendance (2 semesters) 2 s.h.
- Lower-level applied music 4 s.h.
- Major ensemble (minimum of 4 semesters) 4 s.h.

With approval, students may use 025:197 Jazz Band to satisfy the major ensemble requirement.

- Two of these:
- 025:141 History of Jazz 3 s.h.
 - 025:144 History of Music I 3 s.h.
 - 025:146 History of Music II 3 s.h.

- Performance electives (lower- or upper-level applied music, ensembles, or improvisation) 6 s.h.

- At least 6 s.h. from these:
- 025:004 Musicianship and Theory III 4 s.h.
 - 025:005 Musicianship and Theory IV 4 s.h.
 - 025:103 World Music 3 s.h.
 - 025:104 Music of Latin America and the Caribbean 3 s.h.
 - 025:107 Techniques of Conducting 2 s.h.
 - 025:117 Arranging for Band 2 s.h.
 - 025:118 Jazz Theory 2 s.h.
 - 025:141 History of Jazz 3 s.h.
 - 025:144 History of Music I 3 s.h.
 - 025:146 History of Music II 3 s.h.
 - 025:145 Counterpoint before 1600 3 s.h.
 - 025:155 Composition 2 s.h.
 - 025:231 Jazz Composition and Arranging 2 s.h.
 - 025:244 Transcription 2 s.h.
 - Music electives 6 s.h.

All music majors with scholarships must participate in a major ensemble and studio lessons each semester.

For a list of major ensembles, see “Ensemble Participation” under “Bachelor of Music” above.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan.

In addition to the requirements listed under the checkpoints, all students must complete 2 s.h. in applied music and 1 s.h. in a major ensemble each semester.

The Four-Year Graduation Plan is not available for music therapy and music education.

Bachelor of Arts

The Bachelor of Arts in music requires 42-47 s.h. in School of Music courses.

Before the third semester begins: 15-18 s.h. of course work in the major, including 025:002, 025:003, 025:071, and 025:072; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least 23-32 s.h. of course work in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least 33-41 s.h. of course work in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 40-46 s.h. of course work in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Music

Students may apply more than 50 s.h. earned in School of Music courses toward the minimum 120 s.h. required for the B.M.

Before the third semester begins: 18 s.h. of course work in the major, including 025:002, 025:003, 025:071, and 025:072; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least 34 s.h. of course work in the major, including 025:004 and 025:005, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least 50 s.h. of course work in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 56 s.h. of course work in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Exceptional music majors who are members of the University Honors Program and maintain a music g.p.a. of at least 3.80 may enroll in the School of Music's honors program. Membership in the Honors Program requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Throughout undergraduate residence, honors music students may enroll in honors sections of courses in the school and in the College of Liberal Arts and Sciences. They also may seek honors designation for any course, with the instructor's consent. All honors course work must be approved by the School of Music honors advisor.

Honors students with junior or senior standing and a music g.p.a. of at least 3.80 may undertake work leading to the B.M. or B.A. with honors. Graduation with honors is awarded after

completion of 6-8 s.h. of honors work; students must earn a minimum of 3 s.h. in 025:097 Honors in Music. Honors projects for which credit is given in 025:097 include honors performances (solo and/or ensemble); honors compositions (or transcriptions, orchestrations, arrangements); and honors essays, research papers, editions, or translations. A combination of at least two of these types of projects is required. None of the projects may duplicate projects assigned in other courses, nor may they be required for graduation (e.g., 025:154 Senior Recital).

Honors students in music are encouraged to take graduate-level courses. Advanced courses in music history, music theory, and languages are particularly recommended. An honors committee appointed by the advisor and the student's faculty sponsor evaluates the student's work.

Consult the School of Music honors advisor for more information.

National Honor Society

The School of Music sponsors a chapter of Pi Kappa Lambda, the national music honor society. Students of exceptional ability are recommended for membership by faculty members. For more information, consult the School of Music honors advisor.

Minor

Students may earn a minor in music by completing 15 s.h. of course work in the School of Music, including 12 s.h. in advanced course work at The University of Iowa. Advanced courses include all courses numbered 025:100 and above, courses in the four-semester sequence Musicianship and Theory I-IV (025:002, 025:003, 025:004, and 025:005), and all lower-level applied instruction courses for majors.

Students must include one music theory course, one music history course; and 3 s.h. of performance courses (lower-level applied instruction for majors or ensembles). Auditions with the major instructor are required for the admission to the lower-level instruction courses; admission to the theory courses is determined by results on the theory placement exam or completion of 025:001 Fundamentals of Music for Majors. Students seeking a music minor must maintain a g.p.a. of at least 2.00. No course counted toward the minor may be taken pass/nonpass.

Financial Aid

A number of music activity scholarships are available to qualified undergraduate music majors. For information, write to the School of Music.

Graduate Programs

The School of Music offers four graduate degrees: Master of Arts, Master of Fine Arts, Doctor of Philosophy, and Doctor of Musical Arts. It also offers a graduate theory pedagogy minor and the graduate Certificate in Sacred Music.

Before applicants can be considered for admission to any of the graduate programs, they must audition and/or submit supporting materials in their area of concentration. Information about Graduate College admission and curriculum requirements for each area in the School of Music is available from the school's academic office.

For detailed information about Graduate College admission and policies, see the Manual of Rules and Regulations of the Graduate College or Graduate College in the Catalog.

GENERAL REQUIREMENTS

Before they register, entering graduate students must take two School of Music advisory examinations: one in music theory, and one in music history and literature. M.A. students in music therapy are not required to take the advisory examination in music theory or music history. These examinations are given at the beginning of the fall semester on the two days (except Sunday) immediately preceding the opening of classes, and at the beginning of the spring and summer sessions by appointment. A leaflet describing the general content of these tests is available from the School of Music academic office.

ENSEMBLE PARTICIPATION

Students in the M.A. or M.F.A. program (performance tracks) or the D.M.A. program in performance and pedagogy are required to complete four semesters of major ensemble participation. Students normally enroll in major ensemble participation during consecutive semesters beginning early in their degree work, to ensure completion of the major ensemble requirements in a timely manner. Ensemble assignments are made at the discretion of the major teacher and ensemble director. For a list of major ensembles, see "Ensemble Participation" under "Bachelor of Music" above.

Keyboard majors may substitute piano accompanying for major ensemble participation, at their major applied teacher's discretion. Jazz studies majors substitute 025:197 Jazz Band for major ensemble participation. Theory, composition, musicology, music education, and music therapy majors have no major ensemble requirement.

Any student who wants to request adjustment of this requirement must submit his or her request in writing to a review committee consisting of the major ensemble director(s) involved, the major teacher, and the School of Music associate director for graduate studies.

Master of Arts

The Master of Arts is offered in performance, conducting, jazz studies, composition, music theory, musicology, music therapy, music education, and opera theater direction. Performance majors present a public recital in place of a written thesis. Jazz studies majors present a public recital and a separate performance project. The Master of Arts without thesis is offered in performance, jazz studies, music education, and music therapy. Both thesis/recital and nonthesis degrees require a minimum of 30-33 s.h. of postbaccalaureate study. All M.A. programs—except music therapy—must include the following requirements. (Consult the music therapy program for information about requirements for the music therapy M.A.)

025:321 Introduction to Graduate Study in Music 2 s.h.

Music Theory

Students must earn 6 s.h.

025:240 Analytical Techniques (unless exempt by advisory exam) 3 s.h.

Students exempt from 025:240 through the advisory examination in music theory must substitute an additional theory elective from the following.

025:145 Counterpoint before 1600 3 s.h.

025:147 Counterpoint after 1600 3 s.h.

025:247 Analysis of Music Literature 1890-Present 3 s.h.

025:249 Analysis of Tonal Music 3 s.h.

025:256 Analysis of Music Literature: Special Topics 3 s.h.

One elective from these:

025:145 Counterpoint Before 1600 3 s.h.

025:147 Counterpoint After 1600 3 s.h.

025:241 History of Music Theory I	3 s.h.
025:242 History of Music Theory II	3 s.h.
025:247 Analysis of Music Literature 1890-Present	3 s.h.
025:249 Analysis of Tonal Music	3 s.h.
025:256 Analysis of Music Literature: Special Topics	3 s.h.
025:311 Theory and Analysis of Atonal Music	3 s.h.
025:312 Schenkerian Theory and Analysis	3 s.h.

Music History

Students must earn 6 s.h.

025:301 Advanced History and Literature of Music I	3 s.h.
025:302 Advanced History and Literature of Music II	3 s.h.

Students exempted from 025:301 and/or 025:302 through the advisory examination in music history must substitute a music history course from the following list for each of the exemptions.

025:303 Medieval Music	3 s.h.
025:304 Renaissance Music	3 s.h.
025:305 Seventeenth-Century Music	3 s.h.
025:306 Eighteenth-Century Music	3 s.h.
025:307 Nineteenth-Century Music	3 s.h.
025:308 Music 1900-1945	3 s.h.
025:309 Music 1945-Present	3 s.h.
025:310 American Music	3 s.h.
025:313 Major Composers	3 s.h.
025:314 Genres of Music	3 s.h.
025:315 Topics in the History of Opera	3 s.h.
025:318 Topics in Ethnomusicology	3 s.h.
025:319 Foundations of Ethnomusicology	3 s.h.
025:323 Medieval Music Notations	3 s.h.
025:324 Renaissance Music Notations	3 s.h.
025:325 Music Editing	3 s.h.
025:330 Seminar in Musicology	3 s.h.
025:331 Performance Practices of Medieval and Renaissance Music	3 s.h.

Master of Fine Arts

The M.F.A. is for students of superior ability in instrumental or vocal performance. It requires a minimum of 60 s.h. of postbaccalaureate study, including at least two full-length recitals or programs (025:401 M.F.A. Thesis) for a maximum of 8 s.h. of credit.

Students may earn a Master of Arts degree while working toward the Master of Fine Arts degree, but all requirements for each degree—including two final examinations—must be met separately (see Graduate College in the Catalog).

Doctoral Degrees

All doctoral study in music includes the following.

Minimum course requirements listed under the M.A.

One or more additional music theory course(s) listed in the master's degree requirements

One or more additional course(s) in music history, chosen from those listed in the master's degree requirements

One of these:

025:500 Ph.D. Thesis	arr.
025:501 Composition Ph.D. Thesis	arr.
025:502 D.M.A. Essay	arr.

Proficiency in one or more foreign languages is required in most areas.

Doctor of Philosophy

Areas of concentration for the Ph.D. include composition, musicology, music education, music theory, and music literature. The music literature program is designed for students who already have achieved a professional level of musical performance. These students are required to audition in their major performance area.

Information about specific admission and curricular requirements for each area is available from the School of Music academic office.

Doctor of Musical Arts

Requirements for the D.M.A. in performance and pedagogy are the same as the school's general doctoral requirements, except that the D.M.A. requires three full-length recitals. At the performance area's discretion, a concerto performance with orchestra or other appropriate ensemble from the School of Music may be substituted for one of the recitals. Some performance areas allow one or more lecture recitals, with faculty approval. Singers may substitute one major opera role or one major solo contribution to an orchestra performance for one of their recitals. Conductors present two programs. See the associate director of graduate programs for specific area requirements.

D.M.A. candidates also must complete a scholarly investigation of limited scope in a written essay or thesis.

Certificate in Sacred Music

The certificate program is interdisciplinary. It requires course work in sacred music, choral conducting/literature, keyboard, voice, religion, and art and art history. Acceptance to the Graduate College is required. Simultaneous work toward a graduate degree is an option but is not required.

Theory Pedagogy Minor

Any student admitted to a graduate degree program in the School of Music may earn the theory pedagogy minor by completing the following required courses.

One of these:

- 025:145 Counterpoint Before 1600 3 s.h.
- 025:147 Counterpoint After 1600 3 s.h.

Both of these:

- 025:236 Methods and Techniques of Teaching Basic Theory 3 s.h.
- 025:237 Music Theory Colloquium (concurrent with 025:236) 0-1 s.h.

One of these:

- 025:249 Analysis of Tonal Music 3 s.h.
- 025:312 Schenkerian Theory and Analysis 3 s.h.

Total of 6 s.h. from these:

- 025:241 History of Music Theory I 3 s.h.
- 025:242 History of Music Theory II 3 s.h.
- 025:247 Analysis of Music Literature 1890-Present 3 s.h.
- 025:256 Analysis of Music Literature: Special Topics 3 s.h.
- 025:311 Theory and Analysis of Atonal Music 3 s.h.

Graduate Awards

Qualified graduate students are invited to apply for teaching and research assistantships. Inquiries should be directed to the academic office of the School of Music.

Music for Nonmajors

Courses recommended for nonmajors who are interested in music include the following.

- 025:009 First-Year Seminar 1 s.h.
- 025:010 Fundamentals of Music 3 s.h.
- 025:013 Concepts and Contexts of Western Music 3 s.h.
- 025:014 Great Musicians 3 s.h.

- 025:059 Performance Instruction for Non-Majors 1 s.h.
- 025:063 Survey of World Percussion 1 s.h.
- 025:064 Recital Attendance for Non-Majors 1 s.h.
- 025:082 Group Piano I: Non-Music Majors 1 s.h.
- 025:083 Introduction to Hand Drumming 1 s.h.
- 025:084 Group Piano II: Non-Music Majors 1 s.h.
- 025:103 World Music 3 s.h.
- 025:104 Music of Latin America and the Caribbean 3 s.h.
- 025:141 History of Jazz 3 s.h.
- 025:144 History of Music I 3 s.h.
- 025:146 History of Music II 3 s.h.
- 025:167 Movement for Performers 2-3 s.h.
- 025:178 Music, Culture, and Identity 3 s.h.

Group Piano I: Non-Music Majors (025:082) is available for nonmajors who wish to develop elementary performance skills for personal musical growth and enjoyment.

Participation in School of Music ensembles is open to all University students with the ensemble director's approval (for a list of major ensembles, see "Ensemble Participation" under "Bachelor of Music" above).

Applied music instruction is offered to nonmajors as instructors are available. Nonmajors interested in registering for 025:059 Performance Instruction for Non-Majors should consult music advisors.

Center for New Music

The Center for New Music is a vital component of the School of Music's composition program. Since its founding in 1966, the center has been both laboratory and showcase for late-20th-century music. It presents several concerts of contemporary works each academic season. It also provides a forum for visiting composers and other creative artists, bringing new music to a variety of outreach venues. Audition, rehearsal, and programming information is available on request.

Facilities

The Iowa Arts Campus has one of the nation's finest facilities for teaching and performing music. In addition to classrooms, the Voxman Music Building houses 55 teaching studios, 73 practice rooms, a library, three electronic

music studios, ear training and listening facilities, four large rehearsal halls, ensemble rooms, professional recording facilities, eight practice and recital organs, the 80-seat Krapf Organ Studio, and the 700-seat Clapp Recital Hall. Its Instructional Technology Center has 30 desktop computers with MIDI equipment and music-related software. Hancher Auditorium seats 2,680 people for concerts, operas, and other stage productions.

The Rita Benton Music Library holds more than 70,000 music scores and chamber music parts; 50,000 books, including bound journals; 3,500 microforms, chiefly manuscripts and early printed books; and 26,000 sound recordings and videos. It receives about 300 journals. Its Rare Book Room has particular strengths in 18th- and 19th-century music theory treatises and instrumental methods, and an outstanding collection of keyboard and chamber music by Ignaz Pleyel. Music manuscripts of the composer Phillip Greeley Clapp, a former director of the school, are housed in Special Collections at the University's Main Library. The Goldman Band Collection also is kept in the Main Library.

The Music Library accommodates 100 patrons at carrels and tables, with additional space at 15 listening room stations outfitted with computers that have CD and DVD players, turntables, or cassette decks. Separate small rooms house microformat readers and video equipment. The photocopier accommodates ledger-size sheets, enlargement, and reduction. All print materials are on open shelves; patrons must request audio records, videos, and microformats. The large reference collection is supplemented by standard electronic versions of music references and InfoHawk Gateway, the University's library catalog online.

Courses

General

Other courses appropriate for nonmajors are 025:144 and 025:146 (see "Music History"); 025:080 and 025:141 (see "Jazz Studies"); and most ensembles (see "Ensembles").

*Instruction in 025:059 Performance Instruction for Non-Majors consists of a half-hour lesson per week. The course is offered on a fee-per-course basis, in addition to tuition. Students register under separate section numbers for different instruments.

- 025:009 First-Year Seminar** 1 s.h.
An aspect of performance, creativity, musical literature, or scholarship; seminar format with classroom participation, papers, projects, other assignments; may require attendance at lectures, rehearsals, or performances. Prerequisite: first- or second-semester standing.
- 025:010 Fundamentals of Music** 3 s.h.
Music fundamentals through writing, listening, sight-singing, dictation, notation of pitch and rhythm, intervals, scales, key signatures, triads, and seventh chords. Offered by Saturday & Evening Classes. Prerequisite: closed to music majors.
- 025:013 Concepts and Contexts of Western Music** 3 s.h.
Ideas, social and historical contexts, emergence of genres and styles, diverse performing traditions in music making of Europe and North America. GE: fine arts, humanities.
- 025:014 Great Musicians** 3 s.h.
Lives and works of important composers, performers. GE: fine arts, humanities.
- *025:059 Performance Instruction for Non-Majors** 1 s.h.
Bassoon, cello, clarinet, euphonium, flute, horn, oboe, organ, percussion, piano, saxophone, string bass, trombone, trumpet, tuba, viola, violin, or voice. GE: fine arts or humanities. Prerequisites: for piano, one year of instruction; closed to music majors.
- 025:063 Survey of World Percussion** 1 s.h.
Percussion music explored through a selection of nonwestern musical and cultural traditions; hands-on experience learning to play instruments from a variety of musical genres; music of Cuba, Brazil, Africa, Trinidad, Asia, other areas.
- 025:064 Recital Attendance for Non-Majors** 1 s.h.
Musical experience through student, faculty recitals.
- 025:074 Recital Attendance** 1 s.h.
Prerequisite: music major.
- 025:082 Group Piano I: Non-Music Majors** 1 s.h.
Reading, technical study, chording, playing by ear, improvisation; for beginners. GE: fine arts or humanities. Prerequisite: closed to music majors.
- 025:083 Introduction to Hand Drumming** 1 s.h.
Hand drumming techniques indigenous to several Afro-Caribbean cultures; hands-on instruction and coaching on varied ethnic instruments, lectures, listening sessions.
- 025:084 Group Piano II: Non-Music Majors** 1 s.h.
Continuation of 025:082. Prerequisite: closed to music majors.
- 025:103 World Music** 3 s.h.
Varied perspectives on the relationship of music and culture, drawing from musical cultures around the world.
- 025:104 Music of Latin America and the Caribbean** 3 s.h.
Folk and popular musical traditions and their social contexts in Latin America the Caribbean; listening skills; video/film screenings. GE: fine arts or humanities.
- 025:106 World Music as Popular Music** 3 s.h.
Same as 075:108.
- 025:111 Special Topics** 3 s.h.
One or more musical styles, genres, cultures, composers, or subjects.
- 025:137 World of the Beatles** 3 s.h.
How the Beatles' music was influenced by American pop music, the drug culture, and the Avant Garde, nonwestern instruments and philosophy, anti-war sentiments, and world politics, and so forth; Beatlemania's impact on British and American cultures and its role in opening Eastern Europe to the West.

025:164 Social History of the Violin 1-3 s.h.
Same as 016:151.

025:167 Movement for Performers 2-3 s.h.
Movement as support for sound production, artistic expression, and wellness; Bartenieff Fundamentals, Laban Movement Analysis, or Alexander Technique as methods of organizing and integrating body movement and expanding expressive range; studio course with practice, journal, observations, project applying movement skills to student's area of performance/study. Same as 049:105, 137:160.

025:176 Nonprofit Organizational Effectiveness I 3 s.h.
Same as 06j:147, 024:147, 032:127, 042:157, 049:175, 096:168.

025:177 Nonprofit Organizational Effectiveness II 3 s.h.
Same as 06j:148, 024:148, 032:128, 042:158, 049:176, 096:169.

025:178 Music, Culture and Identity 3 s.h.
Use of music as marker of social identity; focus on popular music in the United States and interplay among Latino, African, and European-American musical cultures; listening skills.

Applied Music

Instruction consists of individual and/or class lessons, at the instructor's option, for a minimum of one hour per week (students register for 2 s.h.), or one half-hour per week (students register for 1 s.h.). Majors are required to attend weekly performance and pedagogy seminars in applied music. Offered on a fee-per-course basis, in addition to tuition. Repeatable.

Lower-Level Guitar (025:043) is limited to three students.

LOWER-LEVEL UNDERGRADUATE MAJORS

025:040 Lower Level Voice arr.
025:041 Lower Level Piano arr.
025:042 Lower Level Organ arr.
025:043 Lower Level Guitar 1 s.h.
Prerequisites: B.A. enrollment and audition.
025:044 Lower Level Violin arr.
025:045 Lower Level Viola arr.
025:046 Lower Level Cello arr.
025:047 Lower Level String Bass arr.
025:048 Lower Level Flute arr.
025:049 Lower Level Oboe arr.
025:050 Lower Level Clarinet arr.
025:051 Lower Level Bassoon arr.
025:052 Lower Level Saxophone arr.
025:053 Lower Level Horn arr.
025:054 Lower Level Trumpet arr.
025:055 Lower Level Euphonium arr.
025:056 Lower Level Trombone arr.

025:057 Lower Level Tuba arr.
025:058 Lower Level Percussion arr.

UPPER-LEVEL UNDERGRADUATE MAJORS

025:119 Upper Level Voice arr.
025:120 Upper Level Piano arr.
025:121 Upper Level Organ arr.
025:122 Upper Level Violin arr.
025:123 Upper Level Viola arr.
025:124 Upper Level Cello arr.
025:125 Upper Level String Bass arr.
025:126 Upper Level Flute arr.
025:127 Upper Level Oboe arr.
025:128 Upper Level Clarinet arr.
025:129 Upper Level Bassoon arr.
025:130 Upper Level Saxophone arr.
025:131 Upper Level Horn arr.
025:132 Upper Level Trumpet arr.
025:133 Upper Level Euphonium arr.
025:134 Upper Level Trombone arr.
025:135 Upper Level Tuba arr.
025:136 Upper Level Percussion arr.

GRADUATE MAJORS

025:263 Major Voice arr.
025:264 Major Piano arr.
025:266 Major Organ arr.
025:267 Major Violin arr.
025:268 Major Viola arr.
025:269 Major Cello arr.
025:270 Major String Bass arr.
025:271 Major Flute arr.
025:272 Major Oboe arr.
025:273 Major Clarinet arr.
025:274 Major Bassoon arr.
025:275 Major Saxophone arr.
025:276 Major Horn arr.
025:277 Major Trumpet arr.
025:278 Major Euphonium arr.
025:279 Major Trombone arr.
025:280 Major Tuba arr.
025:281 Major Percussion arr.

SECONDARY PERFORMANCE INSTRUCTION FOR MAJORS

Instruction consists of one half-hour lesson per week. Offered on a fee-per-course basis, in addition to tuition.

025:017 Secondary Performance—Voice	1 s.h.
025:018 Secondary Performance—Piano	1 s.h.
025:019 Secondary Performance—Organ	1 s.h.
025:021 Secondary Performance—Violin	1 s.h.
025:022 Secondary Performance—Viola	1 s.h.
025:023 Secondary Performance—Cello	1 s.h.
025:024 Secondary Performance—String Bass	1 s.h.
025:025 Secondary Performance—Flute	1 s.h.
025:026 Secondary Performance—Oboe	1 s.h.
025:027 Secondary Performance—Clarinet	1 s.h.
025:028 Secondary Performance—Bassoon	1 s.h.
025:029 Secondary Performance—Saxophone	1 s.h.
025:030 Secondary Performance—Horn	1 s.h.
025:031 Secondary Performance—Trumpet	1 s.h.
025:032 Secondary Performance—Euphonium	1 s.h.
025:033 Secondary Performance—Trombone	1 s.h.
025:034 Secondary Performance—Tuba	1 s.h.
025:035 Secondary Performance—Percussion	1 s.h.

Choral Literature

025:341 Seminar: Choral Literature and Analysis I	1-3 s.h.
Choral music of the Renaissance. Repeatable. Corequisite: 025:203.	
025:342 Seminar: Choral Literature and Analysis II	1-3 s.h.
Choral music of the Baroque era. Repeatable. Corequisite: 025:204.	
025:343 Seminar: Choral Literature and Analysis III	1-3 s.h.
Choral music of the Classical and Romantic eras. Repeatable. Corequisite: 025:205.	
025:344 Seminar: Choral Literature and Analysis IV	1-3 s.h.
Choral music of the 20th and 21st centuries. Repeatable. Corequisite: 025:206.	

Composition

025:148 Instrumentation	2 s.h.
Basic techniques of writing for orchestral instruments; ranges, transpositions, sound production, notating scores and parts. Prerequisite: 025:005.	
025:155 Composition	2 s.h.
Prerequisite: 025:005 or consent of instructor.	
025:156 Composition Seminar	0-1 s.h.
Corequisite: 025:179 or 025:223.	

025:157 Orchestration 2 s.h.
Instrumental capabilities and combinations in solo, chamber, and large ensemble literature; application in composition. Prerequisite: 025:148 or consent of instructor.

025:179 Composition arr.
Individual lessons with a composition faculty member. Prerequisite: 025:155 or equivalent. Corequisite: 025:156.

025:223 Advanced Composition arr.
Repeatable. Prerequisite: consent of instructor. Corequisite: 025:156.

025:250 Composition: Electronic Media I 3 s.h.
Composition using analog, digital technology. Offered fall semesters. Repeatable. Prerequisite: consent of instructor.

025:251 Composition: Electronic Media II 3 s.h.
Advanced interactive techniques in composition in association with analog, digital technologies. Offered spring semesters. Repeatable. Prerequisite: consent of instructor.

Conducting

See also 025:108, 025:109, and 025:110, under the heading Music Education.

025:107 Techniques of Conducting 2 s.h.
Basic elements, score analysis.

025:158 Advanced Conducting 2 s.h.
Prerequisite: graduate standing.

025:200 Seminar in Advanced Band Literature and Band History arr.
Band literature; history.

025:203 Advanced Choral Conducting I 1-3 s.h.
Music of the Renaissance. Repeatable. Corequisite: 025:341.

025:204 Advanced Choral Conducting II 1-3 s.h.
Music of the Baroque era. Repeatable. Corequisite: 025:342.

025:205 Advanced Choral Conducting III 1-3 s.h.
Music of the Classical and Romantic eras. Repeatable. Corequisite: 025:343.

025:206 Advanced Choral Conducting IV 1-3 s.h.
Music of the 20th and 21st centuries. Repeatable. Corequisite: 025:344.

025:225 Score Reading 1 s.h.

025:291 Orchestral Literature 2 s.h.

Ensembles

Courses may be repeated; consent of instructor required.

025:142 Camerata Singers 1 s.h.

025:162 All-University String Orchestra 1 s.h.
Repertoire, rehearsal pacing, and performance expectation geared to general students. Open to all UI students with no audition.

025:163 Steel Band 1 s.h.
Musical and cultural introduction to steel band music of Trinidad and other Caribbean musical styles, including calypso, soca, ska, and reggae. Prerequisite: consent of instructor.

025:173 Afro-Cuban Drum 1 s.h.
Drumming, dance, songs from folkloric and ceremonial Afro-Cuban forms; emphasis on drumming; may include participation in Afro-Cuban drum and dance ensemble. Prerequisite: consent of instructor.

025:180 Large Pep Band 1 s.h.

Performing ensemble for men's basketball games during spring semester. Prerequisite: membership in marching band (025:193) and audition.

025:181 University Choir 1 s.h.

025:183 Chamber Orchestra 0-1 s.h.

025:185 Kantorei 1 s.h.

025:186 Piano Accompaniment arr.

Collaborative arts techniques, methods, and history. Prerequisite: keyboard major or consent of instructor.

025:187 Piano Chamber Music arr.

Prerequisite: music major or consent of instructor.

025:188 String Chamber Music arr.

025:190 Wind Chamber Music arr.

Preparation, performance of representative literature; sections for woodwinds, brass, flute, clarinet, horn, saxophone, double reed, trumpet, trombone, brass choir, tuba/euphonium ensemble.

025:191 University Chorale 1 s.h.

Women's chorale.

025:192 Orchestra 0-1 s.h.

025:193 Marching Band 0-1 s.h.

Offered fall semesters.

025:194 Symphony Band/Concert Band/University Band 0-1 s.h.

025:195 Percussion Ensemble arr.

Range of styles and idioms, primarily written during the 20th and 21st centuries; historical or cultural aspects such as ancient rudimental drumming styles, ragtime, jazz, popular music, and music from Africa, the Caribbean, Brazil, Cuba, China. Prerequisite: consent of instructor.

Jazz Studies

025:080 The Jazz Diaspora 3 s.h.

How to listen to jazz; focus on repertoire from a specific region of the world and how it blends, augments, and/or rejects local practices.

025:101 Introduction to Improvisation 3 s.h.

Introduction to the practice of improvisation through performance of repertoire and the development of practicing strategies; exercises in melody, harmony, rhythm and transcription that together form an integrated approach to developing improvisations. Prerequisites: 025:002 and audition.

025:102 Jazz Improvisation 2 s.h.

Improvisation in the jazz repertoire of standards, bebop, and major composers such as Thelonious Monk, Wayne Shorter; memorization and use of melodies, knowledge of chords to the thirteenth, chromatic harmony, development of rhythmic motifs/alteration, strategies for multiple chorus improvisations. Prerequisites: 025:002, 025:101, and audition.

025:118 Jazz Theory 2 s.h.

Development of skills for interpreting melodies and chord symbols in mainstream practice of jazz harmony at the piano; application of scales, development of voice leading for jazz harmonies, reharmonization, and analysis. Prerequisites: 025:002 and 025:072, or audition.

025:141 History of Jazz 3 s.h.

Major 20th-century styles, artists, seminal works, and recordings; developments between 1917 and 1972. GE: cultural diversity.

025:196 Jazz Band Techniques 2 s.h.

Development of skills for sight-reading and interpreting notated jazz. Prerequisite: audition.

025:197 Jazz Band arr.

Rehearsals (four hours per week) and several concerts on and off campus; projects for additional credit (e.g., transcribing a solo for the ensemble's repertoire; arranging, transcribing, or composing a work for performance). Prerequisite: audition.

025:224 Small Jazz Ensembles 1 s.h.

Development of repertoire from standard jazz literature, arrangements and compositions by ensemble members; rehearsals (three hours per week) and performances on and off campus. Repeatable. Prerequisite: audition.

025:231 Jazz Composition and Arranging 2 s.h.

Experience writing and arranging original jazz material for small and large ensembles, and presenting scores in computer notation; individual lessons. Repeatable. Prerequisite: 025:118 or score submission. Recommended: 025:117 and 025:157.

025:243 Advanced Jazz Improvisation 2 s.h.

Builds on the skills learned in 025:102; contemporary techniques and styles used by current practitioners of improvisation; free improvisation, bitonal harmonies, through-composed forms, collective improvisation, nonwestern approaches. Repeatable. Prerequisites: 025:102 and audition.

025:244 Transcription 2 s.h.

Individual projects to transcribe improvisations, small ensemble arrangements, large ensemble arrangements, or nonwestern techniques; use of computer notation programs and midi-realizations. Repeatable. Prerequisite: 025:102 or 025:118.

Music Education

Other music education courses are offered by the College of Education; see Teaching and Learning in the Catalog for listings and descriptions. Some courses have two numbers, one for the School of Music and the other for the College of Education. Students preparing for music teacher licensure should register under the education number.

Also see 025:196 under "Jazz Studies."

025:100 Class Strings 1 s.h.

Fundamental skills in stringed instruments. Prerequisite: teacher education student in music.

025:105 Instrumental Techniques 1-3 s.h.

Fundamental skills in wind, percussion instruments. Same as 075:143.

025:108 Instrumental Conducting 2 s.h.

Advanced skills; score analysis, rehearsal techniques, literature selection. Prerequisite: 025:107. Same as 075:145.

025:109 Choral Methods 3 s.h.

Effective choral music programs for all ages. Same as 075:147.

025:110 Choral Conducting and Literature 3 s.h.

Prerequisite: 025:107. Same as 075:148.

025:112 String Methods and Materials 3 s.h.

Same as 075:150.

025:117 Arranging for Band 2 s.h.

Scoring and arranging techniques for concert, marching bands. Offered spring semesters.

025:182 Marching Band Techniques 1 s.h.

Administration, charting. Offered fall semesters.

025:220 Music Education Workshop 1 s.h.

For inservice music teachers; topics vary. Same as 075:241.

Music History

Note: Courses 025:303 and 025:309, 025:313 and 025:314, 025:323 and 025:324, and 025:331 deal with periods and special topics in music history. They are offered about every two years. All of them have as prerequisites 025:301 and 025:302, or the equivalents, or consent of instructor.

This listing includes several courses appropriate for nonmajors. Other music history courses appropriate for nonmajors are listed under "General."

025:144 History of Music I 3 s.h.
GE: fine arts or historical perspectives. Prerequisites: 025:003 and 025:004, or equivalents for majors; consent of instructor for nonmajors.

025:146 History of Music II 3 s.h.
GE: fine arts or historical perspectives. Prerequisites: 025:003 and 025:004, or equivalents for majors; consent of instructor for nonmajors.

025:238 Musicology Colloquium 0 s.h.
Repeatable.

025:301 Advanced History and Literature of Music I 3 s.h.
History and style of Medieval, Renaissance, and Baroque music (750-1750). Offered fall semesters.

025:302 Advanced History and Literature of Music II 3 s.h.
History and style of Classical, 19th-, 20th-, and 21st-century music (1750-present). Offered spring semesters.

025:303 Medieval Music 3 s.h.
Prerequisite: 025:301 or consent of instructor.

025:304 Renaissance Music 3 s.h.
Prerequisite: 025:301 or consent of instructor.

025:305 Seventeenth-Century Music 3 s.h.
Prerequisite: 025:301 or consent of instructor.

025:306 Eighteenth-Century Music 3 s.h.
Prerequisite: 025:302 or consent of instructor.

025:307 Nineteenth-Century Music 3 s.h.
Prerequisite: 025:302 or consent of instructor.

025:308 Music 1900-1945 3 s.h.
Repeatable. Prerequisite: 025:302 or consent of instructor.

025:309 Music 1945-Present 3 s.h.
Prerequisite: 025:302 or consent of instructor.

025:310 American Music 3 s.h.
Prerequisite: 025:302 or consent of instructor.

025:313 Major Composers 3 s.h.
Life and works of one or more important composers (announced before registration). Repeatable.

025:314 Genres of Music 3 s.h.
One or more major genres in the history of music (announced before registration). Repeatable.

025:315 Topics in the History of Opera 3 s.h.
History, style, ideology, and cultural context of operatic works from one or more eras, countries, or composers. Repeatable. Prerequisites: 025:301 and 025:302, or consent of instructor.

025:318 Topics in Ethnomusicology 3 s.h.
Perspectives on analysis and representation of selected musical cultures from around the world. Repeatable. Prerequisite: consent of instructor.

025:319 Foundations of Ethnomusicology 3 s.h.
Ethnomusicology in relation to domains of musical, humanistic, social science scholarship on expressive culture and artistic processes. Prerequisites: senior standing and consent of instructor. Same as 113:208.

025:320 Introduction to Musicology 1-3 s.h.
Methods, materials of research in historical musicology; field of musicology. Offered fall semesters. Prerequisite: for 1 s.h. credit, 025:321 or equivalent. Corequisite: for 3 s.h. credit, 025:321.

025:321 Introduction to Graduate Study in Music 2 s.h.
Music library; reference materials; bibliography; research problems, methods; writing research papers. Offered fall and spring semesters.

025:323 Medieval Music Notations 3 s.h.
Chant neumes, medieval black notation, musical and textual paleography; transcription of early vocal and instrumental notations; editorial problems. Prerequisite: 025:301 or consent of instructor.

025:324 Renaissance Music Notations 3 s.h.
Renaissance white notation, keyboard tablatures, musical paleography; transcription of early vocal, instrumental notations; editorial problems. Prerequisite: 025:301 or consent of instructor.

025:325 Music Editing 3 s.h.
Principles and methods of music editing; use of primary source materials, establishment of music text, preparation of critical apparatus; project to prepare a critical edition of music for publication. Prerequisite: 025:321.

025:330 Seminar in Musicology 3 s.h.
One or more selected areas of music history. Repeatable.

025:331 Performance Practices of Medieval and Renaissance Music 3 s.h.
Practical approaches to performing vocal and instrumental music before 1600; theoretical, social issues bearing on performance. Prerequisite: 025:301 or consent of instructor.

025:381 Readings in Music History arr.

Music and Technology

Also see 025:250 and 025:251 Composition: Electronic Media I-II listed under "Composition."

025:161 Fundamentals of Piano Technology 1 s.h.
Offered spring semesters.

025:214 Recording Techniques 3 s.h.
Audio fundamentals, including sound generation, acoustical environments, forms of sound energy, basic audio systems; use of microphones (primarily stereo techniques), mixers, recorders, related equipment; introduction to Pro Tools digital recording, editing, and mixing on Macintosh; production of high-quality audio compact discs. Offered fall semesters. Prerequisite: consent of instructor.

025:230 Seminar in Audio Recording 3 s.h.
Functionality with Pro Tools digital audio recording, editing, mixing, and mastering on Macintosh; basic digital theory; configuration of Macintosh G4 computer with Pro Tools hardware and software; music editing projects and production of multitrack recordings. Offered spring semesters. Prerequisites: 025:214 and consent of instructor.

Music Therapy

025:091 Music Foundations in Therapy I 2 s.h.

Skill development on social instruments such as guitar, autoharp, piano; song-leading skills and repertoire development for use in clinical music therapy sessions. Prerequisites: 025:114, music therapy major, and consent of instructor.

025:092 Music Foundations in Therapy II 2 s.h.

Advanced skill development on guitar for use in clinical music therapy sessions; percussion techniques, and related skills used in therapeutic settings. Prerequisites: 025:091, music therapy major, and consent of instructor.

025:094 Music Therapy Practicum 1-2 s.h.

Supervised clinical training with adult clients and children in variety of health care settings. Prerequisites: 025:114, music therapy major, and consent of instructor.

025:096 Music Techniques in Special Education and Recreation 2-3 s.h.

Music methods and materials appropriate for students with disabilities in special educational settings; overview of individualized educational planning for students with disabilities. Prerequisite: music therapy or music education major or consent of instructor.

025:098 Senior Project in Music Therapy 1 s.h.

Prerequisite: consent of instructor.

025:114 Orientation to Music Therapy 2 s.h.

Theory, practice; typical clients and places of employment in music therapy.

025:138 Music Therapy Techniques: Atypical Children 3 s.h.

Techniques, procedures for use in clinical, educational settings. Prerequisites: 025:114, music therapy major, and consent of instructor.

025:139 Music Therapy Techniques: Adult Clients 3 s.h.

Techniques, procedures for work with adult clients with disabilities. Prerequisites: 025:114, music therapy major, and consent of instructor.

025:140 Internship in Music Therapy 2 s.h.

Clinical training under direction of board certified music therapist. Prerequisites: core music therapy requirements and consent of instructor.

025:221 Special Studies in Music Therapy arr.

Seminar. Repeatable. Prerequisites: music therapy major and consent of instructor.

025:283 Graduate Music Therapy Practicum 3 s.h.

Seminar, clinical field work. Prerequisites: undergraduate music therapy practicum and consent of instructor.

025:285 Research in Music Therapy—Graduate 1 s.h.

Research methodology; foundation for subsequent semesters of research on capstone project in music therapy. Repeatable. Prerequisite: consent of instructor.

025:286 College Teaching and Clinic Supervision in Music Therapy 3 s.h.

Principles of college teaching, curriculum development, clinical supervision in music therapy. Prerequisite: consent of instructor.

Orchestral and Band Instruments

Also see 025:112, under “Music Education.”

025:143 Seminar: Percussion Methods, Materials, and Performance Practices 1-2 s.h.

Percussion literature, styles, notation, performance techniques, composition; survey. Prerequisite: consent of instructor.

025:168 Audition Repertoire 1 s.h.

Practicum on passages frequently requested at professional auditions. Prerequisite: consent of studio instructor.

025:209 Advanced Woodwind Pedagogy and Literature I 2 s.h.

Saxophone and clarinet solo and study literature; integration of pedagogical topics.

025:210 Advanced Woodwind Pedagogy and Literature II 3 s.h.

Oboe, bassoon, and flute solo and study literature; integration of pedagogical topics.

025:253 Advanced Brass Pedagogy and Literature I 2 s.h.

Tuba, euphonium, and trombone literature; pedagogical topics.

025:254 Advanced Brass Pedagogy and Literature II 2 s.h.

Trumpet and horn literature; pedagogical topics.

025:255 Advanced Brass Ensemble Literature 2 s.h.

Brass chamber music literature, including mixed and like-instrument ensembles.

025:298 Advanced String Methods and Literature I 2 s.h.

Violin, viola, cello, and double bass solo and chamber music repertoire, pedagogical methods.

025:299 Advanced String Methods and Literature II 2 s.h.

Violin, viola, cello, and double bass solo and chamber music repertoire, pedagogical methods.

025:335 Seminar in Performance and Pedagogy Research I 1 s.h.

Research in the student’s area; selection of a research topic. Offered spring semesters.

025:340 Seminar in Performance and Pedagogy Research II 1 s.h.

Continuation of 025:335; thesis proposal preparation; survey of related literature. Offered spring semesters.

Organ and Sacred Music

025:189 Organ Literature Survey 2 s.h.

Fifteenth century to present. Prerequisite: advanced undergraduate or graduate standing.

025:198 Organ Pedagogy 1-2 s.h.

History, theory, practice from Renaissance to present; methods, literature appropriate for various levels.

025:226 History of Organ Building and Design 2-3 s.h.

Development of organ design from Middle Ages to present; basic concepts of construction, maintenance. Repeatable.

025:227 Liturgics 1-2 s.h.

History of liturgies and survey of liturgical music from Judaism to present.

025:228 Service Playing and Improvisation 1-2 s.h.

Hymn playing, accompanying, basic improvisation techniques. Repeatable. Prerequisite: organ major or consent of instructor.

025:229 Organ Literature Special Topics 2 s.h.

Specialized study in selected areas of organ literature. Repeatable.

025:252 Hymnology 1-2 s.h.

Survey of historic hymnody: ancient odes, Latin hymns, Reformation hymns and psalms; current developments in hymnody and hymnals; may be special topic study. Repeatable.

025:284 Studies in Church Music arr.

Individual projects in church music: liturgics, hymnody, church choir repertory; religion and the arts.

Piano

025:071 Group Instruction in Piano I 1 s.h.
Beginning instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; skill development in sight reading, technique, harmonization, transposition, improvisation, simple literature. Prerequisite: music major. Corequisite: 025:002.

025:072 Group Instruction in Piano II 1 s.h.
Elementary to early intermediate instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; continued skill development begun in 025:071; introduction of easy solo and ensemble literature. Prerequisite: 025:071 or successful completion of proficiency examination. Corequisite: 025:003.

025:073 Group Instruction in Piano III 1 s.h.
Skills for the music therapy profession; sight-reading, harmonization, transposition, reading from a fake book, improvisation. Prerequisite: music therapy major.

025:113 Methods of Teaching Piano 2 s.h.
Methods, materials, and teaching techniques for preschool students, precollege students, and adult learners. Prerequisite: keyboard major or consent of instructor.

025:232 Piano Pedagogy I 2 s.h.
Principles of piano teaching at beginning to intermediate levels; developmental and learning theories, competing educational philosophies, and how these ideas and current piano pedagogy materials interact; preschool approaches; teaching children with ADHD, dyslexia, other learning disabilities; teaching gifted children; the adult beginner; performing arts medicine; the business of teaching.

025:233 Piano Pedagogy II 2 s.h.
History of the piano and its technique and pedagogy; national schools of piano playing; relationship of technological changes in piano construction to piano technique, pedagogy, and composition; major methods and treatises, historical recordings and video clips; research leading to understanding of students' individual piano lineage.

025:296 Piano Literature I 2 s.h.
Baroque era to Mozart or Chopin through 1900. Repeatable.

025:297 Piano Literature II 2 s.h.
Beethoven through Schumann or 20th century. Repeatable.

025:361 Special Studies Piano Literature arr.
Individual research in special aspects of piano literature; primarily for D.M.A. students. Repeatable.

025:362 Special Studies in Piano Accompaniment and Chamber Music arr.
Advanced collaborative arts practicum. Prerequisite: 025:186 or consent of instructor.

Recital and Thesis

025:097 Honors in Music 1-4 s.h.
Prerequisite: honors standing.

025:099 Bachelor's Thesis 0-1 s.h.
Prerequisite: consent of instructor.

025:154 Senior Recital 1 s.h.

025:199 Special Studies arr.

025:390 M.A. Performance Project arr.

025:400 M.A. Thesis arr.

025:401 M.F.A. Thesis arr.

025:402 M.A. Recital arr.

025:500 Ph.D. Thesis arr.

025:501 Composition Ph.D. Thesis arr.

025:502 D.M.A. Essay arr.

025:503 D.M.A. Recital arr.

Theory

025:001 Fundamentals of Music for Majors 3 s.h.
Music fundamentals through writing, hearing, performance; notation of pitch and rhythm; intervals, scales, triadic harmony; elements of tonality, key signatures, major and minor modes; sight-singing; dictation. Offered fall semesters. Corequisite: 025:071 or successful completion of piano proficiency exam.

025:002 Musicianship and Theory I 4 s.h.
Principles of harmony; emphasis on aural skills, theoretical concepts, notation. Offered fall semesters. Prerequisite: 025:001 or equivalent or successful completion of music theory diagnostic exam. Corequisite: 025:071 or successful completion of piano proficiency examination.

025:003 Musicianship and Theory II 4 s.h.
Continuation of 025:002. Offered spring semesters. Corequisite: 025:072 or successful completion of piano proficiency exam.

025:004 Musicianship and Theory III 4 s.h.
Continuation of 025:002 and 025:003; focus on common-practice repertory. Offered fall semesters.

025:005 Musicianship and Theory IV 4 s.h.
Continuation of 025:002, 025:003, and 025:004; focus on late 19th- and early 20th-century repertories. Offered spring semesters.

025:145 Counterpoint before 1600 3 s.h.
Two- and three-part counterpoint: Renaissance polyphony. Prerequisite: 025:003 for undergraduates, 025:240 for graduate students.

025:147 Counterpoint after 1600 3 s.h.
Two- and three-part writing in the style of J.S. Bach; fugue. Prerequisite: 025:005 for undergraduates, 025:240 for graduate students.

025:153 Keyboard Harmony 1-2 s.h.
Melody harmonization and figured-bass realization at the keyboard. Prerequisites: 025:005 for undergraduates, 025:240 for graduate students; and keyboard proficiency.

025:236 Methods and Techniques of Teaching Basic Theory 3 s.h.
Pedagogy of harmony, sight singing, ear training. Prerequisite: 025:240. Corequisite: 025:237.

025:237 Music Theory Colloquium arr.
Repeatable.

025:240 Analytical Techniques 3 s.h.
Theories, strategies of analysis applied to classic/romantic and post-tonal music.

025:241 History of Music Theory I 3 s.h.
Prerequisite: 025:240.

025:242 History of Music Theory II 3 s.h.
Prerequisites: 025:240 and 025:241.

025:247 Analysis of Music Literature 1890-Present 3 s.h.
Repeatable. Prerequisite: consent of instructor for undergraduates, 025:240 for graduate students.

025:249 Analysis of Tonal Music 3 s.h.
 Analysis of tonal repertoires from the 17th through 20th centuries. Repeatable. Prerequisite: consent of instructor for undergraduates, 025:240 for graduate students.

025:256 Analysis of Music Literature: Special Topics 3 s.h.
 Repeatable. Prerequisite: consent of instructor for undergraduates, 025:240 for graduate students.

025:311 Theory and Analysis of Atonal Music 3 s.h.
 Reading, application of current analytical approaches (e.g., Lewin, Morris, Mead, Cohn). Prerequisite: 025:247 or consent of instructor.

025:312 Schenkerian Theory and Analysis 3 s.h.
 Application of Heinrich Schenker's theories to music 1700-1900. Prerequisite: 025:249 or consent of instructor.

025:380 Readings in Music Theory arr.

Voice and Opera

025:115 Diction for Singers I 2 s.h.
 Italian and German pronunciation for singing; basics of international phonetic alphabet; no previous background required.

025:116 Diction for Singers II 2 s.h.
 French and English pronunciation for singing. Prerequisite: 025:115.

025:150 Interpretation of German Art Song 1 s.h.
 Schubert, Schumann, Brahms, Wolf, Strauss, Mahler; appropriate diction, style. Prerequisites: 025:115 and 025:116.

025:151 Interpretation of Non-German Art Song 1 s.h.
 Art songs in English, French, Italian, Spanish; appropriate diction, style. Offered spring semesters. Prerequisites: 025:115 and 025:116.

025:159 Graduate Diction 2 s.h.
 Advanced pronunciation of singing languages. Prerequisite: grade of B or higher in undergraduate diction in French, German, and Italian.

025:160 History of Art Song 2 s.h.
 Historical survey of development of major Western art song styles. Offered fall semesters of odd years.

025:165 Opera Workshop 2 s.h.
 Opera performing techniques, including acting, aria interpretation, scene work. Prerequisite: vocal major or audition.

025:169 Singing for Actors 2 s.h.
 Fundamentals of singing technique; development of audition repertoire. Prerequisite: consent of instructor. Recommended: concurrent registration in 025:059. Same as 049:106.

025:170 Opera Theater: Chorus 1 s.h.
 Prerequisite: audition.

025:175 Acting for Singers 2 s.h.
 Fundamentals of acting technique, with attention to demands on performers in opera and musical theater. Prerequisite: consent of instructor. Same as 049:102.

025:201 Principles of Voice Production 3 s.h.
 Physical, physiological, pedagogical principles in professional, nonprofessional, and impaired voice production; anatomy, voice classification, control of loudness, pitch, register, quality; efficient, inefficient use of voice; instrumentation for voice analysis, synthesis. Offered fall semesters. Same as 003:201.

025:202 Methods of Teaching Voice 3 s.h.
 Attitude, musicianship, foreign language aptitude, physical and emotional characteristics; mental images used to modify respiratory, phonatory, articulatory behavior; vocal hygiene; performance anxiety; student-teacher relationships; administration in vocal schools, professional organizations. Offered spring semesters. Same as 003:202.

025:216 Voice for Performers 2 s.h.
 Comparison of Kinesthetic techniques for singing and acting voice; relaxation, posture, breathing, tone quality, diction, interpretation. Prerequisite: enrollment in Summer Vocology Institute, Denver, Colorado. Same as 003:204. 049:201.

025:235 Topics in Vocal Performance 2 s.h.
 Selected areas of vocal performance. Repeatable.

025:245 Opera Production 2-4 s.h.
 Preparation and rehearsals leading up to performance of full production; may include one-act opera, chamber opera, musical theater production, or full-length opera. Repeatable. Prerequisite: audition. Corequisite: 025:348.

025:248 Opera Theater: Directing Seminar arr.
 Exploration, discussion, and experience using techniques unique to directing opera. Prerequisite: consent of instructor.

025:339 Survey of Operatic Literature 3 s.h.
 Important operatic scores examined from standpoint of performers, directors; production problems. Repeatable.

025:348 Vocal/Operatic Coaching 1 s.h.
 Professional-level vocal coaching in preparation for opera productions, opera workshop, degree recitals. Repeatable. Prerequisite: consent of instructor. Corequisite: 025:245.

025:351 Survey of Song Literature I 3 s.h.
 German language lieder from 18th century to present; French mélodie from Meyerbeer to present. Offered fall semesters of odd years.

025:352 Survey of Song Literature II 3 s.h.
 British, American, Italian, Spanish, Latin American, Scandinavian, and Russian art song from 18th century to present. Offered fall semesters of even years.

025:356 Voice Habilitation 2-3 s.h.
 Same as 003:213.

025:357 Instrumentation for Voice Analysis 2 s.h.
 Same as 003:221.

Theatre Arts

Chair: Alan MacVey

Professors: Eric Forsythe, Alan MacVey

Professors emeriti: Cosmo A. Catalano, David Schaal, David Thayer

Associate professors: Loyce Arthur, Art Borreca, John Cameron, Merrel Dare Clubb, Tisch Jones, Kim Marra (Theatre Arts/American Studies), Bryon Winn

Assistant professors: William Moser, Milcha Sanchez Scott

Lecturers: James Albert, Meredith Alexander (Theatre Arts/Literature, Science, and the Arts), James P. Birder, Ralph Hall, Judy Leigh-Johnson, Carol MacVey

Undergraduate degree: B.A. in Theatre Arts

Undergraduate nondegree program: Minor in Theatre Arts

Graduate degree: M.F.A. in Theatre Arts

Web site: <http://www.uiowa.edu/~theatre>

Undergraduate Program

The undergraduate major in theatre arts is based on the belief that the best way to develop future artists is to expose them to rigorous professional practice within the framework of a liberal arts and sciences education. Department of Theatre Arts students take workshop courses in acting, directing, design, technical theatre, stage management, and playwriting and complement them with classes in dramatic literature, history, and criticism. Students also are encouraged to explore a range of courses throughout the University. Two dozen productions are staged each year, providing additional opportunities to learn the theatre craft and to develop a personal artistic vision.

In addition to offering a Bachelor of Arts in theatre arts, the department participates in the major in performing arts entrepreneurship, which is offered through the Division of Performing Arts in cooperation with the John Pappajohn Entrepreneurial Center of the Tippie College of Business. For more information, see Performing Arts Entrepreneurship in the Catalog.

The department also educates students who plan to enter other fields in which understanding of the arts and experience with theatre skills are useful. See "Opportunities for Nonmajors" in this section of the Catalog.

Bachelor of Arts

The Bachelor of Arts in theatre arts requires 32 s.h. in the major. The following courses constitute the basic experience for all undergraduate theatre arts students. Registration in some courses required for the major requires special permission. Contact the Department of Theatre Arts for details.

Students must maintain a g.p.a. of at least 2.00 for all courses taken in the major.

MINIMUM REQUIREMENTS

Many of these courses have prerequisites. Students must complete a course's prerequisites before they can register in the course.

049:025 Acting I	3 s.h.
049:044 Theatre Crafts	3 s.h.
049:060 Playscript Analysis	3 s.h.
*049:112 History of Theatre and Drama I	4 s.h.
*049:113 History of Theatre and Drama II	4 s.h.
Dramatic literature requirement (049:072, 049:114-049:119, 049:180-049:188, 049:190-049:192)	3 s.h.
Design requirement (049:043, students with instructor's consent may substitute 049:133 or 049:146)	3 s.h.

*Students who complete 049:002 or 049:003 before declaring a major in theatre arts must consult the undergraduate director before registering in 049:112 or 049:113.

Total of 3 s.h. from these production courses (all are repeatable except 049:147):	
049:045 Production: Run Crew	1-2 s.h.
049:046 Production: Crew Chief	2 s.h.
049:047 Production: Construction	1-2 s.h.
049:147 Technical Production I	3 s.h.
049:148 Technical Production: Special Topics	3 s.h.

One of these:	
049:125 Voice for the Actor	3 s.h.
049:127 Theatre Movement	3 s.h.
049:132 Stage Management	3 s.h.
049:133 Theatre Design I	3 s.h.
049:136 Lighting Design I	3 s.h.
049:137 Scene Design II	3 s.h.
049:138 Costume Design II	3 s.h.
049:140 Sound Design for the Theatre	3 s.h.
049:147 Technical Production I	3 s.h.

049:148 Technical Production: Special Topics	3 s.h.
One of these:	
049:130 Directing I	3 s.h.
049:172 Senior Seminar	3 s.h.
049:194 Dramaturgy	3 s.h.
An upper-level playwriting course (numbered 049:063 or above)	3 s.h.

Students should complete 049:060 Playscript Analysis as soon as possible; it is prerequisite to several 100-level courses. Courses 049:025, 049:043, 049:060, and 049:112 or 049:113 normally are completed within the first three semesters of study in the major. Theatre Crafts (049:044) is prerequisite to all production courses; 049:045 Production: Run Crew is prerequisite to 049:046 Production: Crew Chief and 049:047 Production: Construction.

ELECTIVES

The College of Liberal Arts and Sciences maximum hours rule permits students earning a B.A. or B.S. to apply no more than 50 s.h. from one department to the minimum 120 s.h. required for graduation. Students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy major requirements (if the department accepts them), and the grades they earn become part of their grade-point average. The additional semester hours are included on student's transcript, but they do not count toward the minimum 120 s.h. required for graduation.

Majors may count up to 18 s.h. earned in theatre arts elective courses (prefix 049) toward the degree. Majors are encouraged to choose electives in the arts, humanities, and social sciences.

AUDITIONS

All productions are open to anyone who wishes to audition. Each play is cast on the basis of who is best suited to the available roles.

Theatre arts majors are encouraged to audition in general auditions at the beginning of the fall semester. They normally present a three-minute audition consisting of two contrasting pieces. From this audition, call-back lists are posted for major productions offered during the first semester. Additional general auditions normally are scheduled in early November and in February.

Materials and information about the general auditions are available from the theatre arts office

in August. Notices of auditions for all subsequent productions are posted on the department's call board.

Transfer Students

Students who transfer to The University of Iowa from other accredited two- or four-year institutions must demonstrate that they have successfully completed course work equivalent to the basic requirements of the theatre arts department and the University before they may undertake advanced-level electives. Consult the director of undergraduate studies for more information.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: three courses in the major (chosen from 049:025, 049:043, 049:060, 049:112, and 049:113) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: three more courses in the major, two semesters of production credit, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two more courses in the major and another semester of production credit

During the eighth semester: enrollment in remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Students who wish to pursue honors studies in the Department of Theatre Arts must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Senior theatre arts majors who are members of the Honors Program, have earned a 3.33 g.p.a. in the major, and have approval from the theatre arts faculty may undertake an honors project. Projects may be analytical or creative, or

an appropriate combination of the two. Projects ordinarily require an oral presentation or performance for designated faculty members as well as a research and writing component, which is due upon the project's completion.

Students who wish to complete an honors project meet with the departmental honors advisor, who helps them find an appropriate advisor, prepare and gain acceptance for a written proposal, present the work, and evaluate the outcome.

Theatre arts majors who are members of the Honors Program may take honors courses in theatre arts. Courses in the major can be designated as honors courses with permission of the faculty member who teaches the course, the department, and the Honors Program.

Minor

A minor in theatre arts requires 15 s.h. of course work in theatre arts with a g.p.a. of at least 2.00. At least 12 of the 15 s.h. must be taken at The University of Iowa in advanced courses.

Advanced courses accepted by the department include 049:021, 049:025, 049:043, 049:044, 049:060, 049:062, 049:063, and any course numbered 049:100 and above.

Opportunities for Nonmajors

Students in other majors who have an interest in the theatre arts may take courses in the department. The following courses are open to nonmajors.

049:001 Art of the Theatre	3 s.h.
049:002 Theatre and Society: Ancients and Moderns	4 s.h.
049:003 Theatre and Society: Romantics and Rebels	4 s.h.
049:020 Basic Acting	3 s.h.
049:021 Basic Acting II	3 s.h.
049:042 Clothing as Nonverbal Communication	3 s.h.
049:062 Playwriting I	3 s.h.
049:072 Shakespeare	3 s.h.
049:101 Drama in the Classroom	3 s.h.
049:102 Acting for Singers	2 s.h.
049:103 Voice/Speech/Text—Speaking in Public	3 s.h.
049:105 Movement for Performers	2-3 s.h.
049:106 Singing for Actors	2 s.h.
049:107 Drama Therapy	3 s.h.
049:109 Introduction to Arts Management	3 s.h.
049:110 Theatre for Social Outreach	arr.
049:190 African American Theatre I	3 s.h.

049:191 African American Theatre II	3 s.h.
049:192 Topics: Culturally Diverse Theatre	3 s.h.

Nonmajors with backgrounds in the fine arts may take the following with consent of instructor.

049:134 Scene Design I	3 s.h.
049:135 Costume Design I	3 s.h.
049:136 Lighting Design I	3 s.h.

Other courses may be open to nonmajors with consent of the instructor.

Graduate Program

Master of Fine Arts

The M.F.A. programs are dedicated to creative development of theatre artists. Graduates have a solid background in major performance theories, dramatic literature, and practices of the past and present as well as in the craft of their chosen specialties.

Special attention is given to understanding the role and importance of live theatre in society. Interactions among the various theatre disciplines are emphasized, both in classes and through the department's extensive production program. Particular emphasis is placed on the development of new works for the theatre.

Students who demonstrate exceptional ability in acting, directing, dramaturgy, playwriting, design, or stage management may apply for admission to the program of study and production leading to the M.F.A. Admission is based on interview, audition, and/or a portfolio of relevant work, the undergraduate record or other proof of artistic accomplishment, and letters of recommendation.

Submission of playscripts is the most important element in gaining admission to the Playwrights Workshop.

Degree Requirements

The Master of Fine Arts in theatre arts requires 61-69 s.h. of graduate credit, depending on specialty area. Students normally must complete six semesters in residence (internships may be substituted), and the requisite number of graduate semester hours in the individual program. They also must make normal progress toward completion of the degree requirements to remain in the program—that is, they must maintain a g.p.a. of at least 3.00 overall and in all course work within the primary area of concentration, and they must build a record of substantial creative work of high quality.

Students who fail to make normal progress are placed on academic probation and given one additional semester to demonstrate their qualifications for earning the degree.

Contact the Department of Theatre Arts for specific information on any of the M.F.A. programs.

Facilities

The University of Iowa has one of the finest educational theatre complexes in the country. The Theatre Building offers four theatres and up-to-date facilities for classroom, laboratory, shop, and performance work.

The E.C. Mabie Theatre, a continental-style, 467-seat proscenium playhouse, is one of the finest theatres of its type in the United States. The David Thayer Theatre is a “black box” production space; its flexible seating units accommodate from 140 to 225 people and allow modification of space and audience relationships. Theatre B, which seats 144, is an open-stage theatre dedicated primarily to the production of new and experimental works. The flexible studio theatre seats 50.

In addition to classrooms for acting and directing, several spaces are designed for teaching particular aspects of dramatic studies. The Cosmo Catalano Acting Studio is for study of movement and motion by acting students. The Arnie Gillette Design Studio serves as classroom and studio workshop for design students.

To support its production schedule and to provide students with an appropriate range of experience, the department maintains shops for building, painting, maintaining, and storing scenery, costumes, and properties. Using these shops, students learn to work in metal, plastics, canvas, and wood.

Productions

The Department of Theatre Arts presents around 25 public productions each year. These include a subscription series of five plays, a festival of five new works by students, three productions by Iowa Summer Repertory Theatre (a professional company that also employs students), and other productions, many of them new plays.

Special attention is given to the process of developing new works and to the collaborative process that involves writers, directors, designers, dramaturgs, stage managers, and actors. Graduates, undergraduates, faculty, and visiting

guest artists work together on large and small projects throughout the year and in a special summer repertory season.

Courses

Primarily for Undergraduates

049:001 Art of the Theatre 3 s.h.
Fundamentals of acting, playwrighting, directing. GE: fine arts or humanities.

049:002 Theatre and Society: Ancients and Moderns 4 s.h.
Representative plays as performed in social contexts of ancient Egypt; classical Greece, Rome, India, and Japan; and medieval and early modern Europe. GE: fine arts or historical perspectives.

049:003 Theatre and Society: Romantics and Rebels 4 s.h.
Representative plays as performed in social contexts of revolutionary and modern Europe and postwar United States. GE: fine arts or historical perspectives.

049:020 Basic Acting 3 s.h.
Concentration, relaxation, imagination, observation, communication, sensory awareness; development of theatrical creativity through objectives, obstacles, action, conflict, spontaneity; development of a scene from scripts. GE: fine arts or humanities. Prerequisite: closed to theatre arts majors.

049:021 Basic Acting II 3 s.h.
Continuation of 049:020; emphasis on development of scenes.

049:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

049:042 Clothing as Nonverbal Communication 3 s.h.
How clothing communicates culture, gender, self-concept, age, occupation, values, status, tastes, sexuality; clothing for international business, children, the elderly; fashion theory. Prerequisite: g.p.a. of at least 2.50. Same as 036:020.

049:043 Elements of Design 3 s.h.
Development of visual literacy; manipulation of line, shape, color, value, texture, form; development of designs for theatre through techniques explored in class.

049:044 Theatre Crafts 3 s.h.
Backstage operations; wardrobe, scenery, properties, lighting, sound. Prerequisite: theatre arts major or consent of instructor.

049:045 Production: Run Crew 1-2 s.h.
Experience as run crew member in scenery, props, or costumes; or light board, sound board, or follow-spot operator; for mainstage production. Prerequisite: 049:044 or 137:050. Same as 137:051.

049:046 Production: Crew Chief 2 s.h.
Experience as master electrician, stage manager, assistant stage manager, wardrobe master, production carpenter, or properties assistant for single production. Prerequisites: 049:044 and 049:045.

049:047 Production: Construction 1-2 s.h.
Production work in scenery, costume, or electrics shop. Prerequisites: 049:044, 049:045, and consent of instructor.

049:060 Playscript Analysis 3 s.h.
Basic skills in critical reading and close analysis of dramatic texts, with focus on dramatic structure, challenges of putting texts into production.

049:062 Playwriting I 3 s.h.
Elements of playwriting; emphasis on analysis and discussion of original student writing. GE: fine arts or humanities.

049:063 Playwriting II 3 s.h.
Continuation of 049:062; original student writing, one-act play form. Prerequisite: 049:062.

049:072 Shakespeare 3 s.h.
Same as 008:147.

049:122 Acting with Verse 3 s.h.
Approaches to poetic material; emphasis on Shakespeare; contemporary scenes written in poetic or abstract styles. Prerequisites: 049:120, 049:125, and consent of instructor.

049:123 Alternative Approaches to Acting 3 s.h.
Methods of acting expression that differ from standard realist/cognitive approach; acting on impulse, internal/external "mask," story theatre, working within and against type, use of psycho-physical techniques. Prerequisites: 049:120, 049:127, and consent of instructor.

049:124 Acting: Specific Topics 3 s.h.
Specialized study in a specific aspect or theory of acting. Prerequisite: consent of instructor.

049:125 Voice for the Actor 1-3 s.h.
Progressive development of voice and speech for theatre; physical awareness, relaxation, breathing, freeing the sound channel, resonance, articulation; application of voice work through prose, poetry, text. Prerequisite: 049:025.

049:126 Voice, Text, and the Actor 3 s.h.
Vocal study of prose/poetry/dramatic text to achieve connection to language—emotion, images, and sensuality connected to a fully released voice; emphasis on Shakespearean verse. Prerequisite: 049:125.

049:127 Theatre Movement 3 s.h.
The body as a tool for dramatic expression; basic principles and practices of stage movement; approaches to physical technique, mime/movement studies, ensemble performance projects. Prerequisite: theatre arts major.

049:128 Movement Styles 3 s.h.
Intensive study of a selected movement style, such as mask, clowning, melodrama, mime, commedia dell'arte, stage combat; presentation of student projects. Prerequisite: 049:127 or consent of instructor.

049:129 Stage Combat 3 s.h.
Principles, safety, techniques of nonviolent stage combat for actor, director, choreographer.

049:130 Directing I 3 s.h.
Basic elements of stage direction; exercises in composition, emphasis, movement, rhythm, directorial analysis; director's role in production process; short scenes, projects, papers. Prerequisites: 049:025, 049:043, 049:060, and consent of instructor.

049:132 Stage Management 3 s.h.
Duties and procedures of stage management; focus on development of production from preparatory work through performance; examine role of stage manager in collaboration. Prerequisite: 049:044 or consent of instructor.

049:200 Stage Management: Special Topics 3 s.h.
Topics in stage management, arts production, and their professional practice. Repeatable. Prerequisites: 049:133 and consent of instructor.

049:201 Voice for Performers 2 s.h.
Same as 003:204, 025:216.

049:220 Advanced Acting 3 s.h.
Preprofessional training; may include psycho-physical training in impulse, openness and the "mask," individual and group dynamics, improvisation, repetition, characterization and scenework, Shakespeare and style, on-camera, development of professional work habits and skills, audition and interview. Repeatable. Prerequisite: consent of instructor.

049:225 Vocal Technique 3 s.h.
Skills training; voice and speech for the actor, phonetics, dialects, sound exploration, contemporary and classical text analysis. Repeatable. Prerequisite: consent of instructor.

For Undergraduate and Graduate Students

Acting and Directing

049:025 Acting I 3 s.h.
Development of creativity, imagination, and openness through exercises to engage mind, body, and voice in theatrical play and scene work. Prerequisite: consent of instructor.

049:101 Drama in the Classroom 3 s.h.
Techniques and strategies for integrating drama into curriculum or educational setting; theatre games, story dramas, theme dramas, improvisation scenarios; accessible classrooms for students with disabilities. Same as 07E:180.

049:102 Acting for Singers 2 s.h.
Same as 025:175.

049:103 Voice/Speech/Text—Speaking in Public 3 s.h.
How to be an effective and confident communicator; exercises designed to develop and improve vocal sound, vocal strength, clarity of speech; appropriate interpretation of text.

049:105 Movement for Performers 2-3 s.h.
Same as 025:167, 137:160.

049:106 Singing for Actors 2 s.h.
Skill development for healthy, effective singing in the musical theatre style; techniques of vocal production through breath management, resonance, articulation, flexibility; song interpretation and repertoire. Same as 025:169.

049:107 Drama Therapy 3 s.h.
Basic principles and practices of drama therapy; exercise, theory, and technique; how to use dramatic processes to encourage psychological growth and change.

049:108 Dance Kinesiology 3 s.h.
Movement analysis. Same as 137:147.

049:109 Introduction to Arts Management 3 s.h.
Nonprofit performing arts management and administrative principles; practical applications, trends in the field.

049:110 Theatre for Social Outreach arr.
Use of improvisation, storytelling, readers' theatre to explore complex social issues; participation in Darwin Turner Action Theatre; experience creating works that examine social issues, especially those related to cultural diversity; performances in Iowa schools and communities. Prerequisite: consent of instructor.

049:120 Acting II 3 s.h.
Extension of work begun in 049:025; scene study, with focus on contemporary realism and development of collaborative dynamic. Prerequisites: 049:025, audition, and consent of instructor.

049:121 Advanced Scene Study 3 s.h.
Development of characterization and creative process through performance of complex, challenging scenes. Prerequisites: 049:120, 049:125 or 049:127, audition, and interview.

049:227 Movement Technique 3 s.h.
 Fundamental principles and practices required for physical acting technique; basic stage movement, stage combat, mime technique, Lecoq-based improvisation; a new works project. Repeatable.
 Prerequisite: graduate acting major.

049:230 Director's Seminar 1-3 s.h.
 Preprofessional training in stage direction; the art and craft of directing; research, practical experience; development of new pieces; approaches to a variety of theatrical materials through concept, type, style. Repeatable. Prerequisite: consent of instructor.

049:233 Stage Management Seminar 1 s.h.
 Practice and techniques of stage management. Repeatable.
 Prerequisite: graduate stage management major.

Design

049:133 Theatre Design I 3 s.h.
 The process of theatre design; how to research, conceptualize, and visualize ideas; experience using a script and working in scenery, costumes. Prerequisites: 049:043 and consent of instructor.

049:134 Scene Design I 3 s.h.
 The development of theatre scenery; how to research, conceptualize, and express ideas in sketches, models, simple drafting. Prerequisite: 049:043. Same as 01P:134.

049:135 Costume Design I 3 s.h.
 The development of theatre costumes; how to research, conceptualize, and express ideas through rendering and swatching; historical orientation. Prerequisite: 049:043.

049:136 Lighting Design I 3 s.h.
 How to research, conceptualize, and express ideas through light plots, other design paperwork, and theatre lighting design projects. Prerequisite: 049:043.

049:137 Scene Design II 3 s.h.
 Design and execution of increasingly complex projects in a variety of formats, including refined perspective sketching, color models, property drawing, more detailed drafting. Prerequisites: 049:060, 049:134, and consent of instructor.

049:138 Costume Design II 3 s.h.
 Research, conceptual and character analysis skills, color, material, and volume as expressions of different styles. Prerequisites: 049:060, 049:135, and consent of instructor.

049:139 Lighting Design II 3 s.h.
 Production styles and venues; skills developed through increasingly complex light plots, more precise paperwork. Prerequisites: 049:060, 049:136, and consent of instructor.

049:140 Sound Design for the Theatre 3 s.h.
 Methods of sound recording, editing, reinforcement; how to conceptualize and express ideas for theatre production. Prerequisites: 049:060 and consent of instructor.

049:141 Period Styles for Theatre Designers 3 s.h.
 Aesthetics of selected periods as they apply to theatrical presentation; principles of architecture, furniture, fashion.

049:142 Textile Science 3 s.h.
 Textile properties, fiber science, yarn and fabric construction, textile testing and standards, dyeing, finishing. Same as 097:107.

049:143 Sound Design II 3 s.h.
 Sound designs for theatre using digital and analog equipment; concept development, design execution; focus on computer-aided design skills, design presentation, advanced editing techniques. Prerequisite: 049:140.

049:144 Drafting for Designers I 3 s.h.
 Tools and techniques of drafting for theatre; development of plans, sections, elevations, detail drawings for scenery; manual and analytical skills. Prerequisite: consent of instructor.

049:145 Drafting for Designers II 3 s.h.
 Computer drafting with AutoCAD, principles of theatre drafting, basic functions and commands, one-word editing skills. Prerequisite: 049:144.

049:146 Drawing and Rendering for the Theatre 3 s.h.
 Development of artistic skills and documentation techniques through studio work in drawing, painting, model craft projects for theatre. Prerequisite: consent of instructor. Pre- or corequisite: 049:043 or admission to M.F.A. program.

049:147 Technical Production I 3 s.h.
 Scene construction techniques, including stage carpentry, softgoods, theatrical rigging, drafting, management procedures. Prerequisite: 049:044 or consent of instructor.

049:148 Technical Production: Special Topics 3 s.h.
 Skill development and construction techniques, including work in plastics, metals, mechanics, electrics. Prerequisite: 049:044 or consent of instructor.

049:151 Scenic Art for Designers 3 s.h.
 Techniques in scenic art for the theatre; classical *trompe l'oeil* scene painting, sculpting with nontraditional materials, finishing. Prerequisite: consent of instructor.

049:152 Costume Crafts I 3 s.h.
 Stage makeup design and application, paper mache and plaster gauze mask-making techniques.

049:153 Costume Crafts II 3 s.h.
 Pattern drafting, draping, basic costume construction techniques.

049:156 Stage Makeup 3 s.h.
 Techniques in design and application of stage makeup; development of analytical, research, manual skills through projects in corrective makeup, aging, likeness makeup, simple prosthetics, and so forth.

049:157 Concepts in Drawing 3 s.h.
 Same as 01F:105.

049:158 Environmental Design I 3 s.h.
 Same as 01D:137.

049:237 Scene Design III 3 s.h.
 Complex assignments in theatre, dance, opera; documentation skills, scenery design preparation. Prerequisite: 049:137.

049:238 Costume Design III 3 s.h.
 Advanced projects in costume design; psychological effect of design elements; preparation of costume designs for production. Prerequisite: 049:138.

049:239 Lighting Design III 3 s.h.
 Advanced projects in venues such as dance, opera, industrials; preparation of lighting designs for production. Prerequisite: 049:139.

049:240 Scene Design IV 3 s.h.
 Advanced projects; production problems and techniques; development of clarity and speed in conceptualizing and documenting designs. Prerequisite: consent of instructor.

049:241 Costume Design IV 3 s.h.
 Analytical and studio skills for advanced projects in widening venues, including music, dance, opera. Prerequisite: consent of instructor.

049:242 Lighting Design IV 3 s.h.
 Advanced projects in a variety of venues; development of clarity in concepts and design documentation. Prerequisite: consent of instructor.

049:243 Scene Design V 3 s.h.
Portfolio development; collaborative. Prerequisite: consent of instructor.

049:244 Costume Design V 3 s.h.
Portfolio development; collaborative. Prerequisite: consent of instructor.

049:245 Lighting Design V 3 s.h.
Portfolio development; collaborative. Prerequisite: consent of instructor.

049:249 Production Management 3 s.h.
Organization and supervision of theatre productions; resources, procedures for successfully mounting theatre production or season; personnel, equipment, facility and budget management, scheduling, communication. Prerequisite: graduate stage management major.

049:251 Internship in Design 1-6 s.h.
Experience as designer or assistant designer with a professional theatre, dance, or opera company or with a professional design studio. Prerequisites: theatre design M.F.A. enrollment and consent of instructor.

Playwriting

049:165 Advanced Playwriting 3 s.h.
Continuation of 049:063; original student writing, extensive rewriting; may focus on specific style, genre, or approach. Prerequisite: 049:063 or consent of instructor.

049:169 Undergraduate Playwriting Workshop 1-3 s.h.
Workshop discussion of original full-length plays, collaborative creation of new plays, work with guest artists. Prerequisites: 049:062, 049:063, submission of writing sample, and consent of instructor.

049:173 Guest Seminar arr.
Prerequisite: consent of instructor.

049:269 Playwrights Workshop 3 s.h.
Development of works by Iowa Playwrights Workshop members. Repeatable. Prerequisite: playwriting or dramaturgy M.F.A. enrollment or consent of instructor.

049:270 Special Topics in Playwriting 3 s.h.
Repeatable. Prerequisite: consent of instructor.

049:271 Orientation to Graduate Studies 2 s.h.
Repeatable. Prerequisite: theatre arts M.F.A. enrollment.

049:272 The Collaborative Process 3 s.h.
Development of new plays, collaboratively created works. Repeatable. Prerequisite: consent of instructor.

History, Literature, Dramaturgy

049:112 History of Theatre and Drama I 4 s.h.
Major developments in Anglo-European, Indian, Asian, African theatre and drama 3000 B.C.E. to C.E. 1700; sociopolitical, economic, cultural circumstances of original productions. Offered fall semesters. GE: fine arts or historical perspectives. Prerequisite: 049:060.

049:113 History of Theatre and Drama II 4 s.h.
Continuation of 049:112 (1700 to 1960); revolutionary and modern European theatre, culturally diverse postwar U.S. theatre. Offered spring semesters. GE: fine arts or historical perspectives. Prerequisite: 049:060.

049:114 Contemporary Theatre and Drama 3 s.h.
Major developments in contemporary drama, theatre, performance since 1960, in contexts of Western European and North American social and theatrical history; representative plays and theatrical works in light of modern and postmodern theory and practice. GE: fine arts or humanities. Same as 008:184.

049:115 Performing America Queerly 3 s.h.
Same as 045:155, 154:135.

049:116 Dramatic Theory 3 s.h.
Theoretical questions of interest to dramatists and philosophers in western and nonwestern traditions; metaphysics of play; theories of character, psyche, self; narrative and nonnarrative dramatic forms. Prerequisites: 049:060, 049:112, and 049:113.

049:117 American Drama Since 1945 3 s.h.
Same as 008:197.

049:118 American Women Playwrights: 19th and 20th Century 3 s.h.
How women in the United States have expressed themselves in theatre since 1900; diversity of voices in works by African American, Asian American, Latina, Native American, European American, lesbian playwrights; female-authored drama and production in relation to concurrent male-authored traditions and socioeconomic, political, cultural phenomena. Same as 045:118.

049:119 Drama of the Spirit 3 s.h.
Western and nonwestern dramatic texts that enact or describe journeys of the human spirit; textual analysis, investigation of the notion of spirit and its relation to dramatic form. Prerequisites: 049:060, 049:112, and 049:113.

049:180 Greek Drama in Translation 3 s.h.
GE: fine arts or humanities. Same as 20E:108.

049:181 Medieval Drama 3 s.h.
Same as 008:144.

049:184 English Renaissance Drama 3 s.h.
Same as 008:145.

049:189 Twentieth-Century French Drama 3-4 s.h.
Same as 009:188.

049:190 African American Theatre I 3 s.h.
Works by African American playwrights and relevant historical documents, Africa through Black Renaissance; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance; literature-based course, workshop approach. Same as 129:175.

049:191 African American Theatre II 3 s.h.
Works by African American playwrights and relevant historical documents, Black Renaissance to present; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance; literature-based course, workshop approach. Same as 129:191.

049:192 Topics: Culturally Diverse Theatre 3 s.h.

049:193 Studies in Drama 3 s.h.
Exploration of a specific period of dramatic literature, or the work of specific authors, or dramatic principles central to playwrighting.

049:194 Dramaturgy 3 s.h.
Theory, practice: history in Europe and the United States; relationship to dramatic criticism; practical experience in critical writing, play analysis, dramaturgical research, conceptualization of productions; evaluation, advocacy, and development of new plays; audience relations and education. Prerequisites: 049:060 and consent of instructor.

049:213 Shakespeare 3 s.h.
Same as 008:253.

049:215 Theatrical Analysis: Classical to Romantic 3 s.h.
Representative plays from the Classical to the Romantic periods—in historical context of their original productions, contemporary production potential. Prerequisite: theatre arts M.F.A. enrollment.

- 049:216 Theatrical Analysis: Modern** 3 s.h.
Questions of dramatic form and content examined in-depth through close readings of modern plays.
- 049:217 Theatrical Analysis: Postmodern** 3 s.h.
Diverse postmodern traditions; emphasis on questions of relation of text.
- 049:262 History of Criticism 1700-Present** 3 s.h.
Same as 008:262, 048:262.
- 049:294 Graduate Studies in Drama** 3 s.h.
Dramatic history, literature, and dramaturgy topics of interest to M.F.A. candidates. Repeatable. Prerequisite: dramaturgy M.F.A. enrollment or consent of instructor.

Workshops, Performances, Special Studies

- 049:172 Senior Seminar** 3 s.h.
Contemporary theatre as professional artistic expression and process. Prerequisites: senior standing and theatre arts major.
- 049:175 Nonprofit Organizational Effectiveness I** 3 s.h.
Same as 06j:147, 024:147, 025:176, 032:127, 042:157, 096:168.
- 049:176 Nonprofit Organizational Effectiveness II** 3 s.h.
Same as 06j:148, 024:148, 025:177, 032:128, 042:158, 096:169.
- 049:177 London Performance Study** 3 s.h.
Same as 008:128.
- 049:178 New York Performance Study** 3 s.h.
Theatrical style, acting, direction, design, as well as business aspects; examination of nine performances.
- 049:196 Projects in Theatre** arr.
Prerequisite: consent of instructor.
- 049:197 Honors Theatre Arts** arr.
Development and production of a new work for film or television by writers, directors, actors.
- 049:199 Independent Study** arr.
- 049:234 Internship in Stage Management** 1-6 s.h.
Experience as stage manager or assistant stage manager with a professional theatre, dance, or opera company. Repeatable. Prerequisites: stage management M.F.A. enrollment and consent of instructor.
- 049:298 M.F.A. Thesis** 0-3 s.h.
Work related to M.F.A. thesis projects in theatre arts. Repeatable. Prerequisite: consent of instructor.

Philosophy

Chair: David Stern

Professors: James Duerlinger, Richard Fumerton, Gregory Landini, David Stern

Professors emeriti: Laird Addis, Panayot Butchvarov, Phillip Cummins

Associate professors: Evan Fales, Diane Jeske

Assistant professors: Sarah Buss, David Cuning

Undergraduate degree: B.A. in Philosophy

Undergraduate nondegree program: Minor in Philosophy

Graduate degrees: M.A., Ph.D. in Philosophy

Web site: <http://www.uiowa.edu/~phil>

Undergraduate Programs

Undergraduate courses in philosophy are designed to impart knowledge of fundamental issues and main developments in philosophy while strengthening logical and analytic skills. A major in philosophy develops abilities useful for graduate or professional work in many fields—law, for example—and for any situation requiring clear, systematic thinking. A graduate degree is necessary for college teaching in philosophy.

Bachelor of Arts

The Bachelor of Arts in philosophy requires at least 27 s.h. of credit earned in courses numbered 026:061 through 026:198 and must include the following.

026:103 Introduction to Symbolic Logic 3 s.h.
026:111 Ancient Philosophy 3 s.h.

One of these:

026:114 Seventeenth-Century Philosophy 3 s.h.
026:115 Modern Philosophy 3 s.h.
026:116 Eighteenth-Century Philosophy 3 s.h.

The final 12 s.h. of philosophy courses used to complete the department requirement must be taken at The University of Iowa. The department may make exceptions for students who pursue approved study abroad during their senior year.

In addition to prerequisites listed for individual courses, considerations such as the order in which historical courses are taken are relevant to the effective structuring of a major's undergraduate education. A student's department advisor or the director of undergraduate studies can provide more information.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least one course in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least five courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least six courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The department administers an honors program for undergraduate students of superior ability. In order to be admitted to the honors program in philosophy, a student must be a member of the University Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information), and must have taken and passed at least three philosophy courses for the major. In order to graduate with honors in philosophy, a student must complete the regular requirements for an undergraduate major in philosophy with a g.p.a. of at least 3.40 in philosophy courses and must write an acceptable honors thesis on a significant topic in philosophy that interests him or her. Contact the honors advisor for more information.

Minor

The minor in philosophy requires students to complete a minimum of 15 s.h. in philosophy courses with a g.p.a. of at least 2.00. Of the 15 s.h., a minimum of 12 s.h. must be taken at The University of Iowa in Department of

Philosophy courses numbered above 100. Contact the undergraduate studies director for more information.

Graduate Programs

The graduate program is designed to train teachers and scholars in philosophy. The main areas in the graduate curriculum are metaphysics, epistemology, history of philosophy, logic, philosophy of science, and value theory.

The department admits graduate students only to the Doctor of Philosophy program.

Master of Arts

The Master of Arts in philosophy is not offered as a terminal degree. It is awarded to graduate students as they successfully work toward the Ph.D. The M.A. requires a minimum of 30 s.h. and may be taken without thesis. Requirements include courses in metaphysics, epistemology, history of philosophy, ethics, logic, philosophy of science, and value theory. An oral final examination also is required. There is no foreign language requirement. Contact the graduate studies director for more information.

Joint M.A./J.D. Degree

The department offers a joint degree program with the College of Law, in which students pursue an M.A. in philosophy in the College of Liberal Arts and Sciences simultaneously with a J.D. in the College of Law. The College of Law permits dual degree students to count up to 12 s.h. of course work taken in the joint program toward the 90 s.h. required for the J.D., providing that the 12 s.h. are earned after admission to the joint degree program and after matriculation at the College of Law. The Department of Philosophy requires students in the joint program to earn 18 of the 30 s.h. required for the M.A. in graduate courses in philosophy (the usual requirement is 24 s.h.). The department also requires students to earn a minimum of 36 s.h. in philosophy in undergraduate and graduate work combined (the usual requirement is 42 s.h.).

Separate admission to each program is required.

See Juris Doctor and Joint J.D./Graduate Degrees (College of Law) in the Catalog.

Doctor of Philosophy

The Ph.D. requires a minimum of 72 s.h. of graduate credit. Candidacy for the doctoral

program is determined by a formal vote of the entire faculty of the Department of Philosophy, usually after the student has completed three semesters of graduate study in residence.

Requirements include courses in metaphysics, epistemology, history of philosophy, logic, philosophy of science, and value theory. Students are required to take a comprehensive examination, including both written and oral components, that covers their area of specialization. Upon successfully completing the exam, students begin work on a prospectus for their dissertation. There is no foreign language requirement. Contact the graduate studies director for more information.

Courses

For more detailed descriptions of undergraduate and graduate courses offered during a given semester or summer session, visit the University's ISIS web site before early registration.

For Undergraduates

The following courses are open only to undergraduates.

026:001 Problems of Moral Reasoning 3 s.h.
Ethical thought, with emphasis on its implications for contemporary moral controversies.

026:033 Philosophy and Human Nature 3 s.h.
Human nature and its relation to society, knowledge, religion, science, and freedom; philosophical and historical examination. GE: historical perspectives.

026:034 Philosophy and the Just Society 3 s.h.
The nature of individuals and governments and the obligations they have to each other; philosophical and historical examination of theories from Plato through the 19th century. GE: historical perspectives.

026:036 Principles of Reasoning 3 s.h.
Elementary logic and its applications. GE: quantitative or formal reasoning.

026:061 Introduction to Philosophy 3 s.h.
Issues and arguments; topics may include rational belief, evidence, the self, causation, and the presuppositions of religion. GE: humanities.

For Undergraduate and Graduate Students

The following courses are closed to first-year students.

026:102 Introduction to Ethics 3 s.h.
Analytical and historical introduction to ethical theories about issues such as the nature of goodness, the nature of right conduct. GE: humanities.

026:103 Introduction to Symbolic Logic 3 s.h.
Main ideas and techniques of formal deduction.

026:104 Introduction to Philosophy of Science	3 s.h.	026:152 Plato	3 s.h.
Fundamental issues in scientific method, inductive reasoning, explanation, the distinctive nature of science.		Main ideas, major texts. Prerequisite: consent of instructor.	
026:111 Ancient Philosophy	3 s.h.	026:153 Aristotle	3 s.h.
Main trends and major figures, such as Plato and Aristotle.		Main ideas, major texts. Prerequisite: consent of instructor.	
026:112 Medieval Philosophy	3 s.h.	026:158 Descartes	3 s.h.
Main trends and major figures, such as Augustine and Aquinas. Same as 16E:114.		Major works, such as the <i>Discourse on Method</i> , as well as lesser known works, such as <i>The World</i> . Prerequisite: consent of instructor.	
026:114 Seventeenth-Century Philosophy	3 s.h.	026:160 Spinoza and Leibniz	3 s.h.
Main trends, central arguments, major positions; Bacon and Descartes to Leibniz and Locke.		Main ideas, major texts. Prerequisite: consent of instructor.	
026:115 Modern Philosophy	3 s.h.	026:166 Kant	3 s.h.
Main trends and major figures from Descartes to Kant.		Main ideas, major texts of Kant's metaphysics and epistemology. Prerequisite: consent of instructor.	
026:116 Eighteenth-Century Philosophy	3 s.h.	026:173 Heidegger	3 s.h.
Main trends, central arguments, major positions; Berkeley to Kant.		Heidegger's major writings critically analyzed in relation to metaphysical and epistemological traditions. Prerequisite: consent of instructor.	
026:118 Twentieth-Century Philosophy	3 s.h.	026:174 Sartre	3 s.h.
Main trends and major figures.		Phenomenological and existentialist works. Prerequisite: consent of instructor.	
026:131 Aesthetics	3 s.h.	026:176 Frege and Russell	3 s.h.
Major problems in philosophy of the arts.		Main ideas, major texts. Prerequisite: consent of instructor.	
026:132 Introduction to Political Philosophy	3 s.h.	026:177 Wittgenstein	3 s.h.
Major problems.		Main ideas, major texts. Prerequisite: consent of instructor.	
026:133 Philosophy of History	3 s.h.	026:179 Quine	3 s.h.
Major problems: objectivity, historiographic methods and theory of interpretation, nature of historical explanations, reduction.		Major ideas, major texts. Prerequisite: consent of instructor.	
026:134 Philosophy of Religion	3 s.h.	026:180 Analytic Ethics	3 s.h.
Medieval to contemporary treatments of central issues: the nature of faith; the existence and nature of God; religion and ethics; the interpretation of religious texts. Same as 032:146.		Topics in contemporary ethics. Prerequisite: consent of instructor.	
026:135 Philosophy of Law	3 s.h.	026:182 History of Ethics I	3 s.h.
Introduction; the nature of law, legal authority, legal reasoning; issues in criminal law, such as punishment, responsibility; issues in property law; constitutional law. Prerequisite: 026:034 or 026:102 or 026:132 or consent of instructor.		Ancient and medieval ethics, with emphasis on Plato, Aristotle, Thomas Aquinas.	
026:138 Philosophical Problems of Artificial Intelligence	3 s.h.	026:183 History of Ethics II	3 s.h.
Major issues and controversies.		Early modern and 19th-century ethics, emphasizing the British moralists, Kant, the classical utilitarians. Prerequisite: consent of instructor.	
026:141 Existentialist Philosophy	3 s.h.	026:185 Political Philosophy	3 s.h.
Main ideas of existentialism; emphasis on Kierkegaard, Nietzsche, Heidegger, Sartre.		Selected topics. Prerequisite: consent of instructor.	
026:143 Philosophy East and West	3 s.h.	026:186 Metaphysics	3 s.h.
Comparative analysis of ideas in Eastern and Western philosophy.		Fundamental topics; major works, both classical and contemporary. Prerequisite: consent of instructor.	
026:144 Indian Philosophy	3 s.h.	026:187 Epistemology	3 s.h.
Main ideas, major texts. Same as 032:174.		Contemporary topics. Prerequisite: consent of instructor.	
026:145 Buddhist Philosophy	3 s.h.	026:188 Philosophy of Mind	3 s.h.
Introduction to main ideas. Same as 032:175.		Contemporary topics. Prerequisite: consent of instructor.	
026:147 Philosophical Issues	3 s.h.	026:189 Philosophy of Language	3 s.h.
A philosophical topic or controversy.		Contemporary topics. Prerequisite: consent of instructor. Same as 103:163.	
026:148 Readings in Philosophy	arr.	026:191 Mathematical Logic	3 s.h.
Prerequisite: honors standing.		Presentation of central metatheorems relating to decidability, completeness, model theory; second-order logic. Prerequisite: consent of instructor.	
026:149 Undergraduate Seminar in Philosophy	3 s.h.	026:192 Modal Logic	3 s.h.
Selected problems. Prerequisite: consent of instructor.		Formal techniques developed and applied to problems in analysis and modal semantics; related philosophical issues. Prerequisite: consent of instructor.	
026:150 Topics in Indian Philosophy	3 s.h.	026:194 Philosophy of Science	3 s.h.
A single Indian philosopher or philosophical problem. Prerequisite: consent of instructor.		Central topics—for example, scientific explanation, confirmation, the meaning of scientific theories; survey of major 20th-century developments in these areas. Prerequisite: consent of instructor.	
026:151 Topics in Ancient Philosophy	3 s.h.		
A single ancient philosopher or philosophical problem. Prerequisite: consent of instructor.			

026:196 Philosophy of the Human Sciences 3 s.h.
 Explanation and understanding, theories and reduction, values and ideology, freedom and causality. Prerequisite: consent of instructor.

026:198 Topics in Philosophy 3 s.h.
 A single philosopher or philosophical problem. Prerequisite: consent of instructor.

Primarily for Graduate Students

All of the following courses are repeatable.

026:220 Seminar: Philosophy of Language	3 s.h.
026:221 Seminar: Metaphysics	3 s.h.
026:222 Seminar: Epistemology	3 s.h.
026:223 Seminar: Philosophical Analysis	3 s.h.
026:224 Seminar: Philosophy of Science	3 s.h.
026:225 Seminar: Philosophy of Religion	3 s.h.
026:226 Seminar: Ethics	3 s.h.
026:227 Seminar: Ancient Philosophy	3 s.h.
026:229 Seminar: Modern Philosophy	3 s.h.
026:245 Research: Value Theory	arr.
026:247 Research: Metaphysics and Epistemology	arr.
026:249 Research: Logic and Philosophy of Science	arr.
026:251 Research: History of Philosophy	arr.
026:253 Thesis	arr.

Physics and Astronomy

Chair: Thomas F. Boggess

Professors: David R. Andersen (Electrical and Computer Engineering/Physics and Astronomy), Thomas F. Boggess (Physics and Astronomy/Electrical and Computer Engineering), Michael E. Flatté, Louis A. Frank (Carver/James A. Van Allen Professor of Physics), John A. Goree, Donald A. Gurnett (Carver/James A. Van Allen Professor of Physics), Richard Hichwa (Radiology/Physics and Astronomy), Paul D. Kleiber (Harriet B. and Harold S. Brady Professor of Laser Physics), Craig A. Kletzing, William H. Klink (Physics and Astronomy/Mathematics), Karl E. Lonngren (Electrical and Computer Engineering/Physics and Astronomy), Mark T. Madsen (Radiology/Physics and Astronomy), Usha Mallik, Robert L. Merlino, Yennick Meurice, Robert L. Mutel, Yasar Onel, Gerald L. Payne, Wayne N. Polyzou, Mary H. Reno, Vincent G.J. Rodgers, John W. Schweitzer, Jack D. Scudder, Frederick N. Skiff, Arthur L. Smirl (Physics and Astronomy/Electrical and Computer Engineering, Lowell Battershell Chair in Laser Engineering), Steven R. Spangler

Professors emeriti: Raymon T. Carpenter, Nicola D'Angelo, George Knorr, Edward R. McCliment, John S. Neff, Edwin Norbeck, James A. Van Allen

Associate professors: Kenneth G. Gayley, Philip Kaaret, Charles R. Newsom

Assistant professors: William Daughton, Cornelia C. Lang, John P. Prineas, Craig Pryor, Markus Wohlgenannt

Undergraduate degrees: B.A., B.S. in Physics, Astronomy; B.S. in Applied Physics

Undergraduate nondegree programs: Minor in Physics, Astronomy

Graduate degrees: M.S. in Physics, Astronomy; Ph.D. in Physics (including specialization in Astronomy)

Web site: <http://www.physics.uiowa.edu>

The Department of Physics and Astronomy provides comprehensive and rigorous instruction in all basic aspects of its subjects. It also provides research facilities and guidance in selected specialties for advanced individual scholarly work.

Total departmental enrollment is approximately 1,700 each semester of the academic year and 150 during the summer session. All courses and advanced laboratories are taught by faculty members. Faculty members also supervise associated laboratories taught by graduate students.

Beyond the elementary level, typical course enrollment is 15-20; there is ample opportunity for individual work. Special introductory courses are offered for majors in physics and astronomy and for others with special interest in these subjects. There are about 80 undergraduate

majors, half of whom are honors students, and 60 graduate students in physics or astronomy.

About 70 percent of graduates with bachelor's degrees pursue advanced study. Others find positions in secondary school teaching and in government and industrial laboratories. Some use their training as the basis for careers in other fields.

Graduates with an M.S. or Ph.D. in physics or astronomy have opportunities for employment in universities, colleges, and research laboratories in government and industry.

Undergraduate Programs

The department offers a Bachelor of Science, Bachelor of Arts, and an undergraduate minor in physics and in astronomy. It also offers a double major in physics and astronomy and a Bachelor of Science in applied physics.

Bachelor of Science in Physics

The Bachelor of Science in physics requires 60 s.h. in the major. It provides preparation for careers in industry, employment in research laboratories, and graduate study in physics and related sciences.

The B.S. in physics requires the following courses or their equivalents. Students satisfy the following mathematics and laboratory requirements as well as the "Other Required Courses." The department encourages students to do additional work.

MATHEMATICS

22M:025-22M:026 Calculus I-II	8 s.h.
22M:047 Linear Algebra and Differential Equations for Scientists	3 s.h.
22M:048 Vector Calculus for Scientists	3 s.h.

LABORATORY

029:132 Intermediate Laboratory	3 s.h.
One of these:	
029:128 Electronics	4 s.h.
029:133 Advanced Laboratory	3 s.h.

Students who choose 029:128 as one of their two required laboratory courses are advised to take it before they take 029:132.

OTHER REQUIRED COURSES

029:027-029:028 Physics I-II	8 s.h.
029:029-029:030 Physics III-IV	8 s.h.
029:115 Intermediate Mechanics	3 s.h.
029:118 Statistical Physics	3 s.h.
029:129-029:130 Electricity and Magnetism I-II	6 s.h.
029:140-029:141 Introduction to Quantum Mechanics I-II	6 s.h.
Two of these:	
029:119 Introduction to Astrophysics I	3 s.h.
029:120 Introduction to Astrophysics II	3 s.h.
029:128 Electronics (may not be repeated)	4 s.h.
029:133 Advanced Laboratory	3 s.h.
029:171-029:172 Mathematical Methods of Physics I-II	6 s.h.
029:180 Introductory Optics	3 s.h.
029:182 Electro-Optics	3 s.h.
029:184 Optical Signal Processing	3 s.h.
029:186 Radio Astronomy	3 s.h.
029:192 Elementary Particles and Nuclear Physics	3 s.h.
029:193 Introductory Solid State Physics	3 s.h.
029:194 Plasma Physics I	3 s.h.
029:195 Plasma Physics II	3 s.h.

Undergraduate majors who plan to pursue graduate study are advised to go as far as they can beyond the minimum requirements, including further work in mathematics. In planning this work, they should keep in mind the College of Liberal Arts and Sciences maximum hours rule: students earning a B.A. or B.S. may apply no more than 50 s.h. from one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward major requirements; students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy major requirements (if the department accepts them), and the grades they earn become part of their grade-point average; they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Students earning both a B.S. in physics and a B.S. in astronomy from the Department of Physics and Astronomy may apply more than 50 s.h. from that department to the 120 s.h. needed for graduation, but they must earn a minimum of 56 s.h. in course work taken outside the department.

Bachelor of Arts in Physics

The Bachelor of Arts in physics requires 48 s.h. in the major. It is designed for students who wish to gain knowledge of physics but do not plan a research-oriented career in physics. The program is appropriate for those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching; see Science Education (College of Liberal Arts and Sciences) in the Catalog.

The B.A. requires fewer physics courses than the B.S. and provides for a wider choice of electives.

The B.A. requires the following courses or their equivalents. The department encourages students to do additional work.

22M:025-22M:026 Calculus I-II	8 s.h.
029:027-029:028 Physics I-II	8 s.h.
029:029-029:030 Physics III-IV	8 s.h.
029:115 Intermediate Mechanics	3 s.h.
029:118 Statistical Physics	3 s.h.
029:132 Intermediate Laboratory	3 s.h.

One of these:

029:128 Electronics	4 s.h.
029:129 Electricity and Magnetism I	3 s.h.

Additional science course work in a thematic area as approved by the student's advisor or the course work required for teacher licensure

12 s.h.

Bachelor of Science in Applied Physics

The Bachelor of Science in applied physics requires 60-83 s.h. in the major. It is intended primarily for students interested in a broad program of study in physics combined with a significant concentration of courses in an applied field that has immediate application to industry. The degree provides a foundation for a wide range of employment opportunities in high-technology industries, including research and development, product design and testing, sales, and quality control. It also is designed to include exposure to physics sufficient to allow the student to continue with graduate studies in either physics or astronomy.

The program offers four areas of concentration: optics, solid-state electronics, computer science, and medical physics. A student also may design a customized concentration area in close consultation with his or her advisor, and with departmental approval.

An essential component of each concentration is successful completion of a one-semester industrial internship or practicum experience in a research laboratory (an applied physics thesis is required for the latter option). This requirement may result in the need for a ninth semester to fulfill all requirements.

Because of this, the Four-Year Graduation Plan is not available for the B.S. in applied physics. Well-prepared students will be able to complete the degree in four years. Students should work closely with their advisors on a graduation plan.

The B.S. in applied physics requires the following courses. Students are encouraged to take additional course work. Advisors can suggest electives that will enrich programs and help students prepare for graduate work.

COMMON REQUIREMENTS

In addition to satisfying mathematics requirements (see listings under Bachelor of Science in Physics), students must successfully complete the following courses or their equivalents.

029:027-029:028 Physics I-II	8 s.h.
029:029-029:030 Physics III-IV	8 s.h.
029:115 Intermediate Mechanics	3 s.h.
029:129 Electricity and Magnetism I	3 s.h.
029:140 Introduction to Quantum Mechanics I	3 s.h.

COMPUTER SCIENCE CONCENTRATION

22C:016 Computer Science I: Fundamentals	4 s.h.
22C:021 Computer Science II: Data Structures	4 s.h.
029:118 Statistical Physics	3 s.h.
029:128 Electronics	4 s.h.
029:130 Electricity and Magnetism II	3 s.h.
029:132 Intermediate Laboratory	3 s.h.

One of these:

22C:022 Object-Oriented Software Development	4 s.h.
22C:031 Algorithms	3 s.h.
22C:060 Computer Organization	3 s.h.

Two additional 100-level computer science courses

OPTICS CONCENTRATION

029:118 Statistical Physics	3 s.h.
029:128 Electronics	4 s.h.
029:130 Electricity and Magnetism II	3 s.h.
029:132 Intermediate Laboratory	3 s.h.
029:180 Introductory Optics	3 s.h.

Two of these:

029:182 Electro-Optics	3 s.h.
029:184 Optical Signal Processing	3 s.h.
029:193 Introductory Solid State Physics	3 s.h.

SOLID-STATE ELECTRONICS CONCENTRATION

029:118 Statistical Physics	3 s.h.
029:193 Introductory Solid State Physics	3 s.h.
055:032 Introduction to Digital Design	3 s.h.
055:040 Linear Systems I	3 s.h.
055:041 Electronic Circuits	4 s.h.
057:017 Computers in Engineering	3 s.h.
057:018 Principles of Electronic Instrumentation	4 s.h.
059:006 Engineering Problem Solving II	3 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits	3 s.h.

One of these:

029:130 Electricity and Magnetism II	3 s.h.
029:141 Introduction to Quantum Mechanics II	3 s.h.

MEDICAL PHYSICS CONCENTRATION

002:010-002:011 Principles of Biology I-II	8 s.h.
004:011-004:012 Principles of Chemistry I-II	8 s.h.
004:121-004:122 Organic Chemistry I-II	6 s.h.
004:141 Organic Chemistry Laboratory	3 s.h.
029:128 Electronics	4 s.h.
029:132 Intermediate Laboratory	3 s.h.

One of these:

22S:101 Biostatistics	3 s.h.
171:161 Introduction to Biostatistics	3 s.h.

One of these:

029:105 Special Topics in Physics (physics of the body)	3 s.h.
029:118 Statistical Physics	3 s.h.
029:130 Electricity and Magnetism II	3 s.h.
029:133 Advanced Laboratory	3 s.h.
029:141 Introduction to Quantum Mechanics II	3 s.h.

Two additional advanced biological sciences courses

Bachelor of Science in Astronomy

The Bachelor of Science in astronomy requires 64 s.h. in the major. It provides a balanced and integrated program of astronomy, mathematics, and physics courses that prepare students for advanced study in astronomy or astrophysics. It also serves as an interesting choice of major for a liberal arts and sciences education.

The B.S. in astronomy requires the following courses or their equivalents.

MATHEMATICS

22M:025-22M:026 Calculus I-II	8 s.h.
22M:047 Linear Algebra and Differential Equations for Scientists	3 s.h.
22M:048 Vector Calculus for Scientists	3 s.h.

OTHER REQUIRED COURSES

029:027-029:028 Physics I-II	8 s.h.
029:029-029:030 Physics III-IV	8 s.h.
029:061-029:062 General Astronomy I-II	8 s.h.
029:115 Intermediate Mechanics	3 s.h.
*029:119-029:120 Introduction to Astrophysics I-II	6 s.h.
029:129-029:130 Electricity and Magnetism I-II	6 s.h.
*029:137 Astronomical Laboratory	2 s.h.
029:140 Introduction to Quantum Mechanics I	3 s.h.
One of these:	
029:128 Electronics	4 s.h.
029:132 Intermediate Laboratory	3 s.h.
One of these:	
029:141 Introduction to Quantum Mechanics II	3 s.h.
029:194 Plasma Physics I	3 s.h.

*Classes are offered alternate years. Students are responsible for registering for these classes when they are available.

Undergraduate majors who plan to pursue graduate study are advised to go as far as they can beyond the minimum requirements listed above, by taking one or more of the courses listed below. In planning this work, they should keep in mind the College of Liberal Arts and Sciences maximum hours rule: students earning a B.A. or B.S. may apply no more than 50 s.h. from one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward major requirements; students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy major requirements (if the department accepts them), and the grades they earn become part of their grade-point average; but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Students earning both a B.S. in physics and a B.S. in astronomy from the Department of Physics and Astronomy may apply more than 50 s.h. from that department to the 120 s.h. needed for graduation, but they must earn a minimum of 56 s.h. in course work taken outside the department.

029:118 Statistical Physics	3 s.h.
029:141 Introduction to Quantum Mechanics II	3 s.h.
029:171-029:172 Mathematical Methods of Physics I-II	6 s.h.
029:180 Introductory Optics	3 s.h.
029:186 Radio Astronomy	3 s.h.
029:192 Elementary Particles and Nuclear Physics	3 s.h.
029:194-029:195 Plasma Physics I-II	6 s.h.

Bachelor of Arts in Astronomy

The Bachelor of Arts in astronomy requires 52 s.h. in the major. It is designed for students who wish to gain considerable knowledge of astronomy but who do not plan a research-oriented career in the field. The B.A. is appropriate for those planning careers in secondary school science teaching or science-related administration; see Science Education (College of Liberal Arts and Sciences) in the Catalog. It also is appropriate for those preparing for professional school. The B.A. requires fewer physics and mathematics courses than the B.S., and thus provides for a wider choice of electives.

The B.A. in astronomy requires the following courses or their equivalents.

22M:025-22M:026 Calculus I-II	8 s.h.
029:027-029:028 Physics I-II	8 s.h.
029:029-029:030 Physics III-IV	8 s.h.
029:061-029:062 General Astronomy I-II	8 s.h.
029:115 Intermediate Mechanics	3 s.h.
029:119-029:120 Introduction to Astrophysics I-II	6 s.h.
029:132 Intermediate Laboratory	3 s.h.
029:137 Astronomical Laboratory	2 s.h.
One of these:	
029:118 Statistical Physics	3 s.h.
029:180 Introductory Optics	3 s.h.
One of these:	
029:128 Electronics	4 s.h.
029:129 Electricity and Magnetism I (requires vector calculus as prerequisite)	3 s.h.

Double Major in Physics and Astronomy

Students working toward a double major in physics and astronomy must earn a minimum of 56 s.h. in course work outside physics and astronomy. Students interested in a double major should consult with their advisor.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A. in Astronomy

Before the third semester begins: math through calculus I and II, physics I and II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: physics III and IV, at least one more course in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: three more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S. in Astronomy

Before the third semester begins: calculus I and II, physics II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: math through vector calculus, physics III and IV, linear algebra, two other courses in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. and B.S. in Physics

Before the third semester begins: calculus II, physics II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: physics III and IV, linear algebra and differential equations, vector calculus, up to two more courses in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: two to four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Junior and senior physics and astronomy majors who are members of the University Honors Program may take 6-8 s.h. of 029:099 Honors Seminar and conduct an investigation with the guidance of a faculty member as part of their programs for the B.A. or B.S. with honors in physics, applied physics, or astronomy. They must present a written research report (honors thesis) and describe the results of the research at a departmental seminar.

Membership in the University Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Minor in Physics

A minor in physics requires 15 s.h. in physics with a g.p.a. of at least 2.00. Those 15 s.h. must include 12 s.h. taken at The University of Iowa. The 12 s.h. must be chosen from 029:029 (prerequisites: 029:027 and 029:028, or 029:081 and 029:082), 029:030, and 100-level physics courses.

There is no minor offered in applied physics.

Minor in Astronomy

A minor in astronomy requires 15 s.h. in astronomy and physics courses with a g.p.a. of at least 2.00; 12 s.h. must be taken at The

University of Iowa. The 15 s.h. must include 12 s.h. of upper-level course work with 6 s.h. chosen from the following.

029:119-029:120 Introduction to
Astrophysics I-II 6 s.h.
029:137 Astronomical Laboratory 2 s.h.

The remaining course work may be chosen from any 100-level astronomy or physics courses.

Graduate Programs

The department offers a Master of Science and Doctor of Philosophy in physics, and a Master of Science in astronomy. Students who wish to pursue a program in astronomy beyond the M.S. may qualify for a Ph.D. in physics with specialization and a dissertation in astronomy or astrophysics. An M.S. is not prerequisite to a Ph.D.

All graduate students who intend to pursue a Ph.D. in physics must pass the qualifying exam (see "Doctor of Philosophy in Physics").

Each entering graduate student is assigned a faculty advisor, who assists in preparing a plan of study and in guiding the student's progress.

The Department of Physics and Astronomy participates in an interdisciplinary doctoral program with the Program in Applied Mathematical and Computational Sciences (see Graduate College in the Catalog).

Master of Science in Physics

The Master of Science in physics requires 30 s.h. of graduate work. It is offered with thesis, or critical essay, or by examination. The M.S. with thesis requires a thesis based on an original experimental or theoretical investigation by the student. The M.S. with critical essay requires a critical essay on the literature of a particular area of physics.

The M.S. may be a terminal degree or a step toward a Ph.D. In either case, the final examination is oral, conducted by a committee of three faculty members.

Students in the M.S. with thesis program earn the required 30 s.h. of graduate work in courses numbered 170 or above, with at least 15 s.h. at the 200 level, a g.p.a. of at least 3.00, and a thesis based on an original experimental or theoretical investigation by the student. No more than 6 of the 30 s.h. may be earned in 029:220 Individual Critical Study or 029:281 Research: Physics. No more than one-third of the graduate

program may be taken in related scientific fields other than physics and mathematics (e.g., chemistry, astronomy, geology, engineering).

Students in the M.S. with critical essay program earn the required 30 s.h. of graduate work in courses numbered 170 or above, with at least 15 s.h. at the 200 level, a g.p.a. of at least 3.00, an independent study of the literature on a chosen topic, and preparation of a critical essay on that topic. No more than 4 of the 30 s.h. may be earned in 029:220 Individual Critical Study or 029:281 Research: Physics. No more than one-third of the graduate program may be taken in related scientific fields other than physics and mathematics (e.g., chemistry, astronomy, geology, engineering).

Students in the M.S. by examination program earn the required 30 s.h. of graduate work with 18 s.h. in the core graduate courses 029:205, 029:212, 029:213, 029:214, 029:245, and 029:246, and the remaining 12 s.h. in courses numbered 170 or above. Students must maintain a g.p.a. of at least 3.00 in the core graduate courses. No more than 4 of the 30 s.h. may be earned in 029:220 Individual Critical Study or 029:281 Research: Physics. Up to one-third of the graduate program may be taken in related scientific fields other than physics and mathematics (e.g., chemistry, astronomy, geology, engineering).

The student's plan of study should provide for as much advanced work as aptitude and previous preparation permit.

Master of Science in Astronomy

The Master of Science in astronomy requires a minimum of 30 s.h. in graduate work. It is offered either with or without thesis. The M.S. may be a terminal degree or a step toward a Ph.D. in physics with specialization and a dissertation in astronomy or astrophysics. In either case the final examination is oral, conducted by a committee of three faculty members.

Students in the M.S. with thesis program earn the required 30 s.h. in courses numbered 170 or above, with at least 15 s.h. at the 200 level, and a g.p.a. of at least 3.00. The 30 s.h. must include at least 6 s.h. chosen from 029:232, 029:233, 029:234, and 029:235. No more than 6 of the 30 s.h. may be earned in 029:220 and 029:282. Seminars do not count for credit toward the 30 s.h. requirement. Up to one-third of the course work may be in graduate courses in

related fields, such as meteorology, geology, and electrical engineering; selection of such courses is encouraged.

Students in the M.S. nonthesis program earn 18 s.h. of the required 30 s.h. in the core graduate courses 029:205, 029:213, 029:214, 029:232, 029:233, and 029:234. Students must maintain a g.p.a. of at least 3.00 in the core graduate courses. No more than 4 s.h. may be earned in 029:220 and 029:282. Seminars do not count toward the required 30 s.h. Up to one-third of the course work may be in graduate courses in related fields, such as meteorology, geology, and electrical engineering; selection of such courses is encouraged.

Doctor of Philosophy in Physics

The Doctor of Philosophy in physics requires a minimum of 72 s.h. of graduate-level work.

Graduate students who wish to pursue a Ph.D. in physics must pass a qualifying examination in all principal areas of physics at the level of first-year graduate work. The examination, which may be repeated only once, is given each year before the beginning of the fall semester. Students must take the exam for the first time no later than the start of their third year of graduate study.

All Ph.D. students must take comprehensive examinations; participate in advanced seminars; do original research in experimental physics, theoretical physics, or astrophysics; and prepare and defend a written dissertation based on this work.

The program of study for the Ph.D. with a major in physics includes thorough course work in both classical and quantum physics for all students, whether their specialized research is to be in an experimental or a theoretical area.

Students must take at least 24 s.h. of 200-level courses in the department, excluding 029:220, 029:281, 029:282, and seminars. The following courses are required.

*029:171-029:172 Mathematical Methods of Physics I-II	6 s.h.
029:205 Classical Mechanics	3 s.h.
029:212 Statistical Mechanics I	3 s.h.
029:213-029:214 Classical Electrodynamics I-II	6 s.h.
029:245-029:246 Quantum Mechanics I-II	6 s.h.

*Students who pass a written examination are exempt from the requirement to take

029:171-029:172 Mathematical Methods of Physics I-II.

Advanced mathematics, such as complex variables and tensor analysis, is used freely in these courses. An introduction is given in 029:171-029:172 Mathematical Methods of Physics I-II. The selection of less advanced course work depends on the adequacy of a student's preparation for graduate work; students' choice of more advanced and specialized courses depends on the direction in which their interests develop.

After a student has chosen a research specialty, he or she must submit a formal thesis proposal and defend the proposal in an oral comprehensive exam. The appropriate thesis advisor then becomes the candidate's general advisor and the chair of the comprehensive and final examination committee. The comprehensive exam must be taken before the beginning of the fourth year of graduate study.

Ph.D. candidates are not recommended for the degree until they have written the dissertation in proper form for formal publication and have submitted it for publication, with the approval of the research advisor, to a widely distributed, refereed scientific journal.

Financial Support

Students qualified for graduate study are encouraged to apply for fellowships and assistantships. Contact the Department of Physics and Astronomy chair.

Research, Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories, as well as a student computer cluster for which students can obtain accounts. Faculty, students, and staff access national supercomputers via the Internet. The central machine shop is fully equipped and staffed by skilled instrument makers and machinists, and there are several electronics and machine shops for use by advanced students and research staff.

Experimental research is conducted in astronomy (optical, radio, and X-ray), atomic and molecular physics, condensed matter physics, elementary particle physics, laser physics, medical physics, plasma physics, and space physics. Extensive facilities are available for construction of specialized research equipment and for data processing and analysis.

Experiments on electrical and magnetic properties of metals, alloys, compounds, semiconductors, and high-temperature superconductors are included in the experimental condensed matter program. State-of-the-art semiconductor materials and devices are grown in two molecular beam epitaxy machines. Ultrafast laser techniques are developed and used to probe electron transport, energy relaxation, recombination, and spin dynamics in the novel nanostructures grown in these machines. Experiments also are conducted on laser-induced coherent phenomena and coherent control of charge carriers in semiconductor nanostructures. The experimental condensed matter program is closely coordinated with the condensed matter theory group.

Plasma physics is an active area of experimental and theoretical research. Laboratory experiments studying plasma processes of importance in various space and astrophysical plasmas are performed in a Q machine, including experiments on waves and instabilities in dusty plasmas. Additional laboratory and microgravity experiments with dusty plasmas include studies of Coulomb crystals, shocks, and complex fluids. Glow discharges for plasma processing applications are studied using laser diagnostics and numerical simulations. Wave propagation and plasma particle dynamics also are studied in collisionless plasmas through laboratory experiments. Laser techniques are developed for measuring plasma flow and following particle orbits. Plasma theory efforts include analytical and numerical investigations of magnetic reconnection and turbulence in space and astrophysical plasmas; collaboration with laboratory and space plasma experimental groups in strongly coupled dusty plasmas, waves, and instabilities; and free electron lasers and hydrodynamic turbulence.

State-of-the-art laser systems are available for high resolution spectroscopic measurement and ultrafast studies of molecular structure, for collisional relaxation and nonlinear optical effects in atomic and molecular systems, and for plasma diagnostics.

Experimental research in elementary particle physics is carried out at Fermi National Accelerator Laboratory, Stanford Linear Accelerator Center, CERN in Switzerland, DESY in Germany, and other international laboratories. The present generation of high-energy experiments has been designed to probe both the strong nuclear force and the weak interactions.

The department is well-equipped for research and instruction in observational astronomy. The

primary optical instrument is a fully automated 15-inch telescope at a dark-sky site in Arizona. There also is a fully automated 7-inch refractor on the roof of Van Allen Hall. All instruments are equipped with CCD cameras and a variety of filters, and are used for research projects as well as instructional laboratories at all levels. There are 3-meter and 4.5-meter radio telescopes on the roof of Van Allen Hall, which are used for instruction and student research projects.

Research programs in galactic and extragalactic radioastronomy are carried out using the facilities of the National Radio Astronomy Observatory, including the Very Large Array and the Very Long Baseline Array, one element of which is 10 miles north of campus. Current long-term research activities include studies of the center of the Milky Way galaxy; investigations of extragalactic radio sources; the formation of powerful winds in young, luminous stars; radiowave scattering in the interstellar and interplanetary media; and interacting binary stars. A research program in X-ray astronomy has been established, and there is a laboratory for instrument development. Research topics in X-ray astronomy concentrate on observations of X-ray emission from black holes, using existing spacecraft.

Active theoretical research is carried on in astrophysics; atomic, molecular, and optical physics; condensed matter physics; elementary particle physics; laser physics; mathematical physics; nuclear physics; plasma physics; and space physics. An active mathematical physics seminar fosters the exchange of ideas between mathematics and physics.

The primary emphasis of Iowa's program in experimental and theoretical space physics is on studies of cosmic and heliospheric physics, magnetospheric physics, and magnetosphere-ionosphere interactions. Facilities are available for designing and constructing spaceflight instruments. Investigators in the department have flown instruments for studying plasmas, energetic charged particles, auroral images, plasma waves, and radio emissions on a wide variety of terrestrial and planetary spacecraft, including Pioneer 10 and 11, Dynamics Explorer, Voyager 1 and 2, Galileo, Polar, Cassini, and Mars Express.

Courses

Prerequisites and corequisites are specified as guides and may be waived by the instructor. Courses 029:003, 029:006, 029:008, 029:011 and 029:012, 029:027 and 029:028, 029:044, 029:050, 029:051, 029:052, 029:061 and

029:062, and 029:081, 029:082, and 029:084 are approved for the natural sciences component of College of Liberal Arts and Sciences General Education Program.

Physics, Primarily for Undergraduates

029:001 Selected Topics in Physics arr.

029:002 Nanoscience 3 s.h.
Properties of very small materials and structures; unique properties emerging at a length scale of one billionth of a meter, or one nanometer.

029:003 From Quarks to Quasars 3-4 s.h.
Conceptual explanation of the latest discoveries in physics—from the smallest objects, such as quarks and atoms, to the largest, such as galaxies, black holes, and quasars; for nonscience majors. GE: natural sciences.

029:006 Physics of Everyday Experience 3 s.h.
Principles of physics for nonscience majors; basic motion, behavior of fluids, waves, temperature and heat, gravity and planetary motion, electricity and magnetism, optics, nuclear energy, radioactivity, and medical imaging technology; examples from everyday experience. GE: natural sciences.

029:008 Basic Physics 3-4 s.h.
Quantitative treatment of mechanics, electricity, heat, liquids, gases, and atomic, nuclear, and elementary particle physics. GE: natural sciences. Prerequisite: 22M:005 or equivalent; closed to students who have taken 029:011 or 029:012.

029:011 College Physics I 4 s.h.
Mechanics, waves, thermodynamics, special relativity. GE: natural sciences. Prerequisite: 22M:005 or equivalent.

029:012 College Physics II 4 s.h.
Continuation of 029:011, which is prerequisite; electricity, magnetism, light, modern physics. GE: natural sciences.

029:027 Physics I 4 s.h.
Newtonian mechanics for point particles and rigid bodies; conservation laws. Offered fall semesters. GE: natural sciences. Prerequisite: physics or astronomy major. Corequisite: 22M:025.

029:028 Physics II 4 s.h.
Continuation of 029:027, which is prerequisite; introduction to fluid mechanics, electricity, magnetism (Maxwell's equations). Offered spring semesters. GE: natural sciences. Prerequisite: physics or astronomy major. Corequisite: 22M:026.

029:029 Physics III 4 s.h.
Continuation of 029:028, which is prerequisite; electromagnetic waves, optics; mechanical and sound waves; thermal physics. Offered fall semesters.

029:030 Physics IV 4 s.h.
Introduction to quantum mechanics and other topics in modern physics, including special relativity, atomic and solid state physics. Offered spring semesters. Prerequisites: 22M:026 and 029:029.

029:039 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

029:044 Physics of Sound 3-4 s.h.
Acoustical foundations of music; production of sound by vibrating objects, properties of sound waves, vocal acoustics, hearing, room acoustics, principles of electroacoustics. GE: natural sciences.

029:081 Introductory Physics I 4 s.h.
Mechanics, waves, thermodynamics. GE: natural sciences. Corequisite: 22M:025 or 22M:031.

029:082 Introductory Physics II 3-4 s.h.
Continuation of 029:081, which is prerequisite; electricity, magnetism, light. GE: natural sciences. Corequisite: 22M:026 or 22M:032.

029:083 Modern Physics 3 s.h.
Wave mechanics, hydrogen atom, atomic and molecular structure, solid state physics, special relativity; primarily for engineering students. Prerequisite: 029:028 or 029:082.

029:084 Introductory Physics II Lab 1 s.h.
Laboratory for 029:082. GE: natural sciences. Prerequisite: 3 s.h. in 029:082 or equivalent.

029:093 Reading in Physics arr.

029:098 Undergraduate Seminar arr.
Selected topics in physics or astronomy.

029:099 Honors Seminar arr.
Supervised original research leading to written report, oral defense. Prerequisite: junior or senior honors standing in physics or astronomy.

Physics, for Undergraduate and Graduate Students

029:103 Reading in Physics arr.

029:105 Special Topics in Physics arr.

029:115 Intermediate Mechanics 3 s.h.
Newtonian mechanics; noninertial reference systems; central forces, celestial mechanics; rigid body motion; Lagrangian, Hamiltonian equations of motion; small oscillations. Prerequisites: 22M:026, and 029:011 or 029:027 or 029:081.

029:118 Statistical Physics 3 s.h.
Integrated introduction to subjects of thermodynamics, statistical mechanics, kinetic theory; emphasis on applications. Prerequisites: 029:030 or 029:083, and 029:115.

029:128 Electronics 4 s.h.
Design and construction of small circuits; use of measurement instruments—oscilloscope, multimeter, function generator; circuits, including transistors, operational amplifiers, digital, analog-to-digital conversion; laboratory course for majors in UI science departments. Prerequisite: 029:012 or 029:028 or 029:082.

029:129 Electricity and Magnetism I 3 s.h.
Electrostatics, magnetic fields, introduction to Maxwell's equations. Prerequisites: 22M:028 or 22M:048, and 029:012 or 029:028 or 029:082.

029:130 Electricity and Magnetism II 3 s.h.
Continuation of 029:129; magnetism, electromagnetic waves, A.C. circuits, applications of Maxwell's equations to wave guides, antennas, optics, plasma physics, other topics. Prerequisite: 029:129.

029:131 General Laboratory 3 s.h.
Laboratory instruction and development, instrument repair, development of labs, teaching demonstrations, new hardware and software technologies; emphasis on physics, but other applications covered. Offered through Saturday & Evening Classes.

029:132 Intermediate Laboratory 3 s.h.
Electricity; electronics; magnetism; optics; atomic, nuclear, solid state physics; techniques in data analysis, including error analysis. Prerequisites: 029:028 or 029:082, and 029:029 or 029:083. Corequisite: 029:129.

029:133 Advanced Laboratory 3 s.h.

Topics in electricity; electronics; magnetism; atomic, nuclear, plasma, solid state physics; techniques in data analysis, including error analysis.

029:140 Introduction to Quantum Mechanics I 3 s.h.

Superposition principle, Stern-Gerlach experiment, linear operators, measurement theory, time evolution, angular momentum, wave mechanics in one dimension, one-dimensional harmonic oscillator, two-body problems with central forces, the hydrogen atom. Prerequisites: 029:030 or 029:083; 029:115; 22M:027 and 22M:028, or 22M:047 and 22M:048.

029:141 Introduction to Quantum Mechanics II 3 s.h.

Perturbation theory, variational methods, WKB approximation, scattering, Helium atom, periodic table, atomic spectroscopy, transition rates, other selected applications. Prerequisite: 029:140.

029:171 Mathematical Methods of Physics I 3 s.h.

Functions of complex variables, integration methods, linear vector spaces, tensors, matrix algebra. Prerequisite: 22M:028, or 22M:047 and 22M:048.

029:172 Mathematical Methods of Physics II 3 s.h.

Continuation of 029:171; Hilbert space, special functions, Fourier transform and expansions in orthogonal polynomials, differential equations, Green's functions. Prerequisite: 029:171.

029:180 Introductory Optics 3 s.h.

Geometrical and physical optics; interference; diffraction; polarization; microscopic origins of macroscopic optical properties of matter; optical activity; electro-optical, magneto-optical, acousto-optical phenomena; spontaneous Brillouin, Raman, Rayleigh scattering. Prerequisite: 029:130 or equivalent. Same as 055:177.

029:182 Electro-Optics 3 s.h.

Propagation, nonlinear effects in bounded structures; optical birefringence; dielectric waveguides, fibers; electro-optic, acousto-optic modulation; optical detection, noise. Prerequisite: 029:130 or equivalent. Same as 055:179.

029:184 Optical Signal Processing 3 s.h.

Linear optics from perspective of Fourier analysis; impulse response, convolution, transfer functions, coherence, interference, diffraction, image formation, Gaussian beam propagation, holography, sampling theory, optical information and signal processing. Prerequisite: 029:130 or equivalent. Same as 055:178.

029:192 Elementary Particles and Nuclear Physics 3 s.h.

Accelerators, particle detectors, passage of radiation through matter; nuclear structure, nuclear reactions; quark model of hadrons; strong, electromagnetic, weak interactions of elementary particles; gauge theories, intermediate vector bosons; unification of electromagnetic and weak interactions. Prerequisite: 029:140.

029:193 Introductory Solid State Physics 3 s.h.

Phenomena associated with solid state; classification of solids and crystal structures, electronic and vibrational properties in solids; thermal, optical, magnetic, dielectric properties of solids. Prerequisites: 029:140; and 22M:028, or 22M:047 and 22M:048. Same as 055:173.

029:194 Plasma Physics I 3 s.h.

Physics of ionized gases, including orbit theory, guiding center motion, adiabatic invariants, ionization balance description of plasmas by fluid variables and distribution functions; linearized wave motions, instabilities; magnetohydrodynamics. Prerequisite: 029:130.

029:195 Plasma Physics II 3 s.h.

Continuation of 029:194, which is prerequisite; linear, nonlinear solutions of the Vlasov equation, kinetic theory of plasmas, including Landau damping and velocity space instabilities.

029:196 Computational Physics 3 s.h.

Introduction to contemporary use of computers by physicists; topics such as numerical solutions of ordinary differential equations in classical mechanics, boundary value problems in electricity and magnetism, eigenvalue problems in quantum mechanics, Monte Carlo simulations in statistical mechanics, methods of data analysis. Prerequisites: 029:115, 029:129, and 029:140.

Physics, Primarily for Graduate Students

029:202 Workshops and Special Training in Physics arr.

Workshops and special training opportunities for postbaccalaureate students; may include collaborations with other departments, institutions, or externally funded research organizations. Repeatable.

029:205 Classical Mechanics 3 s.h.

Dynamics of mass points; Lagrange multipliers, small oscillations, Hamilton's equations; canonical transformations, Hamilton-Jacobi theory; chaos. Prerequisite: 029:115.

029:211 Mechanics of Continua 3 s.h.

Hydrostatics, dynamics of ideal fluids, both incompressible and compressible; viscous flow; classical theory of elasticity. Prerequisite: 029:205.

029:212 Statistical Mechanics I 3 s.h.

Probability concepts; kinetic equations; classical and quantum equilibrium statistical mechanics with applications, including ideal and imperfect gases and phase transitions, irreversible processes, fluctuation-dissipation theorems. Prerequisites: 029:118 and 029:140.

029:213 Classical Electrodynamics I 3 s.h.

Advanced electromagnetostatics, boundary value problems, Green's functions, Maxwell's equations, radiation theory, physical optics, multipole expansion of radiation field. Prerequisite: 029:130.

029:214 Classical Electrodynamics II 3 s.h.

Special relativity, motion of charges in fields, theories of radiation reaction, special topics. Prerequisite: 029:213.

029:220 Individual Critical Study arr.

Essay on topic chosen in consultation with faculty member. Prerequisite: candidacy for M.S. with critical essay.

029:222 Nonlinear Optics 3 s.h.

Classical treatment of second- and third-order optical nonlinearities; phase matching, harmonic generation, three- and four-wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Prerequisite: 029:130 or equivalent. Same as 055:276.

029:224 Laser Principles 3 s.h.

Laser theory, stimulated emission, dispersion theory, broadening mechanisms, rate equations, gain saturation, optical resonators, mode-locking, Q-switching techniques, survey of laser types, modes of operation. Prerequisite: 029:130 or equivalent. Same as 055:274.

029:225 Special Topics in Physics arr.

Repeatable.

029:226 Quantum Electronics 3 s.h.

Field, particle quantization; interaction of EM, acoustic fields with matter; noise statistics; single- and multiple-photon processes; nonlinear optics; losses in quantum electronics systems. Prerequisites: 029:140 and 055:172. Same as 055:272.

029:228 Topics in Quantum Electronics 3 s.h.

Quantum optics, optical properties of matter, laser science, photonics. Repeatable. Prerequisite: consent of instructor.

029:229 Semiconductor Physics 3 s.h.

Electronic, optical, and materials properties of semiconductors. Prerequisites: 029:193 and 029:246. Same as 055:273.

029:240 Medical Physics 4 s.h.

Interactions of radiation with matter, sources of radiation, dosimetry, applications of radiation and radioactivity in medicine. Prerequisite: 8 s.h. of physics or consent of instructor. Same as 077:211.

029:245 Quantum Mechanics I 3 s.h.

Nonrelativistic quantum mechanics, Schrödinger wave mechanics, Hilbert space methods, perturbation theory, scattering, spin and angular momentum, identical particles, selected applications, introduction to relativistic theory. Prerequisites: 029:140 and 029:141.

029:246 Quantum Mechanics II 3 s.h.

Continuation of 029:245. Prerequisite: 029:245.

029:247 Introduction to Quantum Field Theory 3 s.h.

Quantization of relativistic and nonrelativistic field theories, covariant perturbation theory, theory of renormalization, dimensional regularization, renormalization group theory, introduction to gauge theories and anomalies. Prerequisite: 029:246.

029:248 Quantum Gauge Theories 3 s.h.

Gauge invariance, introductory group theory, Yang-Mills theories, electroweak theory, quantum chromodynamics, running coupling constants, operator product expansions, Ward identities, spontaneous symmetry breaking, chiral anomalies, instantons, monopoles, effective Lagrangians, supersymmetry, quantum gravity, introduction to string theory. Repeatable. Prerequisite: 029:247.

029:261 Seminar: Plasma Physics arr.

Current research. Same as 055:291.

029:262 Seminar: Solid State Physics arr.

Current research.

029:266 Seminar: Space Physics arr.

Current research.

029:267 Seminar: Nuclear Physics arr.

Current research.

029:268 Seminar: Elementary Particle Physics arr.

Current research.

029:271 Theoretical Solid State Physics I 3 s.h.

Central principles of the quantum theory of solids; lattice dynamics, electronic structure, optical properties, superconductivity, magnetism; emphasis on viewpoint of elementary excitations. Prerequisites: 029:193 and 029:246.

029:273 General Relativity and Cosmology 2-3 s.h.

Einstein's theory of gravitation; applications to astrophysics and cosmology. Repeatable.

029:275 Particle Physics 3 s.h.

Elementary particle properties and phenomenology, quark-parton models, quantum chromodynamics, unified theory of weak and electromagnetic interactions. Repeatable.

029:276 Special Topics in Quantum Mechanics 3 s.h.

Current topics in quantum mechanics, such as string theory, relativistic quantum mechanics, quantum gravity, axiomatic quantum field theory. Repeatable.

029:277 Special Topics in Condensed Matter 3 s.h.

Current topics, such as superconductivity and magnetism. Repeatable. Prerequisite: 029:271.

029:278 Solar-Terrestrial Physics 2-3 s.h.

Atmosphere of sun, radio and particle emissions therefrom; solar wind; origin and nature of geomagnetic field; upper atmosphere of

Earth; magnetospheres of Earth and other planets; propagation of energetic particles in interplanetary medium and their access to Earth. Repeatable.

029:281 Research: Physics arr.

029:291 Advanced Atomic and Molecular Physics 3 s.h.

Structure and processes, including scattering theory, radiative transfer, laser physics, nonlinear optics. Repeatable. Prerequisite: 029:246 or consent of instructor.

029:294 Advanced Plasma Physics I 3 s.h.

Microscopic plasma behavior: statistical mechanics of plasmas; Liouville equation; BBGKY hierarchy; Fokker-Planck equation and relaxation processes; Balescu-Lenard equation; Vlasov equation and linearized wave motion; shocks, nonlinear plasma motions, and instabilities; fluctuations and radiation processes; topics from recent literature. Repeatable. Prerequisite: consent of instructor.

Astronomy, Primarily for Undergraduates

029:050 Stars, Galaxies, and the Universe 3-4 s.h.

Survey of stars, galaxies, and the universe; life cycles of stars, including black holes and pulsars; diversity of galaxies, including the Milky Way and distant quasars; cosmology—the history, structure, and fate of the universe; current results from recent astronomical observations; night sky observation. GE: natural sciences. Prerequisite: closed to physics and astronomy majors.

029:051 Introductory Astronomy Laboratory 1 s.h.

Laboratory for 029:050. GE: natural sciences. Prerequisite: 3 s.h. in 029:050 or equivalent.

029:052 Exploration of the Solar System 3 s.h.

Survey of the solar system; physical properties of the planets, comets, and asteroids; origin of the solar system; search for extrasolar planetary systems; search for life in the universe; current results of recent planetary space missions; night sky observation. GE: natural sciences. Prerequisite: closed to physics and astronomy majors.

029:061 General Astronomy I 4 s.h.

Qualitative and quantitative introduction to the development of astronomy, celestial mechanics, time, electromagnetic radiation, telescopes and astronomical instrumentation, planets, smaller solar system objects; laboratory emphasis on observation with telescopes. GE: natural sciences. Prerequisite: four years of high school math or consent of instructor.

029:062 General Astronomy II 4 s.h.

Continuation of 029:061; qualitative and quantitative introduction to properties and evolution of sun, stars, interstellar matter, galaxies; cosmology; laboratory emphasis on observation with telescopes. GE: natural sciences. Prerequisite: four years of high school math or consent of instructor.

029:094 Reading in Astronomy arr.

Astronomy, for Undergraduate and Graduate Students

029:104 Reading in Astronomy arr.

029:106 Special Topics in Astronomy arr.

029:119 Introduction to Astrophysics I 3 s.h.

Fundamentals of astrophysical processes in solar system objects, stars, nebulae, interstellar medium, galaxies, cosmology; topics include stellar spectra, binary stars, interstellar gas and dust, stellar and galactic kinematics, stellar evolution, HII regions,

radiation processes in galaxies and quasars, mathematical descriptions of the universe. Prerequisites: 029:030, 029:061, 029:062; and 22M:047-22M:048. Recommended: computer programming experience.

029:120 Introduction to Astrophysics II **3 s.h.**
Continuation of 029:119. Prerequisite: 029:119.

029:137 Astronomical Laboratory **2 s.h.**
Techniques and instrumentation in optical and radioastronomy. Prerequisites: 029:030, 029:061, and 029:062; or consent of instructor.

029:186 Radio Astronomy **3 s.h.**
Survey of radio astronomy, emphasizing technical aspects; radiation, antennas, receivers, radio spectroscopy, interferometer arrays and aperture synthesis; emission mechanisms, pulsars, supernova remnants, radio galaxies.

Astronomy, Primarily for Graduate Students

029:232 Theoretical Astrophysics I **3 s.h.**
Momentum and energy transport in stellar interiors, stellar structure and evolution, radiative transfer, theory of stellar photospheres and continuous spectra of stars, formation of absorption and emission lines.

029:233 Theoretical Astrophysics II **3 s.h.**
The interstellar medium: optical properties of small interstellar grains, radiative processes in interstellar gas, structure of HII regions, interstellar shock waves, supernova remnants, modification of interstellar medium by luminous stars, molecular clouds.

029:234 Stellar Structure and Evolution **3 s.h.**
Stellar interiors, nuclear astrophysics; advanced topics.

029:235 Special Topics in Astrophysics **1-3 s.h.**
Advanced lectures. Repeatable.

029:263 Seminar: Astrophysics **arr.**
Current research.

029:282 Research: Astronomy **arr.**
Original research in observational, theoretical astronomy.

Political Science

Chair: Tom W. Rice

Professors: G. Robert Boynton, John A.C. Conybeare, Alfonso J. Damico, Vicki L. Hesli, Chong Lim Kim, Michael S. Lewis-Beck (F. Wendell Miller Distinguished Professor of Political Science), Douglas K. Madsen, Arthur H. Miller, John S. Nelson, William M. Reisinger, Tom W. Rice, Peverill Squire

Professors emeriti: Joel D. Barkan, Gerhard Loewenberg, Russell M. Ross

Associate professors: Frederick J. Boehmke, Cary R. Covington, Douglas Dion, Timothy M. Hagle, Kelly M. Kadera, Sara Mitchell, David P. Redlawsk

Assistant professors: Christian Jensen, Brian H. Lai, Erika Moreno, Benjamin L. Read, Jae-Jae Spoon

Undergraduate degrees: B.A., B.S. in Political Science

Undergraduate nondegree program: Minor in Political Science

Graduate degrees: M.A., Ph.D. in Political Science

Web site: <http://www.polisci.uiowa.edu>

Undergraduate Programs

The department offers a Bachelor of Arts and a Bachelor of Science in political science. It also offers a minor.

Bachelor of Arts

The Bachelor of Arts in political science requires 33 s.h. in the major. Students must maintain a g.p.a. of at least 2.00 in all political science courses taken at The University of Iowa, and in all political science courses taken at other institutions and at the University combined.

Students must take at least 12 s.h. of the required 33 s.h. in political science at The University of Iowa. Credit from 030:029 First-Year Seminar and 030:191 Government Internship cannot be applied to the major.

The College of Liberal Arts and Sciences maximum hours rule permits students earning a B.A. or B.S. to apply no more than 50 s.h. from one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward major requirements. Students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy major requirements (if the department accepts them), and the grades they earn become part of their grade-point average. But they cannot apply the

additional semester hours to the minimum 120 s.h. required for graduation.

The following course work is required.

030:001 Introduction to American Politics	3 s.h.
Four of these:	
030:020 Introduction to Politics	3 s.h.
030:030 Introduction to Political Thought and Political Action	3 s.h.
030:040 Introduction to the Politics of the Industrial Democracies	3 s.h.
030:041 Introduction to the Politics of Russia and Eurasia	3 s.h.
030:042 Introduction to the Politics of Developing Areas	3 s.h.
030:050 Introduction to Political Behavior	3 s.h.
030:060 Introduction to International Relations	3 s.h.
030:061 Introduction to American Foreign Policy	3 s.h.
030:070 Introduction to Political Communication	3 s.h.

Political science courses numbered 100 or above (at least 12 s.h. must be taken in regularly scheduled classroom work) 18 s.h.

For more detailed descriptions of the undergraduate programs in political science, see Guide to Undergraduate Study in Political Science, available in the department's office and on its web site.

Bachelor of Science

The Bachelor of Science in political science requires 44 s.h. in the major, including 33 s.h. in Department of Political Science courses and 11 s.h. of approved mathematics/statistics courses. Residence rules and grade-point average requirements for the B.S. are the same as those for the B.A. Credit for 030:029 First-Year Seminar and 030:191 Government Internship cannot be applied to the major.

The College of Liberal Arts and Sciences maximum hours rule permits students earning a B.A. or B.S. to apply no more than 50 s.h. from one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward major requirements. Students who earn more than

50 s.h. from one department may use the additional semester hours to satisfy major requirements (if the department accepts them), and the grades they earn become part of their grade-point average. But they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

The following course work is required.

030:001 Introduction to American Politics 3 s.h.

Four of these:

030:020 Introduction to Politics 3 s.h.

030:030 Introduction to Political Thought and Political Action 3 s.h.

030:040 Introduction to the Politics of the Industrial Democracies 3 s.h.

030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.

030:042 Introduction to the Politics of Developing Areas 3 s.h.

030:050 Introduction to Political Behavior 3 s.h.

030:060 Introduction to International Relations 3 s.h.

030:061 Introduction to American Foreign Policy 3 s.h.

030:070 Introduction to Political Communication 3 s.h.

One of these:

030:185 Honors Research Project (for honors students) 3 s.h.

030:193 Undergraduate Research Tutorial 3 s.h.

All of these:

030:100 Understanding Political Research 3 s.h.

Additional political science courses at the 100 level 12 s.h.

At least 12 s.h. of 100-level courses, including 030:100, must be taken in regularly scheduled classroom work. The 12 s.h. may not include 030:185, 030:186, 030:190, 030:191, 030:193, and 030:194.

One of the sets of three mathematics courses listed under “Approved Math/Statistics Courses” 10-11 s.h.

Recommended but not required:
030:194 Senior Research Project/Paper 3 s.h.

APPROVED MATH/STATISTICS COURSES

The following sets of mathematics/statistics courses are approved for the B.S. Other sets of courses may be used with written approval of the B.S. advisor.

Set 1:
22M:017 Calculus and Matrix Algebra for Business (22M:025, or 22M:031 can be substituted) 4 s.h.

22S:102 Introduction to Statistical Methods 3 s.h.

22S:148 Intermediate Statistical Methods 4 s.h.

Set 2:
06E:071 Statistics for Strategy Problems 3 s.h.

22M:017 Calculus and Matrix Algebra for Business 4 s.h.

22S:008 Statistics for Business 4 s.h.

Set 3:
22M:025 Calculus I (22M:031 can be substituted) 4 s.h.

22M:026 Calculus II (22M:032 can be substituted) 4 s.h.

22S:102/07P:143 Introduction to Statistical Methods 3 s.h.

For more detailed descriptions of the undergraduate programs in political science, see Guide to Undergraduate Study in Political Science, available in the department’s office and on its web site.

Emphases in Political Science

Students may elect to complete one or more emphases while fulfilling the requirements for the B.A. or B.S. If they complete an emphasis and request recognition from the department, the emphasis is indicated on their transcripts at graduation.

Each emphasis consists of four courses. Emphases are available in American institutions, American political practice, international relations, law and politics, political communication, political economy, political processes, political theory, politics of democratization, politics of developing areas, and politics of industrial democracies. For lists of courses approved in each area, contact the Department of Political Science. For more information consult the Guide to Undergraduate Study in Political Science.

Teacher Licensure

Undergraduates planning to emphasize political science in their teacher training should consult the College of Education for requirements.

The courses 030:001 Introduction to American Politics and 030:110 The American Political System fulfill the requirement for Iowa teacher licensure.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester: eight courses in the major, including two of the three required mathematics/statistics courses and 030:100, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 11 courses in the major, including 030:193

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor's Degrees with Honors

In addition to the checkpoints for the B.A. and B.S. degrees, honors candidates must complete 030:180 before the seventh semester begins.

Honors

The program leading to a B.A. or B.S. with honors is open to students with a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in political science. To graduate with honors, students must maintain a g.p.a. of at least 3.50 in political science and a cumulative UI g.p.a. of at least 3.33 (contact the University Honors Program for more information). Students are encouraged to take 100-level honors seminars as often as possible, although the program requires only 9 s.h. of 100-level honors course work with a grade of B or higher in each course. Students also are encouraged to take honors sections of introductory courses whenever available.

Honors students must complete 030:180 Honors Seminar on the Study of Politics, preferably as sophomores. They also must take at least one additional honors seminar (030:181 Honors Seminar on American Politics, 030:182 Honors Seminar on Political Theory, 030:183 Honors Seminar on Comparative Politics, or 030:184 Honors Seminar on International Politics). This requirement also may be met by taking a 300-level course, with the instructor's consent. The last 3 s.h. required for graduation with honors in political science may be earned by completing 030:185 Honors Research Project or 030:186 Honors Senior Thesis. For more information, see the Guide to Undergraduate Study in Political Science or contact the Department of Political Science honors advisor.

National Honor Society

The department sponsors a chapter of Pi Sigma Alpha. Students who have a cumulative g.p.a. of at least 3.30, have attained junior standing, and have completed 15 s.h. of course work in political science are considered for membership. Contact the Department of Political Science honors advisor for more information.

Minor

To earn a minor in political science, students must take 15 s.h. in political science courses; 12 of the 15 s.h. must be at the 100 level, and 12 must be taken at The University of Iowa. Credit by exam is not accepted. Semester hours earned through a University of Iowa Regents program are considered credit in residence.

Credit from 030:029 First-Year Seminar and 030:191 Government Internship cannot be

applied to the minor. Students may complete an area emphasis (see “Emphases in Political Science”).

Students must have a g.p.a. of at least 2.00 in all course work in the minor. No course taken pass/nonpass can be counted toward the minor.

Graduate Programs

For students planning academic careers, the department has a program leading to a Doctor of Philosophy in political science. The department usually offers the master’s degree (without thesis) only as a preliminary step toward the Ph.D.

Master of Arts

The Master of Arts without thesis in political science requires a minimum of 30 s.h. of graduate credit, with a g.p.a. of at least 3.25. Each student’s record is reviewed by a final examination committee, which may waive the final oral examination. If the evaluation committee convened at the end of the student’s first year of courses finds that a student’s work provides sufficient evidence of the research and writing skills ordinarily demonstrated in a master’s thesis, it may recommend that the student be allowed to proceed with a doctoral program.

When a first-year evaluation committee finds the quality of a student’s work inadequate for recommending continuation toward the Ph.D., the committee may recommend that the student be permitted to seek the nonthesis M.A. as a terminal degree.

Doctor of Philosophy

The Doctor of Philosophy in political science requires a minimum of 72 s.h. of graduate credit. The program is designed to prepare students for research, teaching, and scholarly endeavor in academic settings and private or governmental institutions. It produces graduates who are deeply committed to the study of politics, familiar with fundamental knowledge about political processes, well trained in methods and techniques for careful investigation of basic and applied research questions, and determined to make contributions to the discipline of political science and to society.

The department usually admits seven to ten Ph.D. students each year, so students work closely with faculty members, often collaborating on research and publication. Graduate students

know one another and enjoy supportive, congenial working conditions.

Curriculum

Doctoral study usually lasts four to five years. The first-year curriculum for all students consists of core courses equally divided between substance and methodology. Emphasis is on basic research methods, including quantitative methods, that political scientists must understand thoroughly. Special attention is given to research design, collection of observations, and data analysis and interpretation.

The second and third years of study are spent in small seminars with focused, substantive topics. Papers written for these seminars might be submitted to journals or read at professional meetings. Students must take their qualifying examinations by the end of the third year. They take their comprehensive examination (oral defense of the dissertation proposal) by the middle of the first semester of their fourth year.

The fourth and fifth years are spent on dissertation research and writing. Students who do basic research and gather data abroad often require an additional year to complete the dissertation.

Six fields of study are available: American politics, comparative politics, international relations, political theory, formal theory, and for those who wish to go beyond the basic methodology training, research methods. Each student chooses three fields of study for qualifying examinations.

The Guide to Doctoral Study in Political Science, available from the Department of Political Science and on its web site, provides a comprehensive statement of departmental requirements. For University of Iowa graduate admission and general graduate degree requirements, see Manual of Rules and Regulations of the Graduate College:ek or the Graduate College section of the Catalog.

Courses

For Undergraduates

Courses numbered below 100 are introductory; those numbered 100 to 199 are advanced.

*Courses 030:029 and 030:191 cannot be applied toward the requirements for the major or minor in political science; 030:191 is offered only satisfactory/fail.

030:001 Introduction to American Politics 3 s.h.

Structure and processes; political institutions including Congress, presidency, Supreme Court, parties, interest groups, bureaucracy; discussion of framing and significance of the U.S. Constitution. GE: social sciences.

030:020 Introduction to Politics 3 s.h.

Introduction to selected processes, institutions, or behaviors central to the study of politics.

***030:029 First-Year Seminar 1-2 s.h.**

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

030:030 Introduction to Political Thought and Political Action 3 s.h.

Common problems, literature, analytic techniques. GE: social sciences or humanities.

030:040 Introduction to the Politics of the Industrial Democracies 3 s.h.

Western European and/or Japanese systems of government compared; emphasis on similarities and differences between political parties, interest groups, legislative and executive institutions, policy-making processes, patterns of voting behavior and citizen participation. GE: social sciences.

030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.

Russian politics; focus on problems of building new government institutions against backdrop of the communist legacy and the Soviet empire's history; newly independent states, their struggles with political change. GE: social sciences.

030:042 Introduction to the Politics of Developing Areas 3 s.h.

Political systems of underdeveloped countries in Africa, Asia, Latin America; their development; how they interact with other developing countries and with developed countries. GE: social sciences.

030:050 Introduction to Political Behavior 3 s.h.

Patterns and basis of political behavior; emphasis on common elements across social, organizational, institutional settings. GE: social sciences.

030:060 Introduction to International Relations 3 s.h.

Theoretical introduction to contemporary international relations; emphasis on security and military affairs, international political economy, politics of global environmental problems. GE: social sciences.

030:061 Introduction to American Foreign Policy 3 s.h.

Foreign policies: goals, basic themes and general patterns, problems encountered by policy makers, means employed in dealing with other nations and international organizations, processes by which policies are formulated, factors that influence structure of policies. GE: social sciences.

030:070 Introduction to Political Communication 3 s.h.

Institutions, dynamics, issues of political communities considered as networks of communication; representative topics include political actors, ads, films, media, myths, news, public relations, regulations, rhetorics, symbols. GE: social sciences.

030:100 Understanding Political Research 3 s.h.

Focus on creating knowledgeable evaluators of current research in political science; interpretation of different quantitative techniques, with examples from current political science research.

030:106 Research in Judicial Politics 3 s.h.

Applied research training in courts and judicial politics. Prerequisite: 030:116 or 030:153 or 030:158.

030:108 Latino Politics 3 s.h.

Overview of the political position of Latinos and Latinas in the United States; Mexican Americans, Cuban Americans, and Puerto Ricans; each group's history and part in the American polity; Latinos and electoral process, policy process, government; the demographic category Latino, group identity and solidarity; Latinos in Iowa, the Midwest, the South; policy matters, including education, immigration, environmental justice.

030:110 The American Political System 3 s.h.

Political behavior of American individuals and groups; institutional structure of political system. Prerequisite: closed to students who have taken 030:001.

030:111 Local Politics 3 s.h.

Models of city government, relation to state and federal governments; rights, liabilities of municipalities; city elections, campaigns, issues; role of pressure groups.

030:112 Minority Representation in American Politics 3 s.h.

Effects of voting rights legislation, election laws, interest groups, and institutional constraints on minority representation in American politics.

030:113 American State Politics 3 s.h.

Approaches to analysis of political behavior in American state governments; emphasis on cultures, parties, actors, processes, issues.

030:115 The Presidency 3 s.h.

Development, current status of the office, powers, functions of American presidency; recruitment, multiple roles of chief executive; party, congressional, administrative, judicial relationships.

030:116 American Constitutional Law and Politics 3 s.h.

Role of U.S. Supreme Court in American political system; emphasis on analysis of Supreme Court cases.

030:117 Political Decision Making 3 s.h.

Political decision making processes, including executive, legislative, judicial, mass publics; decision theories from economics, psychology, political science, organizational behavior; normative and descriptive approaches to decisions made by political actors.

030:118 American Political Development 3 s.h.

Transformations in American political behavior and institutions over time.

030:119 Problems in American Politics 3 s.h.

Problems in studying American system; structures, functions, behavior.

030:120 Public Administration and Bureaucratic Politics 3 s.h.

Administrative and organizational theory and behavior; techniques of management; relations between administration and other branches in federal and state governments; administrative politics.

030:122 Government Regulation of Business 3 s.h.

Regulation in the United States; theoretical and historical development of economic and social regulation, recent regulatory reforms and deregulation; focus on how Congress, the president, courts affect regulatory agencies.

030:123 The Politics of Public Health 3 s.h.

How politics affects public health in the United States; public health policies and politics that lead to them; public health topics, such as tobacco, food safety, prescription drugs.

030:124 Executive-Legislative Relations 3 s.h.

Conflict, cooperation between executive and legislative branches of U.S. government; budget politics, legislative veto, foreign policy.

- 030:125 Interest Groups** 3 s.h.
Theory, organization, structure of interest groups; how they influence Congress, executive branch, courts, elections.
- 030:126 American Public Policy** 3 s.h.
Functions and policies of national government; emphasis on domestic policy making, impact of public policy. Prerequisite: 030:001.
- 030:127 Political Campaigning** 3 s.h.
Current state of political campaigning at all levels of government; history of campaigning, role of money and campaign finance reform, television and negative advertising, Internet campaigning.
- 030:128 Direct Legislation** 3 s.h.
Direct democracy—lawmaking by the citizenry without legislative action; origins, historical perspectives, usage across politics, regulations; consequences of direct democracy; concerns about equality of access, tyranny of majority; United States, other countries.
- 030:130 Capitalism and Modernity** 3 s.h.
Philosophical foundations of political economy; optimistic foundations, 19th-century challenges; current awareness of the problems of unlimited growth, unrestricted capital mobility versus economic philosophy of progress.
- 030:132 Modern Political Theory** 3 s.h.
Major writers and intellectual trends in political thought from Renaissance and Reformation to 19th century.
- 030:133 Postmodern Political Theory** 3 s.h.
Major writers and intellectual trends, from 19th century to World War II.
- 030:134 Problems of Democracy** 3 s.h.
Theory and practice of democracy; democratic ideals and the institutions and practices necessary for those ideals to work in everyday politics—power, equality, majority rule, participation, trust, representation.
- 030:136 Strategy in Politics** 3 s.h.
How to isolate the most important elements in strategic political behavior, build models to understand them, recognize common scenarios, devise institutional resolutions to the Prisoners' Dilemma and coordination problems.
- 030:137 Introduction to Political Economy** 3 s.h.
Economic reasoning applied to political issues, including evolution of institutions, voting, leadership, interest groups, bargaining tactics, federalism, bureaucracy, fairness and compensation for wrongs, legitimacy of democracy, electoral cycles in economic policy.
- 030:138 Current Political Theory** 3 s.h.
Thinkers or schools of thought, from World War II to present.
- 030:139 Political Issues** 3 s.h.
Representative topics include democracy, revolution, justice, obligation, technology, authority.
- 030:140 Government and Politics of Europe** 3 s.h.
Political institutions, processes of selected European countries. GE: social sciences. Prerequisite: 030:040.
- 030:141 Russian/Post-Soviet Politics** 3 s.h.
How Soviet political system developed and functioned 1917-1985; transformations leading to 1991 break-up; emerging forms of government, politics in former Soviet republics. GE: foreign civilization and culture. Prerequisite: 030:041 or consent of instructor.
- 030:142 European Integration** 3 s.h.
Politics of the European Union; institutional characteristics and major political issues of the European Union, including popular and national responses to European integration.
- 030:143 Government and Politics of the Far East** 3 s.h.
Functions, institutions of government in countries of Far East; focus on social, economic, historical environments. GE: foreign civilization and culture. Same as 039:178.
- 030:144 Latin American Government** 3 s.h.
Governmental institutions, major interest groups; focus on area as a whole. GE: foreign civilization and culture.
- 030:145 Latin American Political Parties** 3-4 s.h.
Challenges posed by recent democratization in Latin America; issues of representation and governance across Latin America's party systems; broad theoretical concepts linked to processes under way in the region.
- 030:146 African Development** 3 s.h.
Problems of economic, political, spatial integration in Africa; patterns, processes of economic development and nation building. GE: foreign civilization and culture or social sciences. Same as 044:161.
- 030:147 Comparative Parties and Elections** 3 s.h.
Political parties and elections from a comparative perspective; parties in developed democracies; parties as organizations, in the electorate, in government; party formation and development, party identification and voter behavior, party competition, electoral systems. Prerequisite: 030:040.
- 030:148 Government and Politics of China** 3 s.h.
Political development of China; Mao's communist party's rise to power and attempts to transform Chinese society; the Cultural Revolution; tensions and achievements of the reform era; whether partnership or conflict will define China's relationship with the United States in the coming decades.
- 030:149 Problems in Comparative Politics** 3 s.h.
Structures, functions, behaviors of different political systems.
- 030:150 Comparative Administrative Politics** 3 s.h.
Institutional practices and issues surrounding policy implementation in democracies; comparative examination of the administrative politics of advanced democracies.
- 030:151 Political Leadership** 3 s.h.
Foundations, effects of leadership in different political systems.
- 030:152 The Legislative Process** 3 s.h.
Comparative legislative processes, behavior; focus on legislative systems analysis, legislative institutionalization, legislature and its environment, organizational constraints on legislative behavior, recruitment of legislators, web of legislative interactions, legislative voting behavior.
- 030:153 The Judicial Process** 3 s.h.
Role of courts, lawyers, judges, interest groups in the American political system.
- 030:154 Political Psychology** 3 s.h.
Political phenomena from psychological perspective; political behaviors of individuals, including decision making by elites and masses, evaluations of political candidates, mass mobilization, response to mass media; psychological concepts including stereotyping, social cognition, attitude, group identification.
- 030:155 Social Movements and Collective Action** 3 s.h.
Rival theories of the occurrence, timing, form, and success of collective political behavior: revolutions, rebellions, social movements.
- 030:156 Ethnic Conflict in the International Arena** 3 s.h.
Origins, nature, political consequences of communal cleavage and conflict in selected contemporary societies and international settings.
- 030:157 Voting Behavior and Elections** 3 s.h.
Determinants of voting behavior; correlates of political participation, political apathy; political socialization processes; nature and functions of elections.

- 030:158 The Criminal Justice System** 3 s.h.
Role of actors, institutions that constitute and participate in the American criminal justice system.
- 030:159 Government and Politics of Eastern Europe** 3 s.h.
Political institutions, processes in countries of central and eastern Europe; challenges of social, political, and economic transition and impact of different historical legacies.
- 030:160 International Politics** 3 s.h.
Concepts and problems; war, conflict resolution, political economy. Prerequisite: 030:060 or consent of instructor.
- 030:161 International Organization and World Order** 3 s.h.
How and why states have developed regularized patterns of interaction in the spheres of economics and security through international organizations and international regimes; regional integration processes, multilateralism.
- 030:162 American Foreign Policies** 3 s.h.
Ends pursued, problems encountered, means employed by the United States in relations with other states and international organizations. Prerequisite: 030:061 or consent of instructor.
- 030:163 Chinese Foreign Policy** 3 s.h.
Foreign policy of the People's Republic of China from its founding in 1949 to present; important events (China's entry into the Korean War, Sino-Soviet split in the 1960s, rapprochement between China and the United States in the 1970s, tensions with Taiwan in the 1990s, China's entry into the World Trade Organization); competing explanations for these turning points, theoretical approaches to the study of international relations.
- 030:164 International Systems: Continuity and Change** 3 s.h.
Continuity and change in patterns of international politics; usefulness of literature on international relations in explaining historically continuous and historically distinct international behaviors.
- 030:165 International Conflict** 3 s.h.
International conflict as the primary ingredient of international politics; sources, causes, and effects of conflict, alliance structures, power distribution, geography, arms races, deterrence.
- 030:166 Global Political Communication** 3 s.h.
How television and the Internet are creating a global culture within which political leaders and nations interact.
- 030:167 Politics and the Multinational Enterprise** 3 s.h.
Political factors affecting a firm's decision to go multinational; effects on home and host countries; political risk management; bargaining between states and corporations; regulation of multinationals by nation-states and international organizations; political implications of global mergers.
- 030:168 Politics of Terrorism** 3 s.h.
Political motivations of terrorists; responses to terrorism, politics of prevention and preparation for terrorism; contemporary terrorist organizations, international responses to them.
- 030:169 Problems of International Politics** 3 s.h.
Problems in studying international system, structures, functions, behavior.
- 030:170 The Politics of International Economics** 3 s.h.
Political, historical dimensions; political aspects of trade, monetary systems, foreign investment, aid, dependency, global interdependence.
- 030:171 Public Opinion** 3 s.h.
Role in making public policy; formation, change of political attitudes and opinions; political ideology; measurement of public opinion; how opinion polls are conducted; experience with interviewing and conducting public opinion research. Same as 034:153.
- 030:172 Political Communication and Cognition** 3 s.h.
Representative topics: structures, processes of political thinking and talking, especially in electronic societies; ads, experts, hearings, ideologies, media, news, publics, schemas, speeches, symbols.
- 030:173 Voluntary Organizations and Politics in Comparative Perspective** 3 s.h.
Politics of the voluntary sector in varied manifestations and diverse countries; nongovernmental organizations (NGOs), nonprofit organizations, civil society, and their impact on democracy, government accountability, development, and international organizations such as the United Nations and World Bank.
- 030:174 Multimedia Politics** 3 s.h.
American politics and communication via multimedia domains; television, World Wide Web.
- 030:175 Politics of Film** 3 s.h.
Issues in the popular politics of aesthetics, communication, culture, and myth, explored through analysis of films.
- 030:176 French Politics and Society** 3 s.h.
Modern French history, politics, society, geography, culture.
- 030:177 Globalization** 3 s.h.
Introduction to multidisciplinary literature on political economy and culture of globalization; major topics of debate on globalization.
- 030:178 Causes, Consequences, and Management of Civil War** 3 s.h.
Causes, duration, management, and consequences of civil war; factors that create more frequent, longer civil wars (e.g., greed, grievance, ethnic conflict, state capacity); conflict management strategies for ending civil wars and minimizing long-term negative consequences.
- 030:179 Human Rights and Asian Values** 3 s.h.
Challenges to the Universal Declaration of Human Rights and human rights theory by thinkers and politicians outside Western liberalism; crucial aspects of politics in Asia and the meaning of human rights, explored through debates between Asian skeptics and defenders of human rights.
- 030:180 Honors Seminar on the Study of Politics** 3 s.h.
History, scope, methods; diverse issues, theories, techniques in systematic study. Prerequisite: honors standing in political science or consent of instructor.
- 030:181 Honors Seminar on American Politics** 3 s.h.
Ideas, issues, methods in selected area. Prerequisite: junior or senior honors standing in political science or consent of instructor.
- 030:182 Honors Seminar on Political Theory** 3 s.h.
Intensive study of ideas, issues, methods in an area of political theory. Prerequisite: junior or senior honors standing in political science or consent of instructor.
- 030:183 Honors Seminar on Comparative Politics** 3 s.h.
Ideas, issues, methods in selected area. Prerequisite: junior or senior honors standing in political science or consent of instructor.
- 030:184 Honors Seminar on International Politics** 3 s.h.
Ideas, issues, methods in selected area. Prerequisite: junior or senior honors standing in political science or consent of instructor.
- 030:185 Honors Research Project** 3 s.h.
Special research assistance to political science faculty. Prerequisite: junior or senior honors standing in political science and consent of instructor.
- 030:186 Honors Senior Thesis** 3 s.h.
Supervised research and writing. Prerequisites: honors standing in political science, more than one semester before graduation, and consent of instructor.

- 030:190 Independent Study** arr. 4 s.h.
Supervised special projects. Prerequisite: consent of instructor.
- *030:191 Government Internship** 1-3 s.h.
Undergraduate internships in state or national legislative office, executive agency, or with election campaign official. Prerequisite: consent of instructor.
- 030:193 Undergraduate Research Tutorial** 3 s.h.
Individual training in applied research. Prerequisite: consent of supervising faculty member.
- 030:194 Senior Research Project/Paper** 3 s.h.
Supervised research and writing. Prerequisites: major in political science, more than one semester before graduation, and consent of instructor.

For Graduate Students

Courses numbered 200 to 299 are core courses; those numbered 300 and above are advanced.

- 030:200 Introduction to Political Analysis** 4 s.h.
Conceptual problems of political analysis; empirical research strategies, philosophy of science. Prerequisite: doctoral standing in political science or consent of instructor.
- 030:201 Introductory Methodology** 3-4 s.h.
Observational methods, data analysis; critical analysis of applied social research; laboratory on computing in political science. Prerequisite: doctoral standing in political science or consent of instructor.
- 030:204 Computational Methods** 3 s.h.
Methods for political analysis; calculus, matrix algebra, set theory. Prerequisite: doctoral standing in political science or consent of instructor.
- 030:205 Introduction to Formal Models in Political Science** 4 s.h.
Use of formal mathematical models; current modeling techniques, applications in American politics, comparative politics, international politics. Prerequisite: doctoral standing in political science or consent of instructor.
- 030:210 American Politics** 4 s.h.
Major literature of American politics, emphasis on comparative, systemic, behavioral studies. Prerequisite: doctoral standing in political science or consent of instructor.
- 030:230 Political Theory** 4 s.h.
Methods of political theory, epistemological and moral foundations of political inquiry; terms of political discourse (e.g., power, legitimacy, equality, ideological foundations of politics); schools of thought and current controversies in political theory. Prerequisite: doctoral standing in political science or consent of instructor.
- 030:240 Comparative Politics** 4 s.h.
Current approaches, analysis of systems; emphasis on conceptual, methodological issues. Prerequisite: doctoral standing in political science or consent of instructor.
- 030:241 Crossing Borders Seminar: Introductory** 3-4 s.h.
Repeatable. Same as 008:230, 01H:230, 013:264, 016:293, 035:272, 044:285, 048:230, 113:230.
- 030:242 Crossing Borders Seminar** 2-3 s.h.
Repeatable. Same as 008:231, 01H:247, 013:262, 016:247, 035:273, 044:286, 048:247, 113:247, 129:231.
- 030:243 Crossing Borders Proseminar** 1 s.h.
Same as 01H:330, 013:260, 016:244, 035:271, 044:287, 048:244, 113:248.

- 030:260 International Politics** 4 s.h.
Approaches to study of international politics. Prerequisite: doctoral standing in political science or consent of instructor.
- 030:301 Intermediate Methodology** 3-4 s.h.
Techniques of data analysis; statistical models and their relationship to hypotheses tested. Prerequisites: doctoral standing in political science and one semester of intermediate statistics.
- 030:302 Writing Political Science** 4 s.h.
Practice in planning and completing political inquiries, with emphasis on writing for scholarly publication; experience refining one's prior research projects for submission to disciplinary journals, and drafting dissertation proposals. Prerequisite: doctoral standing in political science or consent of instructor.
- 030:304 Experimental Methods** 4 s.h.
Methods, techniques used in political science experiments.
- 030:306 Topics in Methodology** 4 s.h.
Application of advanced statistical techniques in political science; limited dependent variable regression techniques, simulation methods, missing data techniques, history/rare event analysis and maximum likelihood, and topics tailored to students' research; focus on learning how and when to apply these techniques. Repeatable.
- 030:307 Qualitative Research Methods** 4 s.h.
Formal literature on qualitative research methodology; varied methods including synchronic and diachronic variate comparative methodology, classic Weberian sociological methodology, process tracing, historiography, ethnomethodology and ethnography, genealogy, discursive textual and content analysis.
- 030:310 Modeling American Politics** 4 s.h.
Exploration of how well formal models explain the real world and how the fit between models and world can be improved.
- 030:311 Representation and Elections** 4 s.h.
Current research on political representation in a democratic polity; what constitutes democracy and representation, does America's political system qualify; how party and electoral systems interact with policy-making institutions regarding society's varied interests; principal problems and obstacles to full representation in America, including circumstances of American minorities, divided government, organized interest groups.
- 030:315 The Presidency** 4 s.h.
American chief executive: history, recruitment, behavior, roles, responsibilities, powers, relationships with other institutions.
- 030:317 Minority Politics in America** 4 s.h.
Minority status in American politics; historic and contemporary struggles of American minority groups for political power, social acceptance; bias and stereotype—their nature and effects on political behavior; current political dilemmas and strategic situations of African Americans, Latinos, homosexuals; political behavior, policy issues important to each group, disputes within minority groups.
- 030:319 Problems in American Politics** 4 s.h.
Problems in study of American political system; structures, functions, behavior. Repeatable.
- 030:338 Colloquium in Political Theory** 1-4 s.h.
Issues and works; no subject repetition in six consecutive semesters. Repeatable.
- 030:339 Problems in Political Theory** 1-4 s.h.
Prescriptive and explanatory political theory. Repeatable.
- 030:340 Politics of Europe** 4 s.h.
Selected systems or common political phenomena.
- 030:341 Democracy and Democratization** 4 s.h.
Competing conceptions of democratic governance and competing theoretical frameworks for the study of successful or attempted regime change from authoritarian rule towards democracy; emphasis on reading and critically analyzing diverse approaches.

030:342 Nationalism: Theory and Practice 4 s.h.

Theories of nationalism and nature of ethnicity; national identities in modern society; nationalism, rise and fall of nation states; constitutional mechanisms for reducing ethnic-based political and violent conflict.

030:343 Asian Political Systems 4 s.h.

Democratic, transitional, and totalitarian types of government; emphasis on leadership recruitment, social control, political participation.

030:344 European Union 4 s.h.

Politics of the European Union; institutional characteristics and major political issues of the European Union, including popular and national responses to European integration.

030:345 The State 4 s.h.

Apparatus of government; major theoretical and empirical work of the state, drawn from comparative politics; state building, bureaucracy, "developmental" and "predatory" states, state-society relationships, failed states.

030:347 Civil Society, NGOs, and Social Capital 4 s.h.

Role of associational life in politics; role of citizens' organizations in enhancing quality of democratic governance or changing authoritarian systems; usefulness of concepts such as civil society and social capital, how such concepts work in varied cultural and institutional contexts; how nongovernmental and nonprofit organizations reshape domestic and international politics; main currents and contributions, avenues for future research.

030:349 Problems of Comparative Politics 4 s.h.

Problems in study of comparative political systems; structures, functions, behavior. Repeatable.

030:352 Legislative Behavior 4 s.h.

Institutions, processes, behavior in the United States, Europe, or developing countries. Repeatable.

030:353 Political Psychology 4 s.h.

Political phenomena from a psychological perspective; decision making by elites and masses, evaluations of political candidates, mass mobilization, response to mass media; psychological theories used to explain these behaviors, including stereotyping, social cognition, attitude, group identification, attribution.

030:357 Public Opinion and Electoral Behavior 4 s.h.

Political attitudes and beliefs in mass publics; voting behavior; how electoral systems function.

030:360 Theories of International Politics 4 s.h.

Survey; theoretical frameworks, including realism, structural neo-realism, neo-liberalism institutionalism, constructivism, Gramscian Marxism; frameworks applied to security studies, international political economy, international organization subdisciplines; emerging critical theoretical perspectives, including post-structuralist, post-positivist, feminist theoretic approaches to international politics.

030:361 Foreign Policy 4 s.h.

Foreign policy making and international behavior in relation to theories, findings from selected countries.

030:362 International Conflict and Cooperation 4 s.h.

Recent theoretical and empirical debates in international relations literature; emphasis on formal and quantitative research.

030:363 Dynamic Models of International Politics 4 s.h.

Overview of several dynamic modeling techniques used to study international relations; modeling assumptions, the kinds of information models can provide, evaluation of models.

030:367 Theories of International Political Economy 4 s.h.

Theories focusing on international system, the state, bureaucracies, interest groups, international organizations, bargaining processes, distributive norms.

030:368 International Systems and Global

Governance

4 s.h.

Literature of international systems and international organization; major schools of thought in international relations theory, their utility in explaining evolution of the international system and recent developments in international organization and global governance.

030:369 Problems in International Politics 4 s.h.

Issues of international politics, emphasis on problems of theoretical analysis. Repeatable.

030:390 Readings Tutorial arr.

Independent study. Repeatable. Prerequisite: consent of supervising faculty member.

030:393 Research Tutorial arr.

Individual training in applied research. Repeatable. Prerequisite: consent of supervising faculty member.

030:398 Ph.D. Dissertation arr.

Repeatable. Prerequisite: consent of supervising faculty member.

Psychology

Chair: Alan J. Christensen

Professors: Robert S. Baron, Peter D. Blanck (Law/Psychology), Mark S. Blumberg, Alan J. Christensen (Psychology/Internal Medicine), Lee Anna Clark, Steven W. Duck (Communication Studies/Psychology), Don C. Fowles, Gary J. Gaeth (Marketing/Psychology), John H. Harvey, Meredith Hay (Physiology and Biophysics/Psychology), A. Kim Johnson (F. Wendell Miller Professor), John F. Knutson, Grazyna Kochanska (Stuit Professor of Developmental Psychology), Irwin P. Levin (Psychology/Marketing), Susan K. Lutgendorf, Peter E. Nathan (UI Foundation Distinguished Professor/Psychology/Community and Behavioral Health), Michael W. O'Hara, Jane S. Paulsen (Psychiatry/Psychology), Jodie M. Plumert, Scott P. Stuart (Psychiatry/Psychology), Jerry M. Suls, Daniel T. Tranel (Neurology/Psychology), Edward A. Wasserman (Stuit Professor of Experimental Psychology), David B. Watson (F. Wendell Miller Professor)

Professors emeriti: Arthur L. Benton, Joan H. Cantor, Stephen S. Fox, Isidore Gormezano, Lola L. Lopes, Rudolph W. Schulz, J. Richard Simon, Jacob O. Sines, Arnold M. Small, Dewey B. Stuit

Professor (clinical): James N. Marchman

Adjunct professors: Lori J. Nelson, Emily Sue Savage-Rumbaugh

Associate professors: Erling A. Anderson (Anesthesiology/Psychology), John H. Freeman, Prahlad Gupta, Andrew R. Hollingworth, Pamela K. Keel, Scott R. Robinson, John P. Spencer, Shaun P. Vecera, Paul D. Windschitl

Associate professors emeriti: Dee W. Norton, Sue R. Rosner

Adjunct associate professors: Robert F. Kirby, Richard J. Roberts

Assistant professors: Richard Eliot Hazeltine, Eva C. Klohnen, Erika Lawrence, Inah Lee, René E. Martin (Nursing/Psychology), Robert M. McMurray, Amy Poremba, Larissa K. Samuelson

Adjunct assistant professors: Nazan Aksan, Leyre Castro, Gregory L. Gullickson, James P. Howell, Debra L. Johnson, Olga F. Lazareva, Maureen Marron, Mollie W. Marti, Bradley D. McDowell, Joshua S. Rodefer, Lisa S. Segre, Ruth A. Spinks, Robert L. Thunhorst, Jatin G. Vaidya

Undergraduate degrees: B.A., B.S. in Psychology

Undergraduate nondegree program: Minor in Psychology

Graduate degrees: M.A., Ph.D. in Psychology

Web site: <http://www.psychology.uiowa.edu>

Undergraduate Programs

The department offers the Bachelor of Arts and the Bachelor of Science in psychology. Both programs are designed to contribute to students' general liberal education and to provide a foundation for postbaccalaureate training in psychology and closely related disciplines, and in areas such as business, medicine, law, and communications. Students who intend to enter the job market immediately after completing an undergraduate degree are well-advised to complement their psychology major with substantial preparation in another program more closely tied to the world of work (e.g., education, social work, business, journalism, nursing). Almost all vocational opportunities in psychology require advanced degrees.

The B.S. program is intended for students who plan to pursue advanced work in psychology or in a related discipline. It includes an admission grade-point average requirement and specific courses in statistics, experimental psychology, mathematics, and natural science. The B.A. program has fewer specific requirements and puts less emphasis on methodology. Both programs leave ample time for students to combine psychology with another discipline or program.

Students who shift to a psychology major after two years of undergraduate work may find they do not have the background for the B.S. program. They may wish to enrich the B.A. program with courses in experimental psychology and other advanced electives if they intend to pursue graduate work in psychology or a related field.

Students in either program begin with a general introductory course, followed by statistics and methodology courses and introductory courses in several broad areas: behavioral and cognitive neuroscience, developmental psychology, clinical psychology, cognition and perception, and personality and social psychology. These courses are followed by upper-level psychology course work selected by the student.

The department maintains excellent facilities to support teaching and research on human and animal behavior. All faculty members are directly engaged in research, and they bring to their undergraduate teaching the excitement that such

activity generates. Many opportunities exist for interested and capable students to participate in current research projects in the department.

The department has an active undergraduate organization, the Iowa Students Psychology Association, which is open to all interested students. The group sponsors speakers, films, career days, and student symposia.

Undergraduate psychology students may use Saturday & Evening Classes and/or Guided Independent Study to meet B.A. and B.S. program requirements.

Selective Admission

Admission to the B.A. program in psychology is open; admission to the B.S. program is restricted.

To be eligible for admission to the B.S. program, students must have completed 30 s.h. of college course work (excluding any credit by exam) and must have a cumulative g.p.a. of 2.67 or higher. There is no limit on the number of qualified students admitted to the B.S. program. Students who do not meet the minimum admission requirements may petition the department in writing, presenting additional evidence of their qualifications.

Any University student may enter the B.A. program. Entering first-year and transfer students with fewer than 30 s.h. of course work who are interested in the B.S. program are admitted to the B.A. program until they satisfy the admission requirements for the B.S. program. New transfer students who meet the admission requirements for the B.S. program may choose to enter the B.S. or the B.A. program. Any student in the B.A. program may switch to the B.S. program if he or she meets admission requirements at the time of the request. Students may switch from the B.S. to the B.A. program at any time.

Bachelor of Arts

The B.A. program is designed for students who wish to gain considerable knowledge in psychology but do not necessarily plan a professional career in the discipline. The program is appropriate for students preparing for careers in law, business, counseling, social work, or secondary school teaching; see Teaching and Learning (College of Education) in the Catalog for social science teaching certification requirements. The B.A. program requires fewer psychology courses than the B.S. program and can more easily be combined with a second major.

The Bachelor of Arts in psychology requires 40 s.h. in the major. Transfer students must complete at least 15 s.h. of the major at The University of Iowa. Students must satisfy bachelor's degree requirements of the College of Liberal Arts and Sciences and must complete at least 28 s.h. in psychology, an approved 3 s.h. statistics course, and at least 9 s.h. of University of Iowa course work in a second concentration area. Courses used to complete the College of Liberal Arts and Sciences General Education Program cannot be used to satisfy the second area of concentration, but a second major or a minor in any discipline will satisfy the requirement.

Students interested in pursuing graduate study in psychology or other social sciences may wish to enrich their B.A. program by taking courses in mathematics, statistics, research methods, and the natural sciences.

The B.A. program must include the following courses or their equivalents. (Before registering each semester or summer session, see Undergraduate Psychology at Iowa for changes in department requirements.)

PSYCHOLOGY CORE REQUIREMENTS

07P:025/22S:025 Elementary Statistics and Inference (or a more advanced course)	3 s.h.
031:001 Elementary Psychology	3 s.h.
031:043 Evaluating Psychological Research	4 s.h.
or	
031:120-031:121 Research Methods in Psychology/Laboratory in Psychology	7 s.h.

LOWER-LEVEL ELECTIVES

Students take four of these after completing 031:001 (total of 12 s.h.).

031:012 Introduction to Brain and Behavior	3 s.h.
031:013 Introduction to Clinical Psychology	3 s.h.
031:014 Introduction to Child Development	3 s.h.
031:015 Introduction to Social Psychology	3 s.h.
031:016 Introduction to Cognitive Psychology	3 s.h.

UPPER-LEVEL ELECTIVES

Students take three upper-level courses after satisfactorily completing the psychology core courses and other specified prerequisites (total of 9 s.h.). Prerequisites are stated in course descriptions; see "Courses" later in this section.

For a list of approved upper-level courses and their prerequisites, see Undergraduate Psychology at Iowa, available from the department and on its web site. Check Iowa Student Information Services (ISIS) to learn which courses are offered in a particular semester.

Bachelor of Science

The B.S. program is designed to be more rigorous than the B.A., so it may be the degree of choice for students who plan to do graduate work in psychology and related research fields. However, a B.S. is not required for graduate study in psychology. Choice of a degree program should be dictated by the student's personal career goals.

The Bachelor of Science in psychology requires 51 s.h. in the major. Transfer students must complete at least 15 s.h. of the major at The University of Iowa. Students must satisfy bachelor's degree requirements of the College of Liberal Arts and Sciences and must complete at least 34 s.h. in psychology, an approved 3 s.h. statistics course, an approved pair of natural science courses, one semester of calculus, and an approved advanced course in mathematics, statistics, or computer science.

The B.S. program must include the following courses or their equivalents. (Before registering each semester or summer session, see Undergraduate Psychology at Iowa for changes in department requirements.)

PSYCHOLOGY CORE REQUIREMENTS

07P:143/22S:102 Introduction to Statistical Methods (or an approved substitute, such as 22S:101 Biostatistics)	3 s.h.
031:001 Elementary Psychology	3 s.h.
031:120 Research Methods in Psychology	3 s.h.

LOWER-LEVEL ELECTIVES

Students take four of these after completing 031:001 (total of 12 s.h.).

031:012 Introduction to Brain and Behavior	3 s.h.
031:013 Introduction to Clinical Psychology	3 s.h.
031:014 Introduction to Child Development	3 s.h.
031:015 Introduction to Social Psychology	3 s.h.
031:016 Introduction to Cognitive Psychology	3 s.h.

UPPER-LEVEL ELECTIVES

Students take three upper-level courses after satisfactorily completing the psychology core courses and other specified prerequisites (total of 9 s.h.). Prerequisites are stated in course descriptions; see "Courses" later in this section of the Catalog.

For a list of approved upper-level courses and their prerequisites, see Undergraduate Psychology at Iowa, available from the department and on its web site. Check Iowa Student Information Services (ISIS) to learn which courses are offered in a particular semester.

SELECTED TOPICS COURSES

Students take both of these.

031:121 Laboratory in Psychology	4 s.h.
031:190 Psychology Seminar	3 s.h.

ADDITIONAL REQUIRED COURSES

Students in the B.S. program also are required to complete one of the following pairs of specified natural science courses: one semester each of chemistry and biological sciences; two semesters of chemistry; two semesters of physics; or one semester each of chemistry and physics. All of these combinations can be used to complete the General Education Program natural sciences component. B.S. majors also must complete at least one semester of calculus; in most cases this entails at least one precalculus mathematics course. Students should consult with their advisors concerning specific courses that satisfy these requirements.

Students also must complete at least one additional course in advanced mathematics, statistics, or computer science chosen from the following lists.

Mathematics

22M:026 Calculus II	4 s.h.
22M:027 Introduction to Linear Algebra	4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus	4 s.h.

Statistics

06E:071 Statistics for Strategy Problems	3 s.h.
22S:120 Probability and Statistics	4 s.h.
22S:148 Intermediate Statistical Methods	4 s.h.

Computer Science

06K:070 Computer Analysis	3 s.h.
22C:005 Introduction to Computer Science	3 s.h.
22C:016 Computer Science I	4 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

In addition to courses in the major, the B.A. requires three courses in a second area.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 031:001, statistics, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: four courses in the major (including 031:043 or 031:120), one second-area course, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two additional courses in the major and an additional second-area course

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Note: The B.S. is open only to students who have earned 30 s.h. in course work and have a g.p.a. of at least 2.67. Students must complete a natural science sequence, either as part of the General Education Program or in addition to it. Students also must complete a semester of calculus and an advanced math, statistics, or computer course, which may require some preliminary work.

Before the third semester begins: 031:001 and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: calculus, statistics, three additional courses in the major (including 031:120), and at least one-half of the semester hours required for graduation

Before the seventh semester begins: two more courses in the major, one course for the psychology natural science requirement, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the advanced math/statistics/computer course and two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

In order to pursue honors studies in the Department of Psychology, a student must be a member of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

The department has an active honors program that includes research seminars and individual research collaboration with faculty members. Interested majors should contact the department honors advisor.

National Honor Society

The department sponsors a chapter of Psi Chi, the national undergraduate honor society of the American Psychological Association. Students who have a g.p.a. of at least 3.00 overall and 3.10 in psychology course work and who have completed 9 s.h. of psychology may request a membership application form. Consult the department's academic coordinator for more information.

Minor

A minor in psychology is an attractive option to students from a variety of disciplines. A minor requires 15 s.h. of graded course work with a g.p.a. of at least 2.00. At least 12 of the 15 s.h. must be earned in the psychology department at The University of Iowa. Departmental advisors can help students identify courses for a minor that complement the student's major. Prerequisites must be met when students enroll in psychology courses.

Graduate Program

The graduate program in psychology is designed for students seeking the Doctor of Philosophy. Students enrolled in the Ph.D. program may elect to receive a Master of Arts when they have completed the M.A. requirements. Students entering without previous graduate work usually require at least four years to complete the

program; those entering with previous graduate training usually require three to five additional years in the department, depending on the nature of the earlier preparation.

The Ph.D. program places strong emphasis on preparation for research, teaching, and scholarly endeavor, whether in academic settings or in industrial, governmental, or medical institutions. The intent is to produce graduates who are deeply committed to the study of psychology, familiar with fundamental knowledge about psychological processes, well-trained in the methods and techniques for careful investigation of basic and applied problems, and determined to make contributions to the discipline of psychology and to society.

Graduate training is organized in six broad areas: behavioral and cognitive neuroscience, clinical psychology, cognition and perception, developmental science, health psychology, and personality and social psychology. Each entering student is expected to identify one of these as his or her primary area and to follow a program that develops thorough understanding of the substantive material and methods of investigation central to that subdiscipline. While pursuing specialty training, all students must meet course requirements in statistics and research methods and in content areas other than their primary one.

The training area programs are sufficiently flexible to permit students to develop substantial competence in a second training area. Individually tailored programs are possible.

Doctor of Philosophy

The Ph.D. requires satisfactory completion of at least 72 s.h. of graduate work in psychology, including at least 33 s.h. in the Department of Psychology. All students must satisfy, through one of several options, requirements in statistics and research methods. They also must take course work outside the primary training area to develop a background in the discipline of psychology as a whole.

During each of the first two semesters, graduate students ordinarily take three courses—for example, a statistics course, a course or two in the primary training area, and/or an outside area elective. Students also begin their research under the supervision of their advisor and with the guidance of their research advisory committee.

Near the end of the fall semester of the second year, students submit a report describing their research to date. At the beginning of the

following semester, they present their research at the annual graduate research symposium.

During subsequent years, students continue selected course work in their training and interest areas and continue to develop their research programs. In addition, they develop a prospectus for the dissertation research and take the comprehensive examination, which covers material in the specialty area. The final year is devoted primarily to conducting the Ph.D. study and preparing the dissertation. In the Ph.D. final examination, students present an oral defense of their dissertation and are expected to relate the dissertation work to broader issues in the discipline of psychology.

Master of Arts with Thesis

The department ordinarily offers the Master of Arts only to students enrolled in the Ph.D. program. The M.A. with thesis requires satisfactory completion of at least 30 s.h. of graduate credit, including 24 s.h. taken at The University of Iowa. The course work must include a statistics course, courses outside the primary specialty area, and at least an additional 8 s.h. earned in psychology department courses and seminars. Students also must complete an acceptable scholarly thesis and conduct a successful oral defense of the thesis.

Master of Arts Without Thesis

The department ordinarily offers the Master of Arts only to students enrolled in the Ph.D. program. The M.A. without thesis requires satisfactory completion of at least 37 s.h. of graduate credit, including 30 s.h. taken at The University of Iowa. The course work must include a statistics course, courses outside the primary area, and at least an additional 15 s.h. earned in psychology department courses and seminars. Students also must perform successfully on an examination covering their area of specialization.

Graduate Training Areas

Behavioral and Cognitive Neuroscience

The program in behavioral and cognitive neuroscience focuses on the analysis of attention, motivation, and learning, primarily in nonhuman subjects, through the application of behavioral and biological principles. Special faculty strengths are in classical and operant conditioning,

motivation and emotion, developmental psychobiology, neurobiology of learning, comparative psychology, cognitive neuroscience, neuropharmacology, neuroendocrinology, and neuroanatomy. Students in this program have the opportunity to learn state-of-the-art techniques in computer-controlled experimentation and electronic instrumentation as well as advanced analytic and laboratory methods in neurosurgery, histology, and biochemical assay.

Faculty members in the behavioral and cognitive neuroscience area interact extensively with colleagues from a number of basic science and clinical departments in the Carver College of Medicine, including anatomy, anesthesiology, pharmacology, internal medicine, pediatrics, and neurology. These collaborative activities provide excellent research and training opportunities for students interested in emerging interdisciplinary fields such as behavioral medicine.

Clinical Psychology

The clinical training program, fully approved by the American Psychological Association, strongly emphasizes a scientific or clinical science approach to the study of mental and physical health. It is designed for students who intend to pursue careers in clinical research and are interested primarily in developing scholarly understanding of clinical phenomena and acquiring research skills necessary to the systematic investigation of such phenomena. Because students must become familiar with clinical material and competent in the application of clinical skills in order to pursue clinical research, the department closely integrates practicum experience in the Seashore Clinic with course work and supervised research experience. Students with a primary interest in clinical practice should apply to another program.

Students in the clinical program may develop special competence in areas such as aggression, marital and family dysfunction, eating disorders, personality and personality disorders, psychophysiology, anxiety disorders, affective disorders, behavioral and cognitive therapies, child psychopathology, and clinical health psychology. Faculty members collaborate actively with colleagues from departments such as otolaryngology, psychiatry, pediatrics, obstetrics and gynecology, internal medicine, microbiology, neurology, and surgery, and from other units, such as the Center for Health Services Research and the Veterans Affairs Iowa City Health Care System.

Advanced students have opportunities to gain additional practicum experience through

placement in clinical facilities maintained by local, state, federal, and University agencies. Students in the clinical program who wish to have the designation "clinical psychology" on their official transcript must satisfactorily complete a one-year internship at an approved agency before receiving a Ph.D. The internship ordinarily comes after completion of all course work and most, if not all, of the dissertation project.

For information about the clinical psychology program's accreditation, contact the Office of Program Consultation and Accreditation, American Psychological Association.

Cognition and Perception

The cognition and perception training area is guided by the philosophy that understanding a specific cognitive process requires an understanding of how it interacts with other cognitive processes (e.g., interactions between attention and memory). The area pursues empirical rigor and theoretical development, so its research is theory driven and data tested.

Research programs of the area's laboratories overlap with each other, and most content areas are studied by multiple laboratories and with multiple methodologies. Areas of strength include categorization, computational modeling, judgment and decision making, language and language learning, learning and memory, visual cognition, attention, and working memory.

Students in perception and cognition take basic courses and seminars in specialty areas, but they devote most of their time to research activities. Students work closely with a faculty mentor at first and then become progressively independent as they gain knowledge and skills. The program encourages students to work with more than one faculty member, both in the program and across the department and the University. Students often combine basic work on cognition with work in areas such as neuroscience, psychiatry, marketing, law, social psychology, and human factors engineering.

Developmental Science

Students in the developmental program are taught a broad range of developmental theory, and they acquire expertise in multiple research paradigms used in developmental psychology, such as observational research, experimentation, and field methods. Students also have the opportunity to study and collaborate with faculty members who are not primarily developmental

psychologists but whose work has implications for developmental theory. This opportunity provides a unique breadth of training.

Students take courses in many areas of developmental science as well as in other areas of psychology. Currently available to students are research opportunities in cognitive development in infancy and childhood, social and emotional development, and developmental psychobiology. The developmental research group, composed of faculty members and students interested in issues related to developmental research, meets regularly to discuss ongoing research. These meetings provide both students and faculty members the opportunity to present and discuss their own research as well as to gain exposure to other developmental work being conducted in the department.

Health Psychology

The health psychology program is concerned with application of psychological theory, methods, and treatment to understanding and promotion of physical health and illness. The program's perspective is based on the biopsychosocial model, which posits that biological, psychological, and social processes are integrally and interactively involved in physical health and illness.

Graduate training in health psychology emphasizes the integration of knowledge about biological, psychological, and social factors. Students are involved in research whose content and methods reflect the biopsychosocial perspective. Training in health psychology is facilitated by the faculty's longstanding collaborations with medical practitioners and researchers at the UI Carver College of Medicine and University of Iowa Hospitals and Clinics. Availability of medical populations and state-of-the-art medical technologies afford a unique opportunity for doctoral students in health psychology.

Research areas of the health psychology program include stress and illness, psychoneuroimmunology, patient adherence, animal models of hypertension and heart failure, postpartum depression, women's health issues, and psycho-oncology.

Personality and Social Psychology

The personality and social psychology program offers a variety of perspectives on interpersonal and intrapersonal processes. Students develop a broad familiarity with all of the major subareas

but may focus their graduate training in any one, such as social judgment, social influences on behavior, close relationships, adult attachment styles, health and stress, the social psychology of groups, social cognition, temperament and emotionality, and traits and individual differences.

Students in the personality and social psychology program also may acquire additional preparation for research and teaching in interest areas such as organizational and consumer behavior, communications, human factors, and behavioral medicine. Such preparation, which may involve participation in special research projects and selected course work outside the department (e.g., in the Department of Communication Studies or the College of Law), will broaden students' employment prospects.

Admission

Since the graduate program in psychology is designed primarily for students seeking the Ph.D., all applicants are considered on that basis. Occasionally, a qualified applicant who is in good standing in another UI graduate program and is interested in advanced work in psychology only through the M.A. level may be admitted to pursue a joint graduate program. Students interested in such a program should contact the department chair before filing an application.

The application deadline is January 1. For all materials to be on file by that date, applicants should take the Graduate Record Examination (GRE) General Test in October, and no later than December. The subject test in psychology is not required. Applications may be submitted any time but are considered only once each year—between January 1 and February 1—for admission the following fall. Admission decisions are based on a composite consideration of prior academic and research performance; letters of reference; scores on the verbal, quantitative, and analytic writing sections of the GRE General Test; and the applicant's statement about background and purpose. Admission materials are reviewed initially by faculty members in the applicant's primary training area.

An undergraduate major in psychology—including a laboratory course in experimental psychology, a course in statistics, and additional work in the natural sciences and in mathematics—is desirable but not required. Students who have not had such a background but are strongly qualified on other grounds may be admitted. They are expected to remedy deficiencies through special course work or

independent study prior to embarking on the regular graduate program.

Financial Support

All students admitted to the Ph.D. program in psychology are guaranteed five years of financial support, as long as they make satisfactory progress and remain in good academic standing. Financial support is provided through fellowships, teaching assistantships, research assistantships, and traineeships, depending on merit and availability. No separate application for financial aid is required.

Faculty

Faculty members of the Department of Psychology are nationally and internationally renowned leaders in a variety of subdisciplines. Their research is funded by numerous federal and private research grants, their findings are documented in many publications, and their accomplishments have won many awards.

Facilities

The department's facilities for graduate training and research are among the finest in the country. The Kenneth W. Spence Laboratories of Psychology and adjoining space in Seashore Hall include a variety of laboratories for human and animal studies. Facilities include animal housing areas; a histology laboratory; observation suites with remote audiovisual control and recording equipment; soundproof chambers; electrophysiological recording rooms; conditioning laboratories; the Seashore Clinic; and well-equipped electronic, mechanical, and woodworking shops.

Computers are widely available. Office space for graduate students and faculty members is provided in Seashore Hall. The psychology branch of the University of Iowa Libraries, with major collections in all areas, is conveniently located in the west wing of Seashore Hall.

The research and teaching activities of the department greatly benefit from the facilities and staff of other University and local agencies, including University of Iowa Hospitals and Clinics, the Veterans Affairs Iowa City Health Care System, the University Counseling Service, the Center for Disabilities and Development, the Wendell Johnson Speech and Hearing Clinic, the Center for Health Services Research, and the School of Social Work.

Courses

Primarily for Undergraduates

Courses 031:012, 031:013, 031:014, 031:015, 031:016, and 031:019 are open to first-year students who have satisfactorily completed an introductory psychology course (031:001 or equivalent).

031:001 Elementary Psychology 3 s.h.
Psychology as a behavioral science. GE: social sciences.

031:012 Introduction to Brain and Behavior 3 s.h.
Biological mechanisms of behavior; comparative study of behavior in animals (excluding humans), behavioral organization, animal intelligence, social behavior, communication; behavioral neuroscience, how brain systems control sensation, movement, homeostasis, emotion, learning. Prerequisite: 031:001.

031:013 Introduction to Clinical Psychology 3 s.h.
Introduction to abnormal psychology; scientist-practitioner model, training, ethics, research methods in clinical psychology; current approaches to intellectual, personality, behavioral assessment; theories, research on treatment of psychological disorders. GE: social sciences. Prerequisite: 031:001.

031:014 Introduction to Child Development 3 s.h.
Current research, theory in child psychology, including heredity and environment, infancy, perceptual development, attachment, language acquisition, thinking (Piaget), information processing, memory and concept development, intelligence, child rearing, peers, sex differences, moral development, aggression, child psychopathology. GE: social sciences. Prerequisite: 031:001.

031:015 Introduction to Social Psychology 3 s.h.
Research and theories on people's thoughts, feelings, and behaviors in social situations; attitudes, attributions, person perception, aggression, stereotypes and prejudice, attraction, relationships, social influence, group processes, altruism. Prerequisite: 031:001.

031:016 Introduction to Cognitive Psychology 3 s.h.
Individual human cognition; perception, attention, memory, language, learning, problem solving, decision making, thought considered from viewpoint of information processing. GE: social sciences. Prerequisite: 031:001.

031:019 Industrial/Organizational Psychology 3 s.h.
Applications of psychology to problems in world of work; emphasis on personnel selection, training, attitudes, motivation, measurement of job performance. Prerequisite: 031:001.

031:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

031:043 Evaluating Psychological Research 4 s.h.
Skills for critical evaluation of professional and public literature dealing with scientific study of behavior: philosophy of scientific psychology, experimental and nonexperimental methods of investigation, principles of experimental design and control, psychological testing, discussion of applications in several areas of research. Prerequisites: 031:001 and an approved statistics course.

031:050 Psychology of Aging 3 s.h.
The later years of human life viewed from perspectives of developmental psychology, biology, sociology. Prerequisite: 031:001 or equivalent. Same as 153:150.

031:063 Abnormal Psychology: Health Professions 3 s.h.

Introduction to psychological disorders; description of psychopathology; general issues in etiology and treatment; for non-psychology students in allied health professions. Prerequisites: 031:001 or equivalent, and non-psychology major.

031:076 Psychology of Gender 3 s.h.

Origins of gender roles, gender socialization in childhood, gender differences across lifespan; research on gender differences in cognition, emotions, behavior, physical and mental disorders, communication. Prerequisite: grade of C- or higher in 031:043 or 031:120 or equivalent.

For Undergraduate and Graduate Students

Before enrolling in any upper-level undergraduate courses, students must complete all specified lower-level prerequisites or obtain consent of instructor.

031:103 Social and Personality Development 3 s.h.

Emotional, social, and personality development from infancy to adolescence; child's temperament characteristics, parent-child relationship, and social context as contributors to growth. Prerequisites: grade of C- or higher in 031:014 or 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:105 Personality 3 s.h.

Classic theoretical models and contemporary empirical research in personality, including influence of heredity and environment, consistency and stability of behavior. Prerequisites: grade of C- or higher in 031:013 or 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:106 Attitude Change 3 s.h.

Current theoretical approaches; laboratory and field methods of research; basic processes of change considered within broader framework of psychology. Prerequisites: grade of C- or higher in 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:107 Environmental Stress 3 s.h.

Social psychological aspects of urban living, crowding, control, institutionalization, energy utilization; theory and research on stress, arousal, emotion. Prerequisites: grade of C- or higher in 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:108 Small Group Processes 3 s.h.

Classic work on conformity, reference groups, cohesion, contagion, group performance, responsibility diffusion, decision making, group conflict; focus on laboratory experiments, field studies and observations, relevant theory. Prerequisites: grade of C- or higher in 031:015, and 031:043 or 031:120 or equivalent.

031:110 Mood and Temperament 3 s.h.

Current theoretical approaches and contemporary empirical research in emotions, emotional expression; environmental and biological influences on mood, including circadian, weekly, seasonal cycles; individual differences in temperament, happiness, life satisfaction. Prerequisites: grade of C- or higher in 031:013 or equivalent, and 031:043 or 031:120 or equivalent.

031:111 Social Cognition 3 s.h.

Research and theory on cognitive structures and processes that underlie judgment, decision, belief, and behavior in social situations; attribution, heuristics, schemas, person perception, stereotypes, attitudes. Prerequisites: grade of C- or higher in 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:114 Cognitive Development of Children 3 s.h.

Developmental research, theory concerning children's concepts, thinking, problem solving, memory, communication. Prerequisites: grade of C- or higher in 031:014 or equivalent, and 031:043 or 031:120 or equivalent.

031:115 Theories of Developmental Psychology 3 s.h.

Major theoretical approaches to the study of developmental change (e.g., social learning, information-processing, ethological, contextual); related topics such as perceptual development and attachment. Prerequisites: grade of C- or higher in 031:014 or equivalent, and 031:043 or 031:120 or equivalent.

031:117 Psychology of Prenatal Development 3 s.h.

Behavior before and immediately after birth; embryology and development of fetus, preterm infant, and neonate; motor development, sensation, learning, adaptation to intrauterine conditions. Prerequisites: grade of C- or higher in 031:012 or 031:014 or equivalent, and 031:043 or 031:120 or equivalent.

031:118 Infant Development 3 s.h.

Cognitive and social development during first two years of life; development of perceptual abilities, early language acquisition, imitation, mother-infant attachment, temperament. Prerequisites: grade of C- or higher in 031:014 or equivalent, and 031:043 or 031:120 or equivalent.

031:120 Research Methods in Psychology 3 s.h.

Logic and application of experimental methods to analysis of behavioral phenomena; major problem areas of experimental psychology. Prerequisites: 031:001; and 07P:143 or 22S:102 or equivalent.

031:121 Laboratory in Psychology 4 s.h.

Laboratory study of an aspect of behavior; topics in a particular area (e.g., learning and memory, perception, social behavior, operant behavior, physiological processes). Prerequisite: grade of C- or higher in 031:120 or equivalent; additional prerequisites for some sections.

031:122 Language Development 3 s.h.

Introduction to first language acquisition, with focus on infancy through five years; sound discrimination abilities, word learning, babbling and speech production, acquisition of grammar; perspectives from psychology, audiology, linguistics, speech pathology. Prerequisites: grade of C- or higher in 031:014 or 031:016 or equivalent, and 031:043 or 031:120 or equivalent.

031:123 Psychology of Learning 3 s.h.

Psychological science of acquired behavior; interests in experimental study of Pavlovian conditioning, operant conditioning, cognition in humans and nonhuman animals, relevance to behavioral adaptation. Prerequisites: grade of C- or higher in 031:012 or 031:016 or equivalent, and 031:043 or 031:120 or equivalent.

031:125 Comparative Psychology 3 s.h.

Behavioral processes in humans, animals; intelligence, memory, attention, language, consciousness; behaviorism, mentalism, evolution, neuropsychology. Prerequisites: grade of C- or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:126 Behavioral Neuroscience 3 s.h.

Basic concepts and techniques in neurosciences, their application to analysis of sensory processes, arousal mechanisms, motivation, learning. Prerequisites: grade of C- or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:128 Psychopharmacology 3 s.h.

How drugs act to influence behavior; general principles of drug action on the nervous system; licit and illicit drugs, use/abuse, historical perspective on drug use. Prerequisites: grade of C- or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:129 Neurobiology of Learning and Memory 3 s.h.

Major topics in the neurobiology of learning and memory; focus on anatomical, cellular, molecular bases of various learning and memory processes. Prerequisites: grade of C- or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:130 Psychology of Thinking 3 s.h.

Problem solving, reasoning, judgment and decision making, language and thought, intelligence, creativity. Prerequisites: grade

of C- or higher in 031:016 or equivalent, and 031:043 or 031:120 or equivalent.

031:131 Cognitive Science 3 s.h.

Introduction to cognitive science, an interdisciplinary enterprise that investigates psychological processes using perspectives from psychology, computer science, linguistics, philosophy, neuroscience. Prerequisites: grade of C- or higher in 031:016 or equivalent, and 031:043 or 031:120 or equivalent.

031:133 Sensation and Perception 3 s.h.

Psychological and neurophysiological examination of humans' major sensory systems, especially vision. Prerequisites: grade of C- or higher in 031:012 or 031:016 or equivalent, and 031:043 or 031:120 or equivalent.

031:134 Cognition and the Brain 3 s.h.

Analysis of brain systems and neuroanatomy that underlie cognitive tasks such as vision, hearing, emotion, attention, language, decision making, learning, and memory. Prerequisites: grade of C- or higher in 031:012 or 031:016 or equivalent, and 031:043 or 031:120 or equivalent.

031:136 Behavioral Endocrinology 3 s.h.

Basic concepts; sexual differentiation of brain, male and female physiology, sexual behavior and cognitive function; aggression; homeostasis; biological rhythms; mood. Prerequisites: grade of C- or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:140 Psychology of Interpersonal Relations 3 s.h.

Theories, empirical findings, speculation from social psychology and related disciplines regarding how people form, maintain, and alter close, interpersonal relationships. Prerequisites: grade of C- or higher in 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:141 Loss and Trauma 3 s.h.

How people deal with loss—personal (e.g., aging) and interpersonal (e.g., death and divorce). Prerequisites: grade of C- or higher in 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:152 Health Psychology 3 s.h.

Psychological contributions to understanding etiology, prevention, treatment of physical illness; basic and clinical research that addresses reciprocal effects of behavior and physical health. Prerequisites: grade of C- or higher in 031:012 or 031:013 or 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:163 Abnormal Psychology 3 s.h.

Adult psychiatric disorders (e.g., anxiety disorders, affective disorders, antisocial personality, schizophrenia, substance abuse); emphasis on theories of etiology and of psychological processes underlying psychopathology. Prerequisites: grade of C- or higher in 031:013 or equivalent, and 031:043 or 031:120 or equivalent.

031:166 Childhood Psychopathology 3 s.h.

Major forms of childhood psychopathology; current theoretical approaches and methodological issues in diagnosis, conceptualization, treatment of developmental psychopathology. Prerequisites: grade of C- or higher in 031:013 or equivalent, and 031:043 or 031:120 or equivalent.

031:170 Behavior Modification 3 s.h.

Basic approaches to modification of clinically distressing behavior; learning theory principles underlying techniques, translation into procedures, experimental evaluation of effectiveness. Prerequisites: grade of C- or higher in 031:013 or equivalent, and 031:043 or 031:120 or equivalent.

031:173 Substance Use and Misuse in America 3 s.h.

Current data on epidemiology, assessment and diagnosis, treatment, prevention of substance misuse. Prerequisites: grade of C- or higher in 031:013 or equivalent, and 031:043 or 031:120 or equivalent. Recommended: 031:163. Same as 172:160.

031:174 Mind and Behavior 3 s.h.

Theories of what it is to act and know, of what intelligence might be in animals, humans, machines; perspectives from philosophy, psychology. Prerequisites: grade of C- or higher in 031:012 or 031:016 or equivalent, 031:043 or 031:120 or equivalent, and junior or senior standing or consent of instructor. Same as 033:144.

031:177 Field Methods: Animal Behavior Research 3 s.h.

Observation of animal behavior, collection of behavioral data in the field; field trip and visits to varied habitats to view animals under natural conditions. Prerequisites: grade of C- or higher in 031:012 or equivalent, and 031:043 or equivalent, and consent of instructor.

031:185 Research Practicum in Psychology arr.

Small-group participation in faculty research projects; literature review, study planning, data collection, analysis, interpretation, write-up. Prerequisite: consent of instructor.

031:188 Advanced Research Practicum 1-3 s.h.

Individual participation in faculty research projects; significant reading and writing. Prerequisites: two semesters of 031:185 or 143:100, and consent of instructor.

031:189 External Practicum in Psychology 1-3 s.h.

Student participation in career-related professional activities in community and University of Iowa agencies. Prerequisite: consent of instructor.

031:190 Psychology Seminar 3 s.h.

Readings from original sources, presentations, papers, student participation. Prerequisites: grade of C- or higher in 031:120 or equivalent, psychology B.S. enrollment, and senior standing.

031:191 Individual Readings and Projects 1-3 s.h.

Prerequisites: psychology major, undergraduate standing, and consent of instructor.

031:192 Teaching/Advising Practicum in Psychology 1-3 s.h.

Participation in faculty teaching (undergraduate teaching assistant) or the Psychology Peer Advisor Program. Prerequisite: consent of instructor.

031:195 Honors Proseminar in Psychology 1 s.h.

Research topics, psychology colloquium attendance and discussion, student presentations on honors project progress. Prerequisite: honors standing and psychology honors project in progress.

031:199 Honors Thesis Research 1-3 s.h.

Supervised original project; leads to written thesis, oral defense. Prerequisites: honors standing and consent of instructor.

Primarily for Graduate Students

031:201 Advanced Social-Personality Psychology 3 s.h.

Classic and contemporary theory, research, methodological issues in social-personality psychology. Prerequisite: consent of instructor.

031:202 Attitudes and Persuasion 3 s.h.

Classic and current theories and findings on persuasion, the formation and measurement of attitudes.

031:206 Advanced Social Cognition 3 s.h.

Research and theory on cognitive processes that underlie judgment, decision, belief, and behavior in social situations; attribution, heuristics, counterfactual thinking, schemas, person perception, stereotypes, attitudes.

- 031:208 Psychology of Close Relationships** 3 s.h.
Theory, general writing, empirical analysis of variables involved in initiation, maintenance, termination of close relationships; emphasis on social psychological processes, concepts.
- 031:210 Proseminar in Developmental Science** 3 s.h.
Introduction to developmental process and developmental science; topics organized around mechanisms of development, with cross-disciplinary focus. Prerequisite: consent of instructor.
- 031:212 Perceptual-Cognitive Development in Infancy** 3 s.h.
Knowledge acquisition during first two years of life; development of visual, speech, bimodal perception; imitation; object concept and permanence; early perceptual concepts.
- 031:214 Processes of Language Acquisition** 3 s.h.
Theoretical and computational approaches to the study of first language acquisition from infancy to five years, including prelinguistic sound discrimination, babbling, semantic development, categorization abilities, syntactic and grammatical development.
- 031:216 Dynamic Systems and Development** 3 s.h.
Dynamical systems theory, its application to basic problems in developmental psychology; development of motor control, cognition, language; comparisons with other theoretical approaches in developmental psychology.
- 031:217 Psychobiology of Prenatal Development** 3 s.h.
Current research on behavior before and immediately after birth; embryology and development of fetus, preterm infant, neonate; motor development, sensation, learning, adaptation to intrauterine conditions.
- 031:218 Cognitive Development** 3 s.h.
Theoretical and empirical analyses of children's cognitive development; spatial and numerical concepts, causal reasoning, categorization, metacognition, memory.
- 031:220 Proseminar in Cognition and Perception** 3 s.h.
Broad overview of study of cognition, including cognitive psychology, computer science and artificial intelligence, linguistics, neuroscience, philosophy of mind. Repeatable. Prerequisite: consent of instructor.
- 031:223 Neural Networks in Psychology** 3 s.h.
Major techniques in neural network or connectionist modeling; specific application to issues in psychology. Prerequisite: consent of instructor.
- 031:226 Visual Perception** 3 s.h.
Theoretical and empirical analyses of low- and high-level visual functions, including edge detection, surface representation, object identification.
- 031:227 Attention** 3 s.h.
Theory and research on attention, from viewpoints of cognitive psychology and cognitive neuroscience, including historical perspectives, recent approaches.
- 031:230 Behavioral Pharmacology** 3 s.h.
Behavioral analysis of drug action; emphasis on physiological, biomechanical mechanisms underlying behavioral processes in experimental animals, humans.
- 031:234 Developmental Psychobiology** 3 s.h.
Biological bases of behavior in developing organisms; may include thermoregulation, ingestion, sleep, parent/offspring interactions, sensation motor control, learning, memory.
- 031:236 Psychobiology of Health and Sickness** 3 s.h.
Physiological basis of behavior and cognition in normal and pathological states; body and brain functions that affect psychological processes, their role in mental and physical health, disease. Prerequisite: consent of instructor.
- 031:240 Judgment and Decision Making** 3 s.h.
Models, methods used in study of human judgments and decisions; applications in areas such as clinical diagnosis, social and educational evaluations, economic judgments, consumer decisions.
- 031:241 Behavioral and Cognitive Neuroscience I** 4 s.h.
Concepts, methods, and findings in behavioral and cognitive neurosciences; emphasis on principles of neuroscience, sensation, motivation, emotion. Prerequisite: consent of instructor. Same as 132:241.
- 031:242 Behavioral and Cognitive Neuroscience II** 4 s.h.
Concepts, methods, and findings in behavioral and cognitive neurosciences; emphasis on principles of comparative psychology, motor control, learning. Prerequisite: consent of instructor. Same as 132:242.
- 031:244 Behavioral Neuroscience** 3 s.h.
Basic principles of neurochemistry, neuropharmacology, developmental neuroscience, behavioral neuroscience. Prerequisite: consent of instructor.
- 031:250 Introduction to Health and Behavioral Science** 3 s.h.
Evolution of health psychology; survey of major physiological systems in which pathology is affected by behavioral processes; review of theoretical approaches, experimental paradigms from behavioral science as they may apply to assessment of health problems; prevention, intervention, psychological adaptation to physical disease. Prerequisite: consent of instructor.
- 031:252 Clinical Behavioral Medicine** 3 s.h.
Biopsychosocial framework applied to study, treatment of chronic and acute physical conditions; clinical concepts, procedures. Prerequisite: consent of instructor.
- 031:258 Personality and Individual Differences** 3 s.h.
Major theoretical, empirical issues in contemporary personality research, including stability and consistency of behavior, influence of heredity and environment in personality development, nature and organization of traits, validity of trait inferences.
- 031:260 Descriptive Psychopathology** 3 s.h.
Psychiatric syndromes, including description, etiology, experimental and clinical research; development, function of classification systems. Prerequisite: consent of instructor.
- 031:261 Experimental Psychopathology** 3 s.h.
Theories of psychobiological processes underlying etiology of psychopathology; emphasis on schizophrenia, affective disorders, anxiety, psychopathy, alcoholism/drug abuse. Prerequisite: consent of instructor.
- 031:263 Psychological Appraisal I** 3 s.h.
Assessment theory and basic psychometric principles in test construction, evaluation, application; ethical, social, psychological, psychometric issues and controversies in assessment. Prerequisite: consent of instructor.
- 031:264 Psychological Appraisal II** 3 s.h.
Introduction to assessment with children and adults, including assessment of cognitive abilities and achievement testing, neuropsychological assessment, and psychodiagnostic/personality assessment. Prerequisites: 031:263 or equivalent, and consent of instructor.
- 031:265 Neuroscience Seminar** 0-1 s.h.
Conceptions of brain-behavior relationships in man; analysis of behavioral disturbances associated with cerebral abnormality; current application of psychological test methods for inferring cerebral status. Same as 002:265, 060:265, 072:265, 132:265.
- 031:266 Psychological Therapies** 3 s.h.
Historical development and current status of empirically based therapies for psychological disorders, including anxiety, depression, schizophrenia, childhood disorders; emphasis on critical evaluation of therapy techniques.

- 031:270 Clinical Research Methods** 3 s.h.
 Scientific basis of rigorous psychological research; conceptual and methodological processes that underlie sound research; development of capacity for critical evaluation of the research process. Prerequisite: consent of instructor.
- 031:276 Advanced Developmental Psychopathology** 3 s.h.
 Psychiatric syndromes manifested in childhood and adolescence; theoretical approaches, methodology from developmental and clinical psychology as they apply to study of childhood psychopathology. Prerequisite: consent of instructor.
- 031:280 Current Topics in Psychology** 3 s.h.
 Repeatable.
- 031:291 Problems in Psychology** arr.
 Individual study. Prerequisite: consent of instructor.
- 031:295 M.A. Thesis Research** arr.
 Prerequisite: consent of instructor.
- 031:296 Ph.D. Dissertation Research** arr.
 Prerequisite: consent of instructor.
- 031:297 Research Projects** arr.
 Prerequisite: consent of instructor.
- 031:302 Seminar: Personality and Social Psychology** 1 s.h.
 Professional issues, current topics relevant to personality, social psychologists. Repeatable. Prerequisite: consent of instructor.
- 031:318 Seminar: Cognitive Development** 0-3 s.h.
 Theoretical, methodological issues focused on cognitive and perceptual development. Repeatable.
- 031:330 Seminar: Cognitive Psychology** 2 s.h.
 Repeatable. Prerequisite: consent of instructor.
- 031:335 Seminar: Cognitive Neuroscience** 0-2 s.h.
 Neurological and behavioral investigations of attention, perception, learning, memory, decision making, planning; contemporary models, theories. Prerequisite: consent of instructor.
- 031:338 Seminar: Advanced Topics in Behavioral and Cognitive Neuroscience** 3 s.h.
 Prerequisite: 031:241 or consent of instructor.
- 031:350 Seminar: Psychology in Medical Settings** 1 s.h.
 Introduction to evaluation, research, and intervention with medical patients. Prerequisite: consent of instructor.
- 031:360 Seminar: Orientation to Clinical Research** 0-1 s.h.
 Issues in clinical research, including use of databases, advisor/advisee relationships, preparation of IRB proposals, paper presentation and publication, common early career problems, funding resources.
- 031:370 Seminar: Health Psychology** 0-2 s.h.
 Theoretical and methodological issues; focus on specific topics, such as chronic disease, psychoneuroimmunology. Repeatable. Prerequisite: consent of instructor.
- 031:380 Ethics and Professional Concerns** arr.
 Major ethical and legal issues relevant to clinical psychologists' varied roles; understanding of legal and ethical issues encountered by psychologists in varied settings, development of personal working model for resolving ethical and professional concerns.
- 031:461 Introductory Practicum** arr.
 Orientation to Department of Psychology clinic, including instruction in interviewing, observation of clinic procedures, attendance at clinic rounds under supervision of clinical psychology faculty members. Prerequisite: consent of clinical training committee.
- 031:462 Assessment Practicum** arr.
 Supervised practice in psychological assessment techniques. Prerequisite: consent of clinical training committee.
- 031:463 Therapy Practicum** arr.
 Supervised practice and clinical experience in application and evaluation of psychological therapies. Prerequisite: consent of clinical training committee.
- 031:464 External Practicum** arr.
 Supervised practice and clinical experience in field setting; psychological assessment techniques and/or application, evaluation of psychological therapies. Prerequisite: consent of clinical training committee.

Religious Studies

Chair: Raymond A. Mentzer

Professors: T. Dwight Bozeman (Religious Studies/History), Jay A. Holstein, David E. Klemm, Raymond A. Mentzer

Professors emeriti: Robert D. Baird, David R. Belgum, George W. Forell, Helen T. Goldstein, J. Kenneth Kuntz, James F. McCue, George W.E. Nickelsburg, W. Pachow, George W. Paterson, Robert F. Weir

Associate professors: Diana Fritz Cates, Ralph Keen, Janine T.A. Sawada, Frederick M. Smith (Religious Studies/Asian Languages and Literature), Richard B. Turner (Religious Studies/African American Studies)

Assistant professors: Michelene Pesantubbee (Religious Studies/American Indian and Native Studies), Howard B. Rhodes, Morten Schlütter, Ahmed Souaiaia

Undergraduate degree: B.A. in Religious Studies

Undergraduate nondegree program: Minor in Religious Studies

Graduate degrees: M.A., Ph.D. in Religious Studies

Web site: <http://www.uiowa.edu/~religion>

Religion is a major factor in human culture, with the power to unify society as well as to disrupt and divide it. Given the diversity of cultures in a shrinking global context, an understanding of religion and its personal and social roles is a significant element in a liberal arts and sciences education. The Department of Religious Studies helps students acquire an appreciative and critical understanding of the history and literature of major religions in the East and West, and insight into the nature and meaning of the religious dimensions of human culture.

The department recognizes that religious activity is expressed in countless ways. Therefore, it offers a wide range of courses that explore facets of religion in cultures around the world. Topics and issues include religious texts and thinkers as well as how culture, tradition, and experience intersect. Diverse academic methods—including historical, textual, artistic, and literary approaches—are used to study the variety of ways in which religions have formulated values and addressed matters of ultimate concern.

Undergraduate Program

Each year thousands of University students enroll in courses in religious studies. Many are taking courses to complete the College of Liberal Arts and Sciences General Education Program. Some

students choose religious studies as their major, a second major, or a minor to complement studies in another field.

Religious studies majors acquire core skills they will need to flourish in today's world: logical thinking, writing, communicating, and working with others, as well as open-mindedness to new ideas.

Bachelor of Arts

The Bachelor of Arts in religious studies requires 30 s.h. in the major, including 15 s.h. of foundation studies, 12 s.h. of continuing studies, and the senior seminar. Students may count a maximum of three religious studies courses approved for the General Education Program as part of the 30 s.h. requirement for the major. Transfer students may include up to 15 s.h. of transfer credit toward the major. Transfer credit is evaluated individually.

The major requires the following.

FOUNDATION STUDIES

Western Religious Traditions

Two of these:

032:001 Judeo-Christian Tradition	3 s.h.
032:025 Medieval Religion and Culture	3 s.h.
032:026 Modern Religion and Culture	3 s.h.
032:030 Introduction to Islam	3 s.h.
032:032 Introduction to Qur'an	3 s.h.
032:034 Introduction to African American Religions	3 s.h.

Asian Religious Traditions

Two of these:

032:004/039:064 Living Religions of the East	3 s.h.
032:006/039:006 Introduction to Buddhism	3 s.h.
032:010/039:007 Chinese Religions	3 s.h.

Theoretical and Comparative Studies in Religion

One of these:

032:002 Religion and Society	3 s.h.
032:003 Quest for Human Destiny	3 s.h.
032:016 Religion and Liberation	3 s.h.
032:020 War and Peace in Western Religious Thought	3 s.h.

CONTINUING STUDIES

Students must take 12 s.h. of course work in continuing studies to complete the major. This course work must be chosen from courses in one of three concentration areas: western religious traditions; Asian religious traditions; or religion, culture, and society. For lists of approved courses for each of the three concentration areas, contact the Department of Religious Studies office.

SENIOR SEMINAR

All students must take 032:196 Senior Majors Seminar for 3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: one or two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: three to six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: five to seven courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Students who maintain a cumulative University of Iowa g.p.a. of at least 3.33 are eligible for membership in the University Honors Program (contact the University Honors Program for more information). Honors majors must complete a total of 33 s.h. to fulfill the requirements for the religious studies major. Students must take 032:198 Honors Essay under the individual supervision of a faculty advisor. Copies of the completed and approved essay are submitted to the Department of Religious Studies and to the University Honors Program. Honors students may apply 3 s.h. of 032:195 Individual Study: Undergraduates or 032:197 Honors Tutorial toward their 12 s.h. requirement in the concentration area.

Minor

A minor in religious studies requires 15 s.h. of credit in religious studies courses with a g.p.a. of at least 2.00. Of the 15 s.h., at least 12 s.h. must be taken at The University of Iowa in upper-level religious studies courses, including 032:007, 032:008, 032:009, and all courses numbered above 032:050.

Graduate Programs

A graduate degree in religious studies ordinarily leads to an academic career teaching at the college or university level, or to a career in a religious, nonprofit, or governmental organization. The department's graduate programs place religion in a broad intellectual and cultural context, provide a substantial methodological dimension, and help students develop valuable research skills.

The Department of Religious Studies offers the Master of Arts and the Doctor of Philosophy in the following three basic areas of study.

Modern religious thought—theology, philosophy, ethics, and culture

Religious thought and culture in early modern Europe and North America

Religion and culture in Asia

All master's students take three of the following four courses (032:202, 032:203, and 032:205); doctoral students take all four.

032:201 Teaching Religious Studies (optional for M.A. students)	3 s.h.
032:202 Asian Religious Traditions	3 s.h.
032:203 Western Religious Traditions	3 s.h.
032:205 Methods and Theories in the Study of Religion	3 s.h.

Master of Arts

The Master of Arts requires a minimum of 30 s.h. of graduate credit in religion and is offered with or without thesis. The program is designed for students who wish to advance and deepen their understanding of religion.

Students must complete 24 of the required 30 s.h. at The University of Iowa and maintain a cumulative g.p.a. of at least 3.00. Requirements for languages and other research tools vary according to the focus of study. Except for the required courses listed above (032:202, 032:203, and 032:205), students select courses depending on their interest area and in consultation with

their faculty advisor. M.A. students are supervised by a three-person faculty committee.

In the M.A. thesis, students demonstrate and refine their research and writing skills. The thesis may count for 6 of the 30 s.h.

Students who do not write a thesis must pass an M.A. examination that tests their competence in completed course work.

Doctor of Philosophy

The Doctor of Philosophy prepares students to become specialists in the study and teaching of religion. The department's program trains students in the research skills and methods they will need to become productive scholars in their chosen fields of study. It also trains them to teach religious studies across a broad range of traditions and provides rich classroom experience for future teachers.

The Ph.D. requires 72 s.h. of course work, of which 24 may be transferred from another accredited graduate school. Formal admission to Ph.D. candidacy occurs during the student's fourth semester of residency, providing the following conditions are met:

- completion of three of the four required courses, with the fourth in progress (see "Graduate Programs," above);

- evidence of the ability to write scholarly papers;

- a cumulative University of Iowa g.p.a. of at least 3.40;

- satisfactory progress toward fulfillment of the language requirements of the student's program; and

- submission of a plan of study.

Course requirements vary according to concentration area (see "Graduate Programs" above). However, all students must take at least four graduate seminars in addition to the four required courses listed under "Graduate Programs" (032:201, 032:202, 032:203, and 032:205).

Students must pass a comprehensive examination based on a bibliography that covers their concentration area. They also must write a dissertation based on original research and defend it in oral examination. The dissertation may count for up to 12 s.h.

Students working toward a Ph.D. may receive an M.A. upon completing at least 30 s.h. of course work and successfully passing the comprehensive examination.

For more detailed information on graduate programs in religious studies, contact the Department of Religious Studies or visit its web site, or contact the University's Office of Admissions.

Admission

Applicants must meet the admission requirements of the Graduate College. For detailed information about Graduate College policies, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Applicants to the M.A. program must have a combined verbal-quantitative score of at least 1050 on the Graduate Record Examination (GRE) General Test and a g.p.a. of at least 3.00. Applicants to the Ph.D. program must have a combined verbal-quantitative score of at least 1100 on the GRE General Test and a g.p.a. of at least 3.40. All applicants must submit three letters of recommendation and a writing sample demonstrating their ability to engage in critical thinking.

Financial Support

The Department of Religious Studies offers financial support for graduate students in the form of research and teaching assistantships as well as Graduate College fellowships. The department also may nominate eligible applicants for the Presidential Graduate Fellowship.

The Gilmore Scholarship, for doctoral students interested in the relationships among religion, the visual arts, and humanistic values, pays up to full tuition for one year.

Financial aid awards are made annually on a competitive basis.

Language Study at the University

The University offers a variety of modern European languages (see French and Italian, German, and Spanish and Portuguese in the Catalog) as well as Greek and Latin (see Classics in the Catalog); Arabic (see French and Italian in the Catalog); and Japanese, Chinese, Sanskrit, and Hindi (see Asian Languages and Literature in the Catalog).

Courses

- 032:001 Judeo-Christian Tradition** 3 s.h.
Introduction to Judaism and Christianity with focus on biblical foundation and historical development of these related traditions; texts and other forms of religious expression, especially art, music, literature; readings from Hebrew Bible, New Testament, selected Jewish and Christian thinkers. GE: historical perspectives.
- 032:002 Religion and Society** 3 s.h.
Meaning of religious questions and answers in traditional and modern social contexts in the West. Offered spring semesters. GE: humanities.
- 032:003 Quest for Human Destiny** 3 s.h.
Quests for destiny in terms of perceived options/goals and ability to recognize, pursue, achieve them. GE: humanities.
- 032:004 Living Religions of the East** 3 s.h.
Religious beliefs, practices in India, China, Japan. GE: foreign civilization and culture or historical perspectives. Same as 039:064.
- 032:006 Introduction to Buddhism** 3 s.h.
Basic tenets, religious paradigms, historical phases important in the development of Buddhism; from the Buddha's life to evolution of Mahāyāna Buddhism; readings from India, Tibet, China, Japan, Korea, Southeast Asia. Same as 039:006.
- 032:007 Asian Humanities: Japan** 3 s.h.
GE: foreign civilization and culture or humanities. Same as 039:020.
- 032:008 Asian Humanities: India** 3 s.h.
Four thousand years of South Asian civilization. GE: foreign civilization and culture or humanities. Same as 039:018.
- 032:009 Asian Humanities: China** 3 s.h.
GE: foreign civilization and culture or humanities. Same as 039:019.
- 032:010 Chinese Religions** 3 s.h.
Survey of Chinese religions; Chinese traditional religious beliefs and practices among the elite and the general population; recent developments in mainland China, Taiwan, and the West; religious ideas of Confucianism, Daoism, aspects of Buddhism, ancestor worship, cults of deities, practices such as spirit possession, faith healing, ghost marriages. Same as 039:007.
- 032:016 Religion and Liberation** 3 s.h.
Reflections on the life stories of Black Elk, Maya Angelou, and the Dalai Lama. GE: cultural diversity or humanities.
- 032:020 War and Peace in Western Religious Thought** 3 s.h.
History, major themes, and contemporary applications of western religious traditions regarding proper use of armed force; Christian just war and pacifist traditions, Islamic traditions of jihad, debates of issues such as humanitarian intervention, terrorism, nuclear weapons.
- 032:025 Medieval Religion and Culture** 3 s.h.
Religion in Europe from classical antiquity to dawn of the Reformation; the religious element in traditions such as art, architecture, literature. GE: historical perspectives. Same as 016:035.
- 032:026 Modern Religion and Culture** 3 s.h.
European and American religious life from Renaissance to 21st century; focus on specific themes, such as secularism, regionalism, pluralism. GE: historical perspectives. Same as 016:036.
- 032:030 Introduction to Islam** 3 s.h.
Major areas of Islamic religious tradition: Qur'an, traditions of the Prophet, development and character of Islamic law, theology. GE: foreign civilization and culture and historical perspectives.
- 032:032 Introduction to Qur'an** 3 s.h.
- 032:034 Introduction to African American Religions** 3 s.h.
Same as 129:050.
- 032:051 Religious Thinkers of the West** 3 s.h.
Augustine, Bonaventure, Fichte, Kierkegaard, Heidegger. GE: humanities.
- 032:052 Women in Islam and the Middle East** 3 s.h.
Women in the Islamic community and in non-Muslim Middle Eastern cultures; early rise of Islam to modern times; references to women in the Qur'an and Sunnah, stories from Islamic history; women and gender issues.
- 032:054 Introduction to Catholicism** 3 s.h.
Catholic doctrine, liturgy, moral teaching.
- 032:055 Religion and Violence in America** 3 s.h.
Movements in North American history marked by violence (i.e., Peoples Temple, Lakota Ghost Dance, Branch Davidians, Shawnee Movement); the role of violence in expressing and shaping some religious movements.
- 032:056 Christianity in the United States** 3 s.h.
- 032:057 Religion in Modern India** 3 s.h.
Topics vary.
- 032:058 Liturgy and Devotion in Christian Tradition** 3 s.h.
Liturgical traditions and devotional practices in western Christianity; Medieval Christian tradition, changes in liturgy and devotion that occurred with reformations of the 16th and 17th centuries; overview of modern developments. Same as 16E:058.
- 032:060 Introduction to Native American Religions** 3 s.h.
GE: cultural diversity. Same as 149:060.
- 032:061 Middle East and Mediterranean Alexander-Suleiman** 3 s.h.
GE: foreign civilization and culture. Same as 016:045, 20E:071.
- 032:063 African American Islam/International Perspective** 3 s.h.
Same as 129:063.
- 032:066 Introduction to Religion and the Arts** 3 s.h.
Religion in different art genres, including visual, performing, and literary.
- 032:067 Theological Questions** 3 s.h.
Treatment of basic religious questions, such as the meaning of "God," nature of religious symbols, phenomena of skepticism and atheism.
- 032:071 Sexual Ethics** 3 s.h.
Christian, Jewish, secular perspectives on meaning and value of human sexuality; contemporary sexual ethical issues. Same as 154:071.
- 032:075 Asian Religious Classics** 3 s.h.
Works of South and East Asia; may include Bhagavad Gita, Life of Milarepa, Mencius, Great Learning, Chuang-tzu, Lotus Sutra, Platform Sutra, selected Korean and Japanese works. Same as 039:075.
- 032:076 American Indian Environmentalism** 3 s.h.
Same as 149:076.
- 032:078 American Indian Women: Myth, Ritual, and Sacred Power** 3 s.h.
Same as 149:082.
- 032:080 Spirituality and Mysticism** 3 s.h.
Classic texts, from Western religious traditions, that address possibilities and paths of experiencing the divine.
- 032:082 American Indian Activism** 3 s.h.
Same as 149:080.

- 032:084 Introduction to Mysticism** 3 s.h.
Mysticism and mystical experiences in religious traditions.
- 032:085 Early Modern Catholicism** 3 s.h.
Same as 16E:085.
- 032:100 Biblical Hebrew I** 3 s.h.
- 032:101 Biblical Hebrew II** 3 s.h.
- 032:102 Biblical Hebrew III** 3 s.h.
Continuation of 032:101. Prerequisites: 032:100 and 032:101, or equivalents.
- 032:103 Biblical Archaeology** 1, 3 s.h.
Contributions of Syro-Palestinian archaeological research to understanding historical, cultural backgrounds of biblical period.
- 032:104 Egyptian Art** 3 s.h.
Same as 01H:110.
- 032:105 The World of the Old Testament** 3 s.h.
Historical, intellectual background; focus on patterns of thought, religion in Near East, relation to Israelite religion.
- 032:111 Religion and Women** 3 s.h.
Sexism and its disavowal in biblical narrative, law, wisdom texts, Gospels, epistles; contemporary impact. GE: humanities. Same as 131:111.
- 032:112 The Bible in Film: Hollywood and Moses** 3 s.h.
How Hollywood has interpreted the Biblical stories of Adam and Eve, Moses, and David the King.
- 032:116 Religion in Japan** 3 s.h.
Same as 39J:109.
- 032:118 Roman Religion and Society** 3 s.h.
Religious beliefs, practices, and writings of Romans from eighth century B.C.E. to second century C.E. GE: humanities. Same as 20E:116.
- 032:119 Jewish Mysticism** 3 s.h.
History of Jewish mystical thought over the past 2,000 years.
- 032:120 Jewish Religious Thought** 3 s.h.
Medieval and modern theological tradition of Judaism: Maimonides, Spinoza, Buber, others; historical contexts, modern interpretations.
- 032:121 The Bible and the Sacrifice of Animals** 3 s.h.
Why the biblical God permits humans to eat other animals' flesh; fundamental dietary differences between humans and the beasts.
- 032:125 Libraries in Western Culture** 3 s.h.
Same as 016:116, 108:184.
- 032:126 Twentieth-Century African American Religion: Civil Rights to Hip-Hop** 3 s.h.
Twentieth-century African American religious history; major political and cultural movements, such as civil rights, black power, black feminism/womanism, hip-hop. Same as 129:123.
- 032:127 Nonprofit Organizational Effectiveness I** 3 s.h.
Same as 024:147, 025:176, 042:157, 049:175, 06J:147, 096:168.
- 032:128 Nonprofit Organizational Effectiveness II** 3 s.h.
Same as 024:148, 025:177, 042:158, 049:176, 06J:148, 096:169.
- 032:130 Religion and Environmental Ethics** 3 s.h.
Same as 033:139, 113:139.
- 032:131 Urban Religious Experience: New Orleans** 3 s.h.
- 032:132 Medieval and Reformation Religious Thought** 3 s.h.
Classics of patristic, scholastic, reformation theology; special attention to relationships among authors, periods, genres.
- 032:133 Religion, Music, and Culture in Black New Orleans** 3 s.h.
- 032:135 American Revolutionary Theologies** 2-3 s.h.
Religious worldviews in America, colonial times to present, that emerge during cultural change or perceived danger, make startling breaks with received tradition, and reconceptualize the human condition and religious redemption. Same as 16A:125.
- 032:136 Religious Thought in Enlightenment** 3 s.h.
Religious thought (1680-1790) that challenged the legitimacy of tradition and attempted to base all of life, including religion, on nature and reason; readings from Spinoza to Lessing, Kant.
- 032:137 Modern Religious Thought: Romanticism-Existentialism** 3 s.h.
- 032:138 Contemporary Christian Theology** 3 s.h.
- 032:139 Religion, Ethics, and Politics** 3 s.h.
- 032:140 Religion and Literature** 3 s.h.
Religious themes in great works of literature.
- 032:141 Varieties of American Religion** 3 s.h.
World views of religious groups (e.g., Mormon, Scientology, Jehovah's Witness, Black Muslim, Unification Church of Sun Myung Moon). Same as 16A:122.
- 032:142 The Puritan Experience** 2-3 s.h.
Historical survey; concepts of sacred book, redemption, world's end, church and state, family, women, Indians, sex. Same as 16A:121.
- 032:144 Religious Thought in America 1860 to Present** 2-3 s.h.
Selected American thinkers. Same as 16A:124.
- 032:145 Ultraconservative and Radical Theologies in American History** 2-3 s.h.
Intellectual patterns of the far right and left. Same as 16A:118.
- 032:146 Philosophy of Religion** 3 s.h.
Same as 026:134.
- 032:147 Quest II: Sex, Love, and Death** 3 s.h.
Readings from the Hebrew Bible, Sophocles' *Antigone*, Melville's *Billy Budd*, Hemingway's *The Sun Also Rises*, Salinger's *A Perfect Day for Banana Fish*, the film *From Here to Eternity*.
- 032:148 Ethics and Modern Religious Thought** 3 s.h.
How modern thinkers address issues at the intersection of religion and ethics; relationship between religion and ethical reasoning, place of authority in the moral life, social and political issues shape modern religious discourse; may include Hume, Kant, Barth, MacIntyre, Adams.
- 032:149 Values in the Contemporary World** 3 s.h.
Same as 033:152.
- 032:150 The Bible and the Holocaust** 3 s.h.
Religious and philosophic implications of the Holocaust viewed through survivors' writings.
- 032:152 Religion and Democracy** 3 s.h.
Debate by theologians, American Constitutional law scholars, other intellectuals of three issues: whether democracy erodes religious traditions' moral understandings; what role religious communities and arguments should play in American public life; and whether democracy can sustain social practices that cultivate virtue among citizens.
- 032:153 Religion and the Arts** 3 s.h.
Analysis, interpretation of religious themes in literature, film, painting.
- 032:154 Religious Conflict/Early-Modern Period** 3 s.h.
Reformation of 16th century—Lutheran, Calvinist, Radical, English; readings from major representatives of each. Same as 16E:123.

- 032:155 Human Rights and Islam** 3 s.h.
Human rights in religious and secular discourse, seventh century to present; Islamic law, human rights law, religion, politics.
- 032:156 The Karma of Words** 3 s.h.
Key issues in the relationship between Buddhism and the literary arts.
- 032:157 Modern Islamic Thought and Political Movement** 3 s.h.
Major trends in Islamic religious thought since the colonial period, focusing on encounters between Islamic and the modern world; Ibn Khaldun; renewal movements; varieties of religious reform and accommodation; nationalism, socialism, and so forth. Recommended: prior Islamic course work.
- 032:158 Native American Women and Religious Change** 3 s.h.
Native women's diverse experiences and their roles in native societies, examined through contact experiences between native and nonnative peoples; changes in women's roles in context of interactions between native people, missionaries, European colonists, and Americans; approaches to re-imagining women's early contact roles presented in cultural narratives, archaeology, history, ethnography, and missionary records. Same as 131:159, 149:158.
- 032:159 Comparative Islamic Law** 3 s.h.
Sources of Islamic law; origins and functions of varied schools of jurisprudence; Islamic legal philosophy and Islamic legal rulings in contexts of five major schools of law; major legal topics covered by the Ottoman Legal Code.
- 032:160 Goddesses in India** 3 s.h.
Most important and characteristic feminine divine beings in 3,000 years of South Asian sacred literature and practice. Same as 039:160.
- 032:161 History of Religious Ethics** 3 s.h.
Christian, Jewish ethics from Paul to Martin Buber; focus on meaning and value of love.
- 032:162 Genes and the Human Condition** 3 s.h.
Ethical, legal, and social implications of the new genetics, with focus on the Human Genome Project.
- 032:164 Greek Religion and Society** 3 s.h.
From Bronze Age to the Hellenistic period, in context of Mediterranean culture; evidence such as choral hymn, inscribed prayers, magical curses inscribed on lead, architecture, sculpted offerings to the gods. GE: humanities. Same as 20E:115.
- 032:165 Anthropology of Religion** 2-3 s.h.
Religious activity in folk and tribal settings; application of theories of origin, functions of religion in human affairs. Same as 113:142.
- 032:167 Islamic Ethics and Philosophy** 3 s.h.
Islamic philosophical and ethical thought through critical reading of works by Ibn Sina, al-Ghazzali, and Ibn Rush, and secondary sources that discuss the work of these thinkers. Taught in English. Recommended: Islamic course work.
- 032:168 Religion and Politics in the Muslim World** 3 s.h.
Religion and politics, their influence on our understanding of the modern Muslim world's development; hazy line between religion and politics; how Islam as a religious ideal often permeates every aspect of society, especially governance.
- 032:169 Quest III: Heroes, Lovers, and Knaves** 3 s.h.
Tension between Paganism and the Bible regarding heroism and eroticism; the Song of Songs, stories of Rachel, Samson, Saul, Bathsheba; Plato's *Symposium*, Hemingway's *The Snows of Kilimanjaro*, Salinger's *For Esme with Love and Squalor*, *The Highlander*, *The Matrix*, *Bridget Jones' Diary*; unmasking knaves to truly appreciate heroes and lovers.
- 032:170 Topics in Asian Religions** 3 s.h.
- 032:171 Indian Religious Texts** 3 s.h.
Same as 039:163.
- 032:172 Comparative Ritual** 3 s.h.
Practice and theory; rituals from religions, including Hinduism, Buddhism, Christianity, Indian religions; theories of interpretation. Same as 039:172.
- 032:174 Indian Philosophy** 3 s.h.
Same as 026:144.
- 032:175 Buddhist Philosophy** 3 s.h.
Same as 026:145.
- 032:177 Indian Literature** 3 s.h.
Same as 039:136.
- 032:178 East Meets West: The Western Reception of Eastern Religion** 3 s.h.
Introduction of religious ideas and forms from India, China, and Japan into Europe and America to late 20th century, from Greeks to New Age. Same as 039:188.
- 032:186 The Literature of Daoism** 3 s.h.
Same as 039:140.
- 032:187 Monks, Merchants, and Samurai** 3 s.h.
Major trends in culture and thought of Japan's early modern period (1600-1868), including developments in dramatic and visual arts, popularization of Buddhism, debates among Confucian scholars, merchant culture, "the way of the samurai," and rise of proto-nationalist ideas in the second half of the period. Same as 16W:177, 39J:187.
- 032:188 Zen Buddhism** 3 s.h.
Same as 039:170.
- 032:192 Traditions of Religious Reform** 3 s.h.
Same as 016:192.
- 032:195 Individual Study: Undergraduates** arr.
- 032:196 Senior Majors Seminar** 3 s.h.
Issues central to academic study of religion.
- 032:197 Honors Tutorial** 2-3 s.h.
- 032:198 Honors Essay** 2-4 s.h.
- 032:201 Teaching Religious Studies** 3 s.h.
Teaching methods, course development, examination construction.
- 032:202 Asian Religious Traditions** 3 s.h.
- 032:203 Western Religious Traditions** 3 s.h.
- 032:205 Methods and Theories in the Study of Religion** 3 s.h.
Principal methods, theories in academic study of religion.
- 032:208 Asian Religions Colloquium** 3 s.h.
- 032:213 Seminar: American Religious Thought** arr.
Same as 016:275.
- 032:214 Seminar: Puritanism** arr.
Same as 016:276.
- 032:222 Seminar in Historical Theology** 3 s.h.
- 032:223 Seminar: Reformation Culture and Theology** arr.
Culture and theology of 16th-century Europe. Same as 016:223.
- 032:224 Seminar: Contemporary Theology** arr.
Ricoeur's hermeneutics.

032:225 Seminar in Religion and Politics	3 s.h.
Issues at the intersection of religion and politics; may include comparative study of theological and philosophical approaches to politics, nature and purposes of law, ethics of war, human rights; topics vary.	
032:226 Seminar: Religious Ethics	3 s.h.
032:227 Nonprofit Organizational Effectiveness I	3 s.h.
Same as 06J:247, 021:263, 024:247, 028:257, 042:247, 091:320, 174:247.	
032:228 Nonprofit Organizational Effectiveness II	3 s.h.
Same as 06J:248, 021:265, 024:248, 028:258, 042:248, 091:322, 174:248.	
032:231 Seminar: Religion and Society	3 s.h.
032:237 Seminar: East Asian Religion	3 s.h.
Emphasis on China and/or Japan. Same as 039:237.	
032:243 Religion and the Arts	3 s.h.
Repeatable.	
032:261 Readings in American Religions	arr.
032:262 Readings in History of Christianity	arr.
Repeatable.	
032:263 Readings in Theology and Religious Thought	arr.
Repeatable.	
032:264 Readings in Religious Ethics	arr.
Repeatable.	
032:265 Readings in Asian Religions	arr.
Repeatable. Same as 039:265.	
032:266 Readings in Classical Arabic	3 s.h.
Repeatable.	
032:290 Individual Study: Graduates	arr.
Repeatable.	
032:291 Thesis	arr.
Repeatable.	

Rhetoric

Chair: Mary Trachsel

Professors emeriti: Donovan J. Ochs, Douglas M. Trank

Visiting professor: Donald Lazere

Associate professors: Daniel M. Gross, Dennis M. Moore, Takis Poulakos, Carol Severino, Mary Trachsel

Associate professors emeriti: Lou Kelly, Gene H.

Krupa, Lois B. Muehl

Assistant professors: Aimee Carrillo Rowe, Bridget Harris Tsemo, Vershawn Young

Lecturers: Patrick Dolan, Will Jennings, Megan Knight, Cinda Coggins Mosher

Web site: <http://www.uiowa.edu/~rhetoric>

The Department of Rhetoric offers courses that complete the College of Liberal Arts and Sciences General Education Program rhetoric component and provides individual instruction in its Writing Center and Speaking Center. It also offers other undergraduate courses and graduate seminars.

Students interested in continued study of rhetoric once they have completed the rhetoric component of the General Education Program may enroll in upper division rhetoric courses. Many of these are cross-referenced with and may be used toward majors in other academic departments at the University.

Graduate students in many disciplines, including American studies, anthropology, communication studies, comparative literature, classics, English, history, journalism, political science, and others, may find rhetoric courses valuable to their program of study.

General Education Courses

General Education courses in rhetoric help students

- read with understanding and enjoyment, and write and speak about reading with personal authority and analytical skill;
- use writing and speaking to discover and explain, question and defend positions in a controversy;
- take into account fundamental rhetorical concepts such as audience, purpose, and appropriateness in discussing controversies and in devising effective communication.

All undergraduates—including transfer students—must complete the rhetoric component of the General Education Program in one of the following ways:

pass 010:001 Rhetoric I and 010:002 Rhetoric II (total of 8 s.h.);

pass 010:003 Accelerated Rhetoric (4 s.h.);

earn credit through the AP program and pass 010:003 Accelerated Rhetoric (4 s.h.);

transfer 3 s.h. of credit in an expository writing course and pass 010:003 Accelerated Rhetoric (4 s.h.);

transfer 3 s.h. of credit in a public speaking course and pass 010:003 Accelerated Rhetoric (4 s.h.);

transfer 3 s.h. of credit in an expository writing course and 3 s.h. of credit in a public speaking course and pass 010:004 Writing and Reading (3 s.h.); or

transfer 6 s.h. of credit in two expository writing courses and pass 010:006 Speaking and Reading (3 s.h.).

During their first year at the University, students should enroll in the rhetoric course indicated on their degree evaluations (unless a delay is required). Students must enroll in a rhetoric course during their first year and each semester thereafter until the requirement has been satisfied. Students must complete all required English as a Second Language (ESL) prerequisites before registering for any rhetoric course.

Placement is ordinarily determined by scores on the ACT, SAT, or Advanced Placement English Language Exam, and any available transfer credit. Students who question their placement should bring their degree evaluations and their ACT or SAT scores to the Department of Rhetoric office during registration.

Students who have undergone formal evaluation by Student Disability Services and are found to be learning disabled in reading, writing, or speaking should request reasonable accommodations in order to complete rhetoric. Accommodations may be arranged by Student Disability Services in consultation with the Department of Rhetoric and individual instructors.

Satisfactory completion of rhetoric is a prerequisite for the General Education Program course 08G:001 The Interpretation of Literature.

Courses

For Undergraduates

General Education

010:001 Rhetoric I 4 s.h.

First semester of a two-semester sequenced course; speaking, writing, and critical reading, with emphasis on controversy, competence in researching, analyzing, organizing, and presenting diverse points of view, and in adapting discourse to readers and listeners. GE: rhetoric.

010:002 Rhetoric II 4 s.h.

Second semester of a two-semester sequenced course; speaking, writing, research, and critical reading, with emphasis on advocacy. GE: rhetoric.

010:003 Accelerated Rhetoric 4 s.h.

Combines 010:001 and 010:002 into a one-semester accelerated course. Placement based on ACT or AP scores. GE: rhetoric.

010:004 Writing and Reading 3 s.h.

Writing portion of the accelerated course 010:003; introductory course in writing required of students who have completed a college-level public speaking course but have not had an equivalent college or university writing course or earned exemption by receiving a score of 4 or higher on the Advanced Placement English Language Exam. GE: rhetoric. Prerequisite: completion of speaking requirement.

010:006 Speaking and Reading 3 s.h.

Speaking portion of the accelerated course 010:003; introductory course in speaking required of students who have completed a college-level writing course but have not had an equivalent college or university speaking course; intended to improve speaking, listening, critical, analytical, and advocacy skills. GE: rhetoric. Prerequisite: completion of writing requirement.

Other Courses

010:009 Individual Instruction in Writing 2 s.h.

Focus on needs, interests of student. Prerequisites: consent of Writing Center director; closed to students who have completed the rhetoric requirement.

The following rhetoric courses are offered on a three-year cycle and more frequently when possible.

010:020 Academic Seminar I 3 s.h.

IowaLink seminar. Prerequisite: first-year standing.

010:021 Academic Seminar II 3 s.h.

IowaLink seminar. Prerequisite: first-year standing.

010:029 First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

For Undergraduate and Graduate Students

010:128 Racial Narrative and American Performance 3 s.h.

Same as 048:128, 129:128.

010:131 Classical Rhetoric and Greek Culture 3 s.h.

Origins, development of the art of rhetoric from Sophists to Aristotle; significance to Greek culture from fifth to fourth century B.C. GE: humanities. Same as 036:143.

010:132 African American Literary/Rhetorical Criticism I 3 s.h.

Same as 008:160, 129:130.

010:133 African American Literary/Rhetorical Criticism II 3 s.h.

Same as 008:166, 129:131, 160:162.

010:141 Rhetoric and Past Public Controversy 3 s.h.

Role of rhetoric in public controversy in particular historical time periods; focus on various perspectives, diverse voices, and multiple arguments informing particular movements/issues. GE: historical perspectives. Same as 036:158.

010:150 U.S. Latino/a Cultural Studies 3 s.h.

Same as 610:150.

010:160 Issues in Rhetoric and Culture 3 s.h.

Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Same as 008:181, 036:146, 160:160.

010:198 Special Projects for Undergraduates arr.

010:199 Special Projects arr.

For Graduate Students

010:201 Foundations for Feminist Inquiry II 3 s.h.

Prerequisite: consent of instructor. Same as 036:316, 131:201.

010:230 Rhetorical Criticism 3 s.h.

Approaches to rhetorical analysis of communicative artifacts, acts, events, rhetorical-critical essay writing. Same as 036:220.

010:243 Feminist Cultural Studies 3 s.h.

Same as 008:243, 036:222, 131:243.

010:264 Postcolonial Feminist Theory 3 s.h.

Same as 131:264, 160:280.

010:275 Topics in Second Language Acquisition: Writing 3 s.h.

Theory, research, pedagogy, and assessment in second-language writing. Same as 035:227, 164:227.

010:301 Classical Rhetoric 2-4 s.h.

Discourse in the ancient world. Same as 008:267, 20E:230, 036:310.

010:330 Issues in the History of Rhetoric 3 s.h.

Rhetorical history and historiography.

010:332 Critical Ethnography 3 s.h.

How power relations constitute the work of ethnographic research; ethnography as a rhetorical form—how ethnographic inscription renders self, other, culture, and the world intelligible in ways that reinscribe and/or challenge dominant social relations; axes of power such as race, class, gender, sexuality, and nation within postcolonial, feminist, and antiracist approaches to

ethnographic/autoethnographic theory and praxis; negotiating researcher privilege and epistemic violence; crisis of representation. Same as 036:378, 160:332.

010:340 Current Issues in Rhetoric 3 s.h.

Ethical, social, or cultural issues; rhetoric's role in their contemporary significance; traditional aspects of rhetoric, their pertinence to present concerns. Same as 008:315, 036:317, 160:340.

010:350 Colloquium: Teaching Rhetoric arr.

010:360 Issues in Rhetoric and Culture 3 s.h.

Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Repeatable. Same as 008:263, 160:360.

010:375 Teaching in a Writing Center 3 s.h.

Seminar/practicum to prepare graduate students to teach in The University of Iowa Writing Center or similar settings; seminar component on writing and reading processes, tutoring strategies, English-as-a-Second-Language issues; practicum experience tutoring in the Writing Center. Same as 08N:375.

010:550 Special Project for Graduate Students arr.

010:600 Seminar in Rhetorical Theory 1-4 s.h.

Same as 036:336.

Russian

Chair: Philip Lutgendorf

Professor: Margaret H. Mills

Professors emeriti: Vadim Kreyd, Norman Luxenburg, Ray J. Parrott Jr., Helene A. Scriabine, Harry B. Weber

Associate professor: Russell Valentino

Associate professor emeritus: Christopher A. Wertz

Assistant professor emerita: Miriam J. Gelfand

Lecturers: Irina Kostina, Jitka Sonkova

Undergraduate degree: B.A. in Russian

Undergraduate nondegree program: Minor in Russian

Graduate degree: M.A. in Russian

Web site: <http://www.uiowa.edu/~russian>

The Russian program trains students in both written and spoken Russian and in Russian literature. It also provides them with an understanding and appreciation of Russian culture. A knowledge of Russian is seldom an end in itself; rather it complements another endeavor. Accordingly, the program strongly encourages students to pursue a joint major and to develop their interests in related or complementary fields.

Many students combine a major in Russian with a second major in another field, such as linguistics, history, global health, political science, or international studies.

Through the University's Bachelor of Arts in international studies, interested students can focus their undergraduate training on a broader interdisciplinary understanding of this region of the world. For more information see International Studies in the Catalog.

With the continued importance of Russian as a language of science and commerce, many students find that training in the language is an important asset to careers in the natural and physical sciences, engineering, medicine, and business. Students of journalism, library science, and the social and military sciences also have strengthened their career preparation through the study of Russian. Some students major in Russian before going into law, international relations, or another profession; others study Russian as preparation for graduate work in Slavic languages and literatures, comparative literature, English, or other humanistic disciplines.

Russian majors with a B.A. and the required education courses occasionally seek teaching careers in secondary schools; for description of

relevant teacher preparation programs, see Teaching and Learning (College of Education) in the Catalog.

A number of governmental agencies are interested in job candidates who have advanced training in Russian; these agencies give preference to applicants who couple strong language proficiency with a well-rounded background in area studies. Students who develop an exceptional facility with the language may pursue careers in literary and technical translation and interpretation.

Undergraduate Program

The department offers a Bachelor of Arts in Russian and a minor in Russian.

Bachelor of Arts

The Bachelor of Arts in Russian requires 31 s.h. in the major, earned in advanced Russian courses. B.A. students also must satisfy the College of Liberal Arts and Sciences general degree requirements, including completion of the General Education Program.

The major in Russian requires the following courses.

One of these:

041:109 Beginning Composition and Conversation I 4 s.h.

041:110 Beginning Composition and Conversation II 4 s.h.

Both of these sequences:

041:111-041:112 Third-Year Russian I-II 8 s.h.

041:113-041:114 Fourth-Year Russian I-II 8 s.h.

*Four of these (Russian/East European culture):

041:098 Introduction to Russian Culture 3 s.h.

041:099 Russia Today 3 s.h.

041:100 Russian Literature in Film 3 s.h.

041:102 Russian Literature in Translation 1860-1917 3 s.h.

041:103 Russian Literature since 1917 3 s.h.

041:104 Health Care and Health Reforms in Russia 3 s.h.

041:126 Cult Films of the Last Soviet Generation 3 s.h.

041:147 Czech Post-World War II Society and Political History	3 s.h.
041:155 Tolstoy and Dostoevsky	3 s.h.
041:156 Invitation to Nabokov	3 s.h.
041:160 Women in Russian Society	3 s.h.
041:164 Topics in Russian, East European, and Eurasian Studies	arr.
041:168 Twentieth-Century Czech Authors	3 s.h.
041:187 Russian Language and Civilization	3 s.h.
041:188 Topics in Russian Language and Civilization II	3 s.h.

*Students may substitute one of the following Slavic language two-course sequences for one of the four required Russian/East European culture courses (see list above). Availability of Croatian and Polish language courses varies.

041:121-041:122 First-Year Polish I-II	8 s.h.
041:123-041:124 Second-Year Polish I-II	8 s.h.
041:141-041:142 First-Year Czech I-II	8 s.h.
041:143-041:144 Second-Year Czech I-II	8 s.h.
041:181-041:182 First-Year Croatian I-II	arr.
041:183-041:184 Second-Year Croatian I-II	8 s.h.

Students majoring in Russian are urged to choose elective courses in economics, geography, history, political science, global health, and international studies. Nearly every avenue of professional training and employment requires a solid background in Russian area studies. For example, criteria for U.S. government employment include substantive knowledge in history, economics, political science, sociological disciplines, scientific specialties, demography, military-related skills, and in some cases cultural and religious background. In-depth knowledge of literature or linguistics without other substantive background may be of limited practical use in gaining employment.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins:

competence in first-year Russian and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: competence in second-year Russian and at least one-half of the semester hours required for graduation

Before the seventh semester begins:

competence in third-year Russian, an additional course in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester: competence in fourth-year Russian and two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Russian majors with junior or senior standing, a g.p.a. of at least 3.33 in Russian, and a cumulative University of Iowa g.p.a. of at least 3.33 may enroll in the honors program in Russian. An extensive reading program with discussions, regular reports, and a semester paper constitute each honors work unit of 3 s.h. Students may take up to 9 s.h. of honors in Russian.

Contact the University Honors Program for more information about honors study at Iowa.

Minor

A minor in Russian requires 15 s.h. with a g.p.a. of at least 2.00. Of the 15 s.h., 12 must be taken at The University of Iowa in advanced courses. The program recommends that students seeking a minor in Russian focus their preparation on 100-level courses, such as the sequences 041:109 and 041:110, 041:111 and 041:112, and 041:113 and 041:114. Up to 3 s.h. in courses taught exclusively in English may be counted toward the minor.

Elementary and Secondary Teaching Licensure

Russian majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in Russian and must be admitted to the College of Education's foreign language Teacher Education Program. Several courses in the College of Education are required, as is one semester of student teaching in the senior year. All students in the program have the option of earning a K-12 endorsement to teach Russian, along with the bachelor's degree. For information about the foreign languages Teacher Education Program and graduate programs in foreign language education, contact the Department of Teaching and Learning.

Students who plan to use a Russian minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements.

Language for Nonmajors

The program offers a sequence of courses that may be used to complete the College of Liberal Arts and Sciences General Education Program. Students who have had experience with Russian should take the Russian Foreign Language Placement Test, offered during summer orientation programs and monthly by Evaluation and Examination Service. The test helps determine the level at which a student should begin Russian language study at The University of Iowa. Students with no background in Russian should begin their study with 041:001. The sequence 041:001, 041:002, 041:003, and 041:004 can be used to complete the General Education Program foreign language component. The Russian program also offers course work in several East European languages, including Czech, Croatian, and Polish.

Graduate Program

The Department of Russian is not accepting graduate students in 2006-07.

Summer and Study Abroad Programs

The program strongly encourages students to participate in intensive programs of language study, both in the United States and in Russia. University of Iowa students participate in summer, semester, or academic year programs under the auspices of the American Council of Teachers of Russian (ACTR), the association that directs academic language training programs in the Russian cities of Moscow, St. Petersburg, and Vladimir.

Before they study abroad, many students advance and refine their Russian language skills in various intensive summer programs at major American universities, including The University of Iowa. Inquiries should be directed to the Russian program.

Course Work for Nonmajors

A number of classes are open to all University students and are offered in English. These include survey courses in Russian literature and

culture, a monograph course on Tolstoy and Dostoevsky, and courses on women in Russian society, Russia today, and Russian civilization and folklore.

Special Activities

The International Crossroads Community is located in Hillcrest Residence Hall. It welcomes both American and international students who wish to broaden their knowledge of international issues and foreign languages and cultures. Its programs, designed for students of Russian as well as other languages, include weekly language dinners with students and faculty, public festivals and celebrations of cultural holidays, educational presentations on topics such as study abroad and international careers, and music and theater performances.

Language Media Center

The University's Language Media Center provides facilities for language learning, teaching, and research. Equipment in the center includes state-of-the-art computer, audio, and video facilities as well as standard and short-wave radios, tape and cassette recorders, record players, and soundproof recording rooms. An electronic classroom, a soundproof workroom, and a library of tape, disc, and cassette recordings also are available.

Courses

For Undergraduate and Graduate Students

041:001 First-Year Russian I 4 s.h.
Basic language skills of listening, speaking, reading, and writing; fundamentals of Russian grammar. GE: foreign language.

041:002 First-Year Russian II 4 s.h.
Continuation of 041:001. GE: foreign language. Prerequisite: 041:001.

041:003 Second-Year Russian I 4 s.h.
Transition to upper-level study through oral practice, grammar exercises, tapes, videos, readings from the Russian press. GE: foreign language. Prerequisite: 041:002 or equivalent.

041:004 Second-Year Russian II 4 s.h.
Continuation of 041:003. GE: foreign language. Prerequisite: 041:003.

041:098 Introduction to Russian Culture 3 s.h.
Development of cultural history in Russia from middle ages to present; painting, music architecture, literature viewed against their political, historical, and social settings. Taught in English. GE: foreign civilization and culture.

- 041:099 Russia Today** 3 s.h.
Contemporary Russia, with focus on prevailing social, political, economic, ethnic, environmental conditions; attention to historical evolution of problems, current factors; what these factors might portend for the future. Taught in English. GE: foreign civilization and culture.
- 041:100 Russian Literature in Film** 3 s.h.
Transposition between the media of literature and film.
- 041:102 Russian Literature in Translation 1860-1917** 3 s.h.
Focus on large-form novel and rebirth of short-form fiction, drama, and Symbolist novel in the Silver Age; Tolstoy, Saltykov-Shchedrin, Chekhov, Gorky, Bunin, Bely. Taught in English. GE: humanities. Same as 048:107.
- 041:103 Russian Literature since 1917** 3 s.h.
Major writers, themes, genres, movements associated with post-1917 Russian literature, especially the literary ferment of the 1920s; regimentation of literary expression from the early 1930s to Stalin's death; major trends in post-Stalin literature. Taught in English.
- 041:104 Health Care and Health Reforms in Russia** 3 s.h.
Societal changes and their continuing effect on the Russian health care system since 1991; guest lectures from public health, nursing, medicine, cultural anthropology. Same as 152:170.
- 041:108 Special Readings** arr.
Russian-language materials determined by student and instructor. Prerequisite: 16 s.h. of Russian language instruction.
- 041:109 Beginning Composition and Conversation I** 4 s.h.
Oral/aural skills developed through idiomatic usage, stylistics, phonetics, intonation, grammar review; supplemented by short stories, newspaper texts. Taught in Russian. Prerequisite: 041:004.
- 041:110 Beginning Composition and Conversation II** 4 s.h.
Oral-aural skills developed through idiomatic usage, stylistics, phonetics, intonation, grammar review; supplemented by short stories, conversation handbooks, current periodicals. Taught in Russian. Prerequisite: 041:004.
- 041:111 Third-Year Russian I** 4 s.h.
Advanced grammar, reading, conversation, and written skills through oral reports, compositions, conversation. Prerequisite: 041:004 or equivalent.
- 041:112 Third-Year Russian II** 4 s.h.
Advanced grammar, reading, conversation, and written skills through oral reports, compositions, conversation. Prerequisite: 041:111 or equivalent.
- 041:113 Fourth-Year Russian I** 4 s.h.
Perfecting spoken Russian and aural comprehension of native speech. Taught in Russian. Prerequisite: 041:112 or three years of college-level Russian or equivalent.
- 041:114 Fourth-Year Russian II** 4 s.h.
Perfecting spoken Russian and aural comprehension of native speech. Taught in Russian. Prerequisite: 041:113 or three years of college-level Russian or equivalent.
- 041:115 Literary Genres in European Literature II** 3 s.h.
Literary realism. Same as 008:126, 048:115.
- 041:121 First-Year Polish I** 4 s.h.
Basic language skills—listening, reading, speaking, writing; fundamentals of grammar; emphasis on student participation; first of a two-semester sequence.
- 041:122 First-Year Polish II** 4 s.h.
Continuation of 041:121. Prerequisite: 041:121.
- 041:123 Second-Year Polish I** 4 s.h.
Proficiency in vocabulary and grammatical foundations of elementary Polish; use and recognition of oral, aural, written, and reading language skills. Prerequisite: 041:122.
- 041:124 Second-Year Polish II** 4 s.h.
Continuation of 041:123. Prerequisite: 041:123.
- 041:125 Third-Year Polish I** 3 s.h.
Advanced language skills—listening, speaking, reading, writing; advanced grammar; emphasis on student participation; first of a two-semester sequence. Prerequisite: 041:124 or equivalent.
- 041:126 Cult Films of the Last Soviet Generation** 3 s.h.
Same as 048:126.
- 041:127 Third-Year Polish II** 3 s.h.
Continuation of 041:125. Prerequisites: 041:125 or equivalent; closed to heritage speakers.
- 041:135 Fourth-Year Polish I** 3 s.h.
Comprehensive advanced Polish; reading, listening, speaking, writing skills. Prerequisite: 041:127 or equivalent.
- 041:136 Fourth-Year Polish II** 3 s.h.
Continuation of 041:135. Prerequisite: 041:135 or equivalent.
- 041:141 First-Year Czech I** 4 s.h.
Basic language skills—listening, reading, speaking, writing; fundamentals of grammar; emphasis on student participation; first of a two-semester sequence.
- 041:142 First-Year Czech II** 4 s.h.
Continuation of 041:141. Prerequisite: 041:141.
- 041:143 Second-Year Czech I** 4 s.h.
Proficiency building in vocabulary and grammatical foundations of elementary Czech; use and recognition of oral, aural, written, and reading language skills. Prerequisite: 041:142 or equivalent.
- 041:144 Second-Year Czech II** 4 s.h.
Continuation of 041:143. Prerequisite: 041:143.
- 041:147 Czech Post-World War II Society and Political History** 3 s.h.
Survey of post-World War II social and political history, focusing on major events such as World War II, Prague Spring, and Velvet Revolution, from Czech and non-Czech perspectives; history, literature, and selected documentary and feature films. Taught in English.
- 041:155 Tolstoy and Dostoevsky** 3-4 s.h.
Tolstoy's *War and Peace*, *Anna Karenina*; Dostoevsky's *Crime and Punishment*, *The Brothers Karamazov*, and short stories. Taught in English. Same as 008:155.
- 041:156 Invitation to Nabokov** 3 s.h.
Nabokov's works and his writings on Russian literature. Same as 008:156, 048:156.
- 041:160 Women in Russian Society** 3 s.h.
Historical developments that have shaped women's role in contemporary Russian society; readings in cultural history, political science, autobiographical and fictional literature, contemporary film. Taught in English.
- 041:164 Topics in Russian, East European, and Eurasian Studies** arr.
Same as 048:164.
- 041:166 The Invisible Woman** 3 s.h.
Pre- and post-1989 roles of women in three Central and East European countries; approaches from the social sciences and humanities. Same as 131:166.
- 041:168 Twentieth-Century Czech Authors** 3 s.h.
Twentieth-century prose literature of Czechoslovakia; philosophical works of Capek, Hrabal, Kundera, Klima, Havel. Taught in English. Same as 048:154.

041:171 First-Year Uzbek I	4 s.h.
Reading, listening, speaking, writing.	
041:172 First-Year Uzbek II	4 s.h.
Continuation of 041:171. Prerequisite: 041:171 or consent of instructor.	
041:180 Literature and Translation	3 s.h.
Same as 048:180, 160:180.	
041:181 First-Year Croatian I	arr.
Basic language skills—listening, reading, speaking, writing; fundamentals of grammar; emphasis on student participation; first of a two-semester sequence.	
041:182 First-Year Croatian II	arr.
Continuation of 041:181. Prerequisite: 041:181.	
041:183 Second-Year Croatian I	4 s.h.
Continuation of 041:182. Proficiency in vocabulary and grammatical foundations of understanding, speaking, reading, and writing Croatian (Bosnian, Serbian). Prerequisite: 041:182 or equivalent.	
041:184 Second-Year Croatian II	4 s.h.
Continuation of 041:183. Basic grammatical forms; practice listening, speaking, and writing Croatian (Bosnian, Serbian). Prerequisite: 041:183 or equivalent.	
041:187 Russian Language and Civilization	3 s.h.
Five periods of Russian language and civilization: Old Slavs and Eastern Slavs, Christianity in Russia, Tartar period, Moscow period, St. Petersburg period; historical, language, and literary analysis of each period.	
041:188 Topics in Russian Language and Civilization II	3 s.h.
Orthodoxy.	
041:190 Readings in Russian Literature	3 s.h.
Readings of poetry and prose by Russian authors. Prerequisite: third-year Russian.	
041:199 Honors	arr.
Prerequisite: consent of program coordinator.	

Primarily for Graduate Students

041:234 Principles of Teaching and Learning Foreign Languages	3 s.h.
Prerequisite: consent of instructor. Same as 009:234, 013:221, 039:234.	
041:276 Seminar: Russian Linguistics	3 s.h.
May include Russian morphosyntax, colloquial Russian, Russian pragmatics, Slavic gender linguistics.	
041:279 Independent Research	arr.
Directed study. Prerequisite: consent of instructor.	

Social Work

Director: Edward J. Saunders

Professors: Lorraine Dorfman, Jim Hall
(Pediatrics/Social Work/Community and Behavioral Health)

Professors emeriti: H. Wayne Johnson, Patricia L. Kelley, Thomas H. Walz

Adjunct professor: Kevin Concannon

Associate professors: Amy Butler, Carol Cooney, Carolyn Hartley, Susan Murty, Salome Raheim, Edward J. Saunders

Associate professor emeritus: William M. Theisen

Adjunct associate professors: Lois Braverman, Rita Melissano, Brad Richardson

Clinical associate professors: Robert Jackson, Judith Rinehart

Assistant professors: Mercedes Bern-Klug, Miriam Landsman, Pamela Noel, Sara Sanders, Jeanne Saunders

Assistant professor emerita: B. Eleanor Anstey

Adjunct assistant professors: Larry Allen, Mike Bandstra, Greg Jensen, Paul Lambakis, Mari Samuelson, Stephen Trefz, Frank Ware

Clinical assistant professors: Yvonne Farley, M. Billie Marchik, Julia Rembert, Robert Vander Beek

Adjunct instructors: Susan Ackelson, Ed Barnes, Margaret Bessman-Quintero, Nancee Blum, Jean Boger, Varetta Braden, Lois Buntz, John-Paul Chaisson-Cardenas, Jim Clark, Lance Clemens, Amy Correia, Melissa Cross, Stephen Cummings, Raygena Curry, Suzanne Dell, Monique DiCarlo, Schael Engel, Sr. Shirley Fineran, Judy Foote, Robert Freeman, Joel Fry, Dan Grinstead, Sandra Hecht, Barbara Hirsch-Giller, William Hood, Brandy Koller, Sandra McGee, Kathryn McKinley, Barbara Mechtenberg-Ruffinot, Lynn Meincke-Wohlers, Ron Mirr, Pam Moore, Karen Mullin, Mary Newcomb, Greg Nooney, Alison Oliver, Sarah Oliver, Loni Parrott, Kathleen Ruyle, Elizabeth Smith, Mark Smith, Diane Sonnevill, Scott Stange, Joy Sutter, Eileen Swoboda, Ellen Szabo, Michael Thompson, Diane Tonkyn, Molly Twohig, Pamela Valera, Kristine Warford, Ross Wilburn, Brian Wilkes, Barbara Willoughby, Carol Winetroub, Sue Witte, Joel Wulf, Joanne Young

Undergraduate degree: B.A. in Social Work

Undergraduate nondegree program: Minor in Social Work

Graduate degrees: M.S.W., Ph.D.

Web site: <http://www.uiowa.edu/~socialwk>

The School of Social Work builds knowledge about social welfare issues, policies, and practice interventions and integrates that knowledge into teaching and public service. It promotes the application of theories and practice approaches to development, implementation, and evaluation of social welfare policy and practice with vulnerable populations, especially children and the elderly.

Using family-centered and community-based practice approaches, the school prepares social work scholars and practitioners with a commitment to social justice and social work values and ethics.

The school provides a program of professional training accredited by the Council on Social Work Education at the baccalaureate and master's levels, aimed at developing effective intervention in multiple systems and using professional social work values and ethics. It also offers a Ph.D. program, which prepares students to conduct research that contributes to the knowledge base of social work, to be leaders in setting policy and practice, and to teach in colleges and universities.

Undergraduate Program

The B.A. program prepares students for beginning professional social work practice as generalists. Graduates find employment in public and private social services in home and community-based settings such as public welfare, child welfare, health, mental health, elderly services, and corrections. They are equipped to be informed community participants in social welfare issues.

Social work students are challenged to excel academically, think analytically, and apply theory to practice, in preparation for continuing their education at the graduate level.

Selective Admission

The School of Social Work seeks to maintain a heterogeneous student body by enrolling students who represent diverse backgrounds and cultural perspectives.

A limited number of students are admitted to the major. The application deadline is March 1. Admission to the undergraduate program in social work requires:

completion of 042:022 Introduction to Social Work with a grade of C or higher (should be taken the sophomore year);

a cumulative g.p.a. of at least 2.50 (exceptions may be made for persons who do not meet the grade-point average requirement if they are

strong candidates on the basis of other criteria); and
 completion of application forms and statement.

Meeting these requirements does not guarantee admission. Admission often is limited by available instructional resources and opportunities for field placement.

For more information about admission policies, contact the School of Social Work undergraduate coordinator or admissions coordinator.

Bachelor of Arts

The B.A. in social work requires 35 s.h. in the major. Students must complete 042:022 Introduction to Social Work (4 s.h.) before enrolling in the remaining 31 s.h. required for the major. Students must complete the College of Liberal Arts and Sciences General Education Program. Many students complete the required course 002:021 Human Biology as part of the General Education Program. The minimum requirements for a B.A. in social work include the following.

002:021 Human Biology	4 s.h.
Social work courses (begins with 042:022 Introduction to Social Work and culminates with a field experience)	35 s.h.
Concentration area courses (see list of areas)	12 s.h.
Social science courses (12-14 s.h.):	
030:001 Introduction to American Politics	3 s.h.
031:001 Elementary Psychology	3 s.h.
034:001 Introduction to Sociology: Principles	3-4 s.h.
One of these social science or quantitative studies elective courses:	
06E:001 Principles of Microeconomics	4 s.h.
06E:002 Principles of Macroeconomics	4 s.h.
22S:002 Statistics and Society	3 s.h.
22S:025 Elementary Statistics and Inference	3 s.h.
113:003 Introduction to the Study of Culture and Society	3 s.h.
113:010 Anthropology and Contemporary World Problems	3 s.h.

The school recommends that required course work be taken in the following sequence. Most social work courses are offered only once each year.

FIRST AND SECOND YEARS

002:021 Human Biology	4 s.h.
030:001 Introduction to American Politics	3 s.h.

031:001 Elementary Psychology	3 s.h.
034:001 Introduction to Sociology: Principles	3-4 s.h.
042:022 Introduction to Social Work	4 s.h.
One social science or quantitative elective course	3-4 s.h.

THIRD YEAR

042:140 Human Behavior in the Social Environment	4 s.h.
042:144 Introduction to Social Work Research	4 s.h.
042:147 Discrimination, Oppression, and Diversity	3 s.h.
042:171 Social Work Processes	3 s.h.

FOURTH YEAR

042:141 Fundamentals of Social Work Practice	3 s.h.
042:142 Interpersonal Skills Laboratory	2 s.h.
042:143 Social Welfare Policy and Practice	3 s.h.
042:189 Field Experience Seminar	1 s.h.
042:193 Field Experience	8-11 s.h.

CONCENTRATION AREA

The undergraduate program requires a minimum of 12 s.h. of course work in one of the concentration areas listed below. Most students choose either sociology or psychology as their concentration. Students who wish to meet this requirement in an area not listed must present a written request and rationale to the faculty advisor and undergraduate coordinator. Courses used to complete the General Education Program do not count toward the 12 s.h., nor do courses used to satisfy other requirements of the B.A. in social work.

- African American studies
- Aging studies
- American studies
- Anthropology
- Business
- Communication studies
- Economics
- Education
- English
- Health and sport studies
- History
- Journalism and mass communication
- Leisure studies
- Political science
- Psychology
- Religious studies
- Sociology
- Spanish
- Women's studies

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Admission to the major in social work is selective. The four-year graduation plan applies only to students who are admitted by the beginning of their fifth semester.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 042:022, four courses that can be applied to the major (may include concentration area courses), admission to the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: six more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: four or five more courses in the major and finalized field placement

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The School of Social Work has an honors program leading to a Bachelor of Arts with honors in social work. A cumulative University of Iowa g.p.a. of at least 3.33 is required for participation in the program, which enables students to do in-depth study in subjects that interest them.

Contact the University Honors Program for more information on honors study at Iowa.

Minor

Students pursuing a minor in social work must complete 042:022 Introduction to Social Work (or for transfer students, an equivalent course from another institution); maintain a g.p.a. of at least 2.00; and earn at least 12 s.h. in University of Iowa social work courses numbered 042:100 and above. Contact the B.A. coordinator for more information.

Graduate Programs

The school offers two graduate degrees: the Master of Social Work and Doctor of Philosophy in social work.

Master of Social Work

The Master of Social Work prepares social workers for leadership in the profession and for advanced social work practice in one of two concentrations. The program's general focus is on family systems and social change, both domestic and international.

The school offers the M.S.W. program at Des Moines, the Quad Cities, and Sioux City, as well as Iowa City. Each site provides a structured sequence of courses as well as opportunities for individualized plans of study. All sites give students access to the wealth of resources of a Research 1 University. The program's two concentrations—family-centered practice and integrated practice—offer students knowledge and skills for working with children, elders, families, small groups, organizations, and communities. Students have the opportunity to develop competencies necessary for leadership in addressing unique social work challenges of the State of Iowa, including a high proportion of elders, recent immigrants to rural communities, and rural poverty.

The M.S.W. requires 60 s.h., including 25 s.h. earned in foundation-level courses and 35 s.h. in advanced courses. Students who hold an undergraduate degree from a Council on Social Work Education program earn the master's degree with 48 s.h. All students must earn a minimum of 36 s.h. after admission to the M.S.W. program.

Students may be allowed 9 to 12 s.h. of graduate transfer credit for previous graduate work.

The school operates a year-round, sequenced graduate program that begins in the fall semester for full-time students who require the full 60 s.h. The program continues through the summer, which is a full semester. Full-time students generally earn the M.S.W. the spring semester of their second year. Those who require 48 s.h. have the option of enrolling full-time or part-time their first semester.

Full-time study and a four-year part-time program are available in Iowa City and Des Moines. A three-year sequence of courses is available at all sites, although the Sioux City and Quad Cities sites admit new cohorts only on a three-year cycle. All students follow a structured sequence

of courses. They must maintain a cumulative g.p.a. of at least 3.00 and must be promoted each semester in compliance with the school's student advancement policy. A thesis option is available.

Following is an outline of the full-time 60 s.h. program. For information about the three-year and four-year part-time sequences, contact the School of Social Work.

FIRST-YEAR FOUNDATION

Fall Semester

- 042:140 Human Behavior in the Social Environment 3 s.h.
- 042:143 Social Welfare Policy and Practice 3 s.h.
- 042:146 Computer Laboratory 1 s.h.
- 042:147 Discrimination, Oppression, and Diversity 3 s.h.
- 042:148 Social Work Research Methods 3 s.h.

Spring Semester

- 042:150 Social Work Practice with Individuals, Families, and Groups 3 s.h.
- 042:151 Social Work Practice Skills Lab 1 s.h.
- 042:145 Organization and Community Practice 3 s.h.
- 042:270 Advanced Research 3 s.h.
- 042:290 Foundation Practicum in Social Work 3 s.h.
- 042:291 Foundation Practicum Seminar 1 s.h.

Summer Session

- Electives (including replacement field practice courses) 4-10 s.h.

SECOND-YEAR CONCENTRATION

Fall Semester

- Elective 3 s.h.
- One of these:
 - 042:250 Family-Centered Theory and Practice I 3 s.h.
 - 042:260 Integrated Social Work Theory and Practice I 3 s.h.
- One of these:
 - 042:292 Advanced Practicum in Family-Centered Practice I and II 5-6 s.h.
 - 042:295 Advanced Practicum in Integrated Practice 5-6 s.h.
- One of these:
 - 042:293 Advanced Practicum Seminar in Family-Centered Practice I 1 s.h.
 - 042:297 Advanced Practicum Seminar in Integrated Practice I 1 s.h.

Spring Semester

- One of these:
 - 042:251 Family-Centered Theory and Practice II 3 s.h.
 - 042:261 Integrated Social Work Theory and Practice II 3 s.h.
- One of these:
 - 042:252 Advanced Social Policy for Family Practice 3 s.h.
 - 042:262 Advanced Social Policy for Integrated Practice 3 s.h.
- One of these:
 - 042:292 Advanced Practicum in Family-Centered Practice I and II 5-6 s.h.
 - 042:295 Advanced Practicum in Integrated Practice 5-6 s.h.
- One of these:
 - 042:294 Advanced Practicum Seminar in Family-Centered Practice II 1 s.h.
 - 042:298 Advanced Practicum Seminar in Integrated Practice II 1 s.h.

Concentrations

In the advanced year of the master's program, students choose one of two concentrations: family-centered practice or integrated practice. These advanced specialized curricula build on the school's liberal arts perspective and on the professional foundation. Both are based on a comprehensive eco-systemic theoretical perspective, and both apply the principles that are part of the school's mission statement, with a focus on culturally competent family-centered and community-based approaches.

FAMILY-CENTERED PRACTICE

The family-centered practice concentration teaches knowledge and skills necessary for advanced social work practice with individuals and families. These include clinical practice methods that mobilize and develop clients' coping skills, empowering them to manage difficult situations, and culturally sensitive methods for collaborating with clients, their families, and other professionals in planning interventions. Students also learn about advocating for clients, facilitating client self-advocacy, coordinating services to meet multiple needs, and influencing social policy on behalf of clients.

The concentration prepares students to work with individuals and families at appropriate levels of intensity, mobilize existing strengths, and enhance coping skills. Using principles of family-centered practice, students learn to take

community and larger systems into account while working in partnership with individuals and families in all aspects of assessment and intervention planning. The concentration emphasizes sensitivity to a variety of family forms and to cultural diversity within family forms. “Family” is broadly defined to include step families, single-parent families, same-sex-couple families, grandparent-as-parent families, adult parent-adult child families, and traditional forms of families.

INTEGRATED PRACTICE

The integrated practice concentration teaches methods of advanced practice that empower organizational and community change at multiple system levels. Students learn skills for assessment, planning, and direct intervention in larger systems such as neighborhoods, social support networks, and service delivery systems, and for policy making. They develop skills for a broad range of interventions, including direct practice, case management, community education, community development and practice, management and administration, organizational and interorganizational planning and program development, team building, organization and program evaluation, and social policy advocacy. They also learn culturally sensitive methods to collaborate with families and communities; identify strengths, assets, and challenges; and develop services and programs that will meet clients’ needs.

Building on strengths and assets of organizations and communities, students learn how to mobilize community members in advocacy and change efforts—skills useful for case managers, service coordinators, supervisors, program planners and developers, and administrators. Students also learn how to apply advanced skills to advocacy, community assessment, planning and mobilizing resources, and influencing social policy.

The concentration prepares students for practice in varied settings, including hospitals and community health programs, schools, mental health centers, neighborhood and family resource centers, community- and family-based community service agencies, correctional facilities, and programs that serve the elderly, both in the community and in care facilities. In many of these settings, social workers work as interdisciplinary team members and team leaders within organizations. They also collaborate with community organizations, community residents, and service providers. Many social workers are involved in staff supervision, program development, and agency administration. Content areas include grant writing; intervention

in multiple systems, including team and network building; policy practice; and design of evaluation methods for client assessment and program evaluation.

M.S.W. via Distance Education

The School of Social Work delivers the M.S.W. curriculum to three off-campus sites: Des Moines, the Quad Cities, and Sioux City. Each site is administered by the School of Social Work in cooperation with the Division of Continuing Education. Social work faculty members teach required courses at each center and are available for student advising. The off-campus programs have been evaluated by the Council on Social Work Education and The University of Iowa Graduate Council as providing a program comparable to that available on the Iowa City campus.

For program entry and application dates, contact the School of Social Work.

DES MOINES CENTER

The Des Moines Education Center is located in the state’s largest metropolitan area, in central Iowa. It offers courses sequenced to accommodate both part-time and full-time study. Students may complete the entire degree program at the Des Moines center, although they may travel to Iowa City for selected elective courses offered during the summer.

QUAD CITIES CENTER

The Quad Cities Graduate Center (QCGC) is located on the campus of Augustana College in Rock Island, Illinois, on the Iowa-Illinois border. The center offers a part-time program for a cohort admitted once every three years. Students in the Quad Cities part-time program can complete their degree entirely off-campus with the exception of some electives, which they can take during summer sessions in Iowa City or at other area colleges and universities. In addition to the part-time cohort students, there are some full- or part-time students from Iowa City serving in practicums in the Quad Cities. Courses in the Quad Cities program are taught by tenure-track, clinical, visiting, and adjunct faculty members on site and via the Iowa Communications Network.

SIoux CITY CENTER

The Tri-State Graduate Study Center is located in Sioux City, on Iowa’s western border. The Sioux City part-time program is nearly identical to the Quad Cities part-time program. Courses in Sioux City are taught by tenure-track, clinical, visiting, and adjunct faculty members on site and via the Iowa Communications Network.

Admission

Admission to the M.S.W. program requires the following:

- a bachelor's degree from an accredited college or university, with a reasonable distribution of courses in the liberal arts and sciences, including the humanities as well as the social, behavioral, and biological sciences;

- competence with word processing and spreadsheet application on personal computers;

- a g.p.a. of 3.00 or higher for the junior and senior years of undergraduate study, or for 12 s.h. of letter-graded graduate course work (exceptions may be granted; consult the School of Social Work);

- three letters of recommendation, including one regarding academic abilities and one from the applicant's most recent employer (if the employment was social work-related); and

- a personal statement addressing criteria specified by the School of Social Work.

International applicants whose first language is not English must score 600 (paper-based) or 250 (computer-based) or higher on the Test of English as a Foreign Language (TOEFL).

Applications are accepted beginning September 1 and must be completed by February 1 to be considered for the next academic year.

The school seeks to maintain a heterogeneous student body by enrolling students who represent diverse backgrounds and cultural perspectives. Previous experience in the human services and cross-cultural experiences are desirable.

For a complete statement of graduate admission policies, contact the School of Social Work.

Financial Support

Students seeking financial assistance should apply for aid through The University of Iowa Office of Student Financial Aid. Students may apply for a limited number of research and teaching assistantships available from the School of Social Work. Application materials for research or teaching assistantships are available from the school each spring, or as positions become available. Aid received through the Office of Student Financial Aid does not preclude students from consideration for aid through the School of Social Work.

Joint Master's Degrees

The school has formal agreements for joint graduate degrees with the College of Law and the Program in Urban and Regional Planning. To participate, students must apply and be admitted to each program. In each program, up to 12 s.h. earned in one of the disciplines can be applied to requirements of the other, reducing the time it normally would take to pursue the two degrees separately. See Law, and Urban and Regional Planning (Graduate College) in the Catalog.

Similar arrangements may be made with other departments. Academic units in which social work students have pursued joint degrees include the Tippie College of Business, the College of Education, the Department of American Studies, the Department of Religious Studies, and the School of Journalism and Mass Communication. Students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Cooperative Programs

Graduates of accredited M.S.W. programs may be eligible for associate membership in the American Association of Marriage and Family Therapists (AAMFT) upon fulfilling certain curriculum requirements at the graduate level. Courses are not automatically accepted; graduates need to demonstrate that specific courses meet the AAMFT's requirements, usually by sending course outlines.

The School of Social Work participates in the Certificate in Aging Studies program through the College of Liberal Arts and Sciences (see Aging Studies in the Catalog). Students can earn the certificate concurrently with the M.S.W. program; they must apply independently to the Aging Studies Program coordinator.

The school cooperates with the College of Education to provide curricula that meet requirements for school social work endorsement in Iowa.

Doctor of Philosophy

The Ph.D. program in social work prepares students to conduct research that contributes to the knowledge base of social work; to become leaders in the profession; and to teach social work in higher education institutions.

The program offers students a coherent program of study with opportunities to pursue their own scholarly interests. It includes courses in a

well-defined focal area and one of three disciplines: sociology, psychology, or health management and policy. This course work prepares students for the comprehensive examination and dissertation defense.

Ph.D. students develop close working relationships with faculty members who have achieved national recognition in areas such as aging; child welfare; diversity, social justice, and inequality; and substance abuse and mental health.

Requirements

The Ph.D. requires a total of 90 s.h. earned through course work, research and teaching practicums, and dissertation work. Students who enter the program with an M.S.W. are granted credit for 30 s.h. and must complete an additional 60 s.h. for the degree. Students with master’s degrees in related fields may apply to the M.S.W./Ph.D. program. They may be granted credit on a case-by-case basis. For information about the M.S.W./Ph.D. program, contact the School of Social Work.

To become Ph.D. candidates, students must satisfy the program’s course work requirements, pass a comprehensive examination, and write a dissertation and defend it in an oral examination.

Each student’s program of study must be approved by his or her doctoral committee.

CORE COURSES

All Ph.D. students must complete the following core courses.

042:300 Social Work Proseminar	1 s.h.
042:301 Knowledge Building in Social Work Practice	3 s.h.
042:302 Knowledge Building in Social Welfare Policy	3 s.h.
042:303 Social Work Research Practicum (taken twice)	6 s.h.
042:304 Advanced Research Seminar	3 s.h.
One of these:	
042:305 Social Work Pedagogy: Theory and Practice	3 s.h.
042:306 Social Work Teaching Practicum	3 s.h.

COMPETENCY REQUIREMENTS

Students must demonstrate scholarly competence in four areas. Some may need to take additional course work to satisfy the competency requirements.

Social work core curriculum (see “Core Courses”)	19 s.h.
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Social work focal area (aging, child welfare, diversity, inequality and social justice, substance abuse, mental health)	8-9 s.h.
Minor in an outside discipline (psychology, sociology, or health management policy)	12 s.h.
Research methods, statistics, and data analysis (not included above)	9 s.h.

Admission

Students are admitted for full-time study. Applicants ordinarily must have a master’s degree in social work from a program accredited by the Council on Social Work Education (CSWE). Those with master’s degrees in related fields also may be eligible for admission. Prospective students also may apply to the M.S.W./Ph.D. program.

The school makes special efforts to recruit students from underrepresented minorities, especially Iowa residents. The program accepts four to five students each year.

All applicants should have an undergraduate g.p.a. of at least 3.00 and a composite Graduate Record Examination score of at least 1100 (verbal and quantitative) or an average of 550 on all three sections of the exam (verbal, quantitative, and analytical). All applicants must submit a completed Graduate College application form, undergraduate and graduate transcripts, Graduate Record Examination scores, a personal statement of professional goals, including area of interest and reason for pursuing the Ph.D. (two to three pages), a résumé, a sample of scholarly writing (scholarly publication or research or theoretical term paper), and four letters of recommendation (two must be academic references). International applicants whose first language is not English must submit scores on the Test of English as a Foreign Language (TOEFL).

Applicants must submit the application form, fee, and other materials to the Office of Admissions. An application packet and list of guidelines are available from the office. Applications are due no later than February 1 for the following academic year.

Financial Support

All doctoral students are guaranteed financial support for two years of the program. This support consists of research assistantships, teaching assistantships, or fellowships. Graduate assistants also are eligible for tuition scholarships,

and students who hold assistantships of one-quarter time or more pay resident tuition.

Special Projects and Travel/Study Seminars

Students may become involved in special projects such as the National Resource Center for Family-Centered Practice and the School of Social Work gerontology end-of-life care programs.

The school also offers students the opportunity to participate in travel/study seminars. Urban, rural, national, and international seminars are available.

Continuing Education

Nondegree students may enroll for selected courses and workshops through Saturday & Evening Classes in Iowa City and the School of Social Work's off-campus programs. There are limits on the amount of graduate course work that may be applied to the master's requirements for students who later enroll in the program.

Courses

Primarily for Undergraduates

042:022 Introduction to Social Work 4 s.h.
Social welfare as a social institution; settings, methodologies of social work, practice; profession of social work; historical development of American social welfare, social work; a minimum of 45 hours volunteer work. Prerequisite: sophomore or higher standing or consent of instructor. Same as 034:022.

042:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

042:042 Intercultural Communication 3 s.h.
Same as 036:042.

042:141 Fundamentals of Social Work Practice 3 s.h.
Professional practice: functions, roles, skills, conceptual frameworks, values, ethics; focus on integrated approach to practice, including assessment, intervention, evaluation of interventions, termination with individuals, families, groups; emphasis on empirically based practice. Prerequisite: admission to social work B.A. program. Pre- or corequisite: 042:140.

042:142 Interpersonal Skills Laboratory 2 s.h.
Practice of interpersonal skills required in the helping relationship. Prerequisite: admission to social work B.A. program. Pre- or corequisite: 042:141.

042:144 Introduction to Social Work Research 4 s.h.
Scientific approach to knowledge building, with emphasis on critical use of research; quantitative and qualitative methods, evaluation of practice, computerized data analysis, ethics and diversity in social work research. Prerequisite: admission to social work B.A. program or consent of instructor.

042:157 Nonprofit Organizational Effectiveness I 3 s.h.
Same as 06J:147, 024:147, 025:176, 032:127, 049:175, 096:168.

042:158 Nonprofit Organizational Effectiveness II 3 s.h.
Same as 06J:148, 024:148, 025:177, 032:128, 049:176, 096:169.

042:171 Social Work Processes 3 s.h.
Context of practice examined to understand structural factors that affect clients and communities; culturally competent practice using empowerment perspective. Prerequisite: admission to social work B.A. program. Pre- or corequisite: 042:140 or consent of instructor.

042:189 Field Experience Seminar 1 s.h.
Opportunity for students to recount their experiences from generalist practice in agencies; application of knowledge, skills, and values of culturally competent social work. Prerequisite: completion of course work in the major. Corequisite: 042:193.

042:191 Individual Study arr.
Project related to student interest carried out under direction of faculty member.

042:192 Honors in Social Work arr.
Supervised individual research. Prerequisite: honors standing.

042:193 Field Experience arr.
Supervised experience in selected social welfare organizations; application of knowledge and skill common to generalist practice in an agency setting. Prerequisites: completion of course work in the major, and social work senior standing or consent of instructor. Corequisite: 042:189.

For Undergraduate and Graduate Students

*Courses with numbers preceded by asterisks are required for the M.S.W. program.

042:108 Basic Aspects of Aging 3 s.h.
Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. Prerequisites: 031:001 or 034:001, and sophomore or higher standing. Same as 096:108, 153:108, 169:108.

042:112 Human Sexuality 1-3 s.h.
Physiological, psychological aspects; parameters defined by students, instructor. Same as 07C:112, 096:112.

042:120 Service Learning and Social Welfare 1-3 s.h.
Experiential learning in areas such as social justice, child welfare, community organizing, early intervention.

042:129 Substance Use and Abuse 3 s.h.
Chemical dependency for helping professions; etiological, physiological, psychological, legal, sociological aspects; treatment methods. Prerequisite: junior or higher standing or consent of instructor.

042:130 Family Development Specialist Model 3 s.h.
Use of family development specialist model of family-centered practice to facilitate improved family functioning, economic independence; relationship building, systems theory, family-centered case management, conflict management, empowerment strategies. Prerequisite: completion of family development specialist certification course.

042:135 Older Adulthood: Cultural Comparisons 3 s.h.
Same as 153:135.

***042:140 Human Behavior in the Social Environment** 3-4 s.h.

Behavior and development in context of social, ecological systems and human diversity; overview of bio-psychosocial dimensions, individual behavior, and development throughout lifespan; contexts of diverse family, group, community, organization, and cultural systems. Prerequisite: admission to social work B.A. or M.S.W. program or consent of instructor.

***042:143 Social Welfare Policy and Practice** 3 s.h.

Basic social welfare policies and programs; economic, social, ideological, and political conditions that have influenced formation and implementation of social policy, current structure of major social welfare policies. Prerequisite: admission to social work B.A. or M.S.W. program or consent of instructor.

***042:147 Discrimination, Oppression, and Diversity** 3 s.h.

Theoretical and historical perspectives on racism, sexism, other forms of discrimination; applications to social work, culturally competent practice, change strategies. Prerequisite: admission to social work B.A. or M.S.W. program or consent of instructor.

042:185 Social Policy and the Elderly 3 s.h.

Public social policies, their affect on well-being of elderly, including women and minorities; U.S. and other nations' policies. Prerequisites: 042:143, an introductory course on aging, and junior or higher standing; or consent of instructor. Same as 153:185.

042:186 Death/Dying: Issues Across the Life Span 3 s.h.

Introduction to death and dying; historical, cultural, societal, personal perspectives. Prerequisite: admission to School of Social Work or Aging Studies Program, or consent of instructor. Same as 153:186.

042:190 Field Work in Gerontology arr.

Opportunities for students in various disciplines to relate their areas of study to elderly, aging; interdisciplinary relationships, approaches to meeting needs of elderly. Same as 153:190.

042:194 Social Work Practice in Health Care Settings 2 s.h.

Introduction to organization, provision of social work services in health care settings; practice issues such as models of intervention, ethical questions, impact of cultural diversity on health care. Prerequisite: 042:141 or 042:150 or consent of instructor.

042:195 Introduction to Nursing Homes 3 s.h.

Same as 153:195.

042:196 Family Violence 2-3 s.h.

Child abuse and neglect, domestic violence, elder abuse; causes, policy aspects, identification, reporting, treatment, prevention.

042:197 Child Welfare Policy and Practice 3 s.h.

Public and private child welfare practice and organizations in the United States; historical and legal aspects, co-occurring issues, foster care, adoption, family preservation.

042:199 Selected Aspects of Social Work and Social Welfare arr.

Human behavior, practice, social welfare policy. Prerequisite: consent of instructor.

***042:146 Computer Laboratory** 1 s.h.

Use of microcomputers in social work practice; user skill, software for a variety of applications in social service settings. Prerequisite: admission to M.S.W. program.

***042:148 Social Work Research Methods** 3 s.h.

Knowledge and skills for evaluating practice and carrying out social work research; formulation of research questions; research design and methodology; sampling techniques; protection of human subjects; descriptive statistics; computerized data analysis. Prerequisite: admission to M.S.W. program.

***042:150 Social Work Practice with Individuals, Families, and Groups** 3 s.h.

Models and underlying theories of empirically based direct social work practice; emphasis on an ecosystem strengths perspective; phases of helping relationship, strengths-based assessment, change process in interpersonal helping relationships. Prerequisites: 042:140 and admission to M.S.W. program. Corequisites: 042:151, 042:290, and 042:291 for 60 s.h. students.

***042:151 Social Work Practice Skills Laboratory** 1 s.h.

Interpersonal skills practice in the helping relationship; small-group format. Prerequisite: admission to M.S.W. program or consent of instructor. Pre- or corequisite: 042:290. Corequisites: 042:150 and 042:291.

042:153 Programs and Services for Aging Adults 3 s.h.

Major gerontological programs and services, practitioners' need for basic aging-practice competence; aging network; income, employment, health maintenance programs; continuum of care (preventive and well-elderly services, in-home services, community-based services, institutional care); assessment; major elder health issues, informal care; end-of-life care. Same as 153:153.

042:204 Human Services Administration 2 s.h.

Effects of organizational structures/processes on individual performance; models of management, communication patterns, leadership styles; skill in technical writing, decision making, personnel and financial management, applied professional ethics. Prerequisite: completion of foundation courses or consent of instructor.

042:211 Individual and Family Development: Life Span 3 s.h.

Infancy through senescence; families from their beginnings through their later years; theoretical, methodological issues. Same as 153:211.

042:216 Group Leadership in Human Sexuality 0-3 s.h.

Principles of group dynamics, group process; leadership skills for small, task-oriented discussion groups on human sexuality. Prerequisite: 042:112 or consent of instructor. Same as 07C:216, 096:216.

042:219 Aging and the Family 2-3 s.h.

Research related to aging and the family; intergenerational relations, marital status in later life, diversity of older families, caregiving, elder abuse, policy issues. Same as 153:219.

042:220 Family Law 3 s.h.

Legal systems, rights, processes related to families; marriage, divorce, custody, protective services, reproductive rights, adoption, commitment, delinquency, education, poverty, discrimination; roles of lawyers, social workers in legal system. Prerequisite: 042:143 or consent of instructor.

042:223 Cross-Cultural Social Work 2-3 s.h.

Theories, issues in practice with culturally different populations, including U.S. ethnic groups, women, gays and lesbians, persons with disabilities, recent immigrants. Prerequisite: 042:147 or consent of instructor.

042:224 Spirituality and Ethics in Social Work 2-3 s.h.

Knowledge, values, and skills that provide a framework for spiritually sensitive social work practice; preparation for

Primarily for Graduate Students

***042:145 Organization and Community Practice** 3 s.h.

Models underlying theories of organization, community practice; principles of macro social work and skill development in relationship building, needs assessment, decision making, planning, implementing, ethics, program and self-evaluation. Prerequisite: admission to M.S.W. program or consent of instructor.

responding competently and ethically to diverse spiritual perspectives, for recognizing and reflecting on one's own spiritual beliefs, and for identifying appropriate ways to apply personal beliefs to practice with varied populations while safeguarding client autonomy and self-determination.

042:228 Theories of Personality and Psychopathology 2 s.h.

Theories and their relevance to social work practice with diverse populations. Prerequisites: 042:140 and social work graduate standing, or consent of instructor.

042:229 Working with Groups 2 s.h.

Theory and practice of group work, group process, leadership styles and skills; fundamental theory, skills necessary to form and facilitate a small group. Prerequisite: completion of foundation courses or consent of instructor.

042:232 Therapy with Couples 2 s.h.

Married and other couples as social systems; theories of functional, dysfunctional systems; techniques of intervention. Prerequisite: completion of foundation courses or consent of instructor.

042:233 School Social Work Practice 2 s.h.

School as a social institution; activities of school social worker; theoretical, practice issues; current issues in field.

042:234 Social Work Practice and Use of the Diagnostic and Statistical Manual of Mental Disorders 3 s.h.

Major categories of psychopathology, DSM-IV system of classification; individual behavior and presentation of symptoms considered through DSM-IV multiaxial approach to diagnosis; effects of culture, developmental stage, and gender on presentation of mental disorders.

042:235 Object Relations in Social Work Practice 2 s.h.

Theories, practice skills; focus on object relations theory and therapy as a bridge between systemic perspective and working with individuals. Prerequisites: 042:250 and completion of foundation courses, or consent of instructor.

042:236 Interventions with Individuals 2 s.h.

Comparison of two or more intervention theories and approaches used in social work practice with individuals; attention to diverse populations and across life span. Prerequisite: completion of foundation courses or consent of instructor.

042:237 Social Work Practice with Children, Youth, and Families 2 s.h.

Preparation for practice in child welfare, family service agencies; family life cycle, child development, child maltreatment, problems of adolescence, social services for families and children, legal issues. Prerequisite: completion of foundation courses or consent of instructor.

042:238 Introduction to Play Therapy 2 s.h.

Major theories and techniques of play therapy, relevance to social work practice. Prerequisite: 042:150 or consent of instructor.

042:247 Nonprofit Organizational Effectiveness I 3 s.h.

Same as 06J:247, 021:263, 024:247, 028:257, 032:227, 091:320, 174:247.

042:248 Nonprofit Organizational Effectiveness II 3 s.h.

Same as 06J:248, 021:265, 024:248, 028:258, 032:228, 091:322, 174:248.

***042:250 Family-Centered Theory and Practice I** 3 s.h.

Theoretical bases for family-centered practice; comparison and analysis; skill development in analyzing problem situations, implementing change strategies. Prerequisite: completion of M.S.W. foundation courses or consent of instructor.

***042:251 Family-Centered Theory and Practice II** 3 s.h.

Techniques for assessment, intervention in family-centered practice; evaluation of practice; theoretical and clinical bases for intervention. Prerequisite: 042:250 or consent of instructor.

***042:252 Advanced Social Policy for Family Practice** 3 s.h.

Systematic basis for examining social, economic, and political factors that influence formation of social policies; social policy implementation, impact of social policies on vulnerable individuals and families. Prerequisite: completion of M.S.W. foundation courses or consent of instructor.

042:254 Introductory Seminar: End-of-Life Services in Rural Communities 2-3 s.h.

Basic principles of hospice and palliative care, rural service delivery, community assessment.

042:255 Integrative Seminar in End-of-Life Care 1 s.h.

Integration of students' knowledge, skills, and values for practice in end-of-life care and bereavement; application to case studies and advanced practicum setting. Prerequisite: admission to end-of-life care area. Corequisite: 042:292 or 042:295.

***042:260 Integrated Social Work Theory and Practice I** 3 s.h.

Theories, skill development, evaluation, ethical issues in integrated social work practice; intermediate group work for culturally competent intervention; small task groups. Prerequisite: completion of foundation courses or consent of instructor.

***042:261 Integrated Social Work Theory and Practice II** 3 s.h.

Continuation of 042:260; theories, skills evaluation, ethical issues; advanced group work for culturally competent intervention; case management, program development, funding evaluation, large task groups. Prerequisite: 042:260.

***042:262 Advanced Social Policy for Integrated Practice** 3 s.h.

Systematic basis for critical examination of social, economic, and political factors that influence formation of social policies; social policy implementation, impact of social policies on vulnerable populations, service providers, communities. Prerequisite: completion of M.S.W. foundation courses or consent of instructor.

***042:270 Advanced Research** 2-3 s.h.

Research project relevant to social work practice that builds on knowledge and skills developed in 042:148; data analysis, report of results; ethical principles applied to research. Prerequisites: 042:148 or consent of instructor, and admission to M.S.W. program.

042:271 Individual Study arr.

Project related to student interest; directed by faculty member.

042:272 Thesis arr.

042:275 Development Policy and Planning in the Third World 3 s.h.

Cross-cultural, interdisciplinary analysis of urbanization and development problems in developing nations. Same as 07B:275, 034:275, 044:275, 102:275, 113:275.

042:278 Personnel and Financial Management 2 s.h.

Human, financial resources required by communities and organizations for delivery of social services; skill development in personnel and financial management, microcomputer applications, evaluation of management outcomes. Prerequisite: completion of foundation courses or consent of instructor.

042:281 Social Work Practice: Selected Aspects arr.

Topics not covered in another course; diversity, social justice and ethics issues related to a social work practice area. Repeatable.

- 042:285 Travel/Study Seminar** arr. 3 s.h.
 Opportunity for cross-cultural learning through U.S. or international travel; focus on social welfare issues. Prerequisite: 042:143 or consent of instructor.
- *042:290 Foundation Practicum in Social Work** 3 s.h.
 Generalist practice experience with individuals, families, small groups, organizations, communities; communication skills, change process, professional values and ethics applied at multiple system levels; students evaluate their own practice using a learning contract in an agency setting. Prerequisite: admission to M.S.W. program. Pre- or corequisites: 042:140, 042:143, 042:145, 042:146, 042:147, 042:150, 042:151, and 042:291.
- *042:291 Foundation Practicum Seminar** 1 s.h.
 Integration of academic, experiential learning; self-assessment, peer feedback to promote model of professional accountability. Prerequisite: admission to M.S.W. program. Pre- or corequisites: 042:140, 042:143, 042:145, 042:146, 042:147, 042:150, 042:151, and 042:290. Corequisite: 042:290.
- *042:292 Advanced Practicum in Family-Centered Practice I and II** arr. 3 s.h.
 Two-semester field course; family-centered practice theory and skills implemented in interventions with individuals, families. Repeatable. Prerequisite: completion of M.S.W. foundation courses. Pre- or corequisites: 042:250, 042:251, 042:252, and 042:270. Corequisite: 042:293 (fall) or 042:294 (spring).
- *042:293 Advanced Practicum Seminar in Family-Centered Practice I** 1 s.h.
 Two-semester field course; family-centered practice theory and skills implemented in interventions with individuals, families. Prerequisite: completion of M.S.W. foundation courses or consent of instructor. Corequisite: 042:292.
- *042:294 Advanced Practicum Seminar in Family-Centered Practice II** 1 s.h.
 Continuation of 042:293. Prerequisite: 042:293. Corequisite: 042:292.
- *042:295 Advanced Practicum in Integrated Practice** arr. 3 s.h.
 Two-semester field course; integrated social work theories and interventions implemented in work with individuals, families, organizations, formal and informal networks. Repeatable. Prerequisite: completion of M.S.W. foundation courses. Pre- or corequisites: 042:260, 042:261, 042:262, and 042:270. Corequisite: 042:297 (fall) or 042:298 (spring).
- *042:296 Advanced Practicum in School Social Work** arr. 3 s.h.
 Field course; social work theories and interventions implemented in schools. Repeatable. Prerequisite: completion of M.S.W. foundation courses. Pre- or corequisites: 042:250 or 042:260, 042:251 or 042:261, and 042:252 or 042:262.
- *042:297 Advanced Practicum Seminar in Integrated Practice I** 1 s.h.
 Two-semester course; social work knowledge, skills, values, and professional identity integrated in context of advanced practice and direct multisystemic interventions. Corequisite: 042:295 or 042:296.
- *042:298 Advanced Practicum Seminar in Integrated Practice II** 1 s.h.
 Continuation of 042:297. Prerequisite: 042:297. Corequisite: 042:295 or 042:296.
- 042:300 Social Work Proseminar** 1 s.h.
 Faculty research related to families, children, and elderly theory, research designs, methodologies, findings, dissemination. Prerequisite: admission to Ph.D. program.
- 042:301 Knowledge Building in Social Work Practice** 3 s.h.
 Epistemology of social work practice theories, importance for knowledge building; practice theories of personal and interpersonal change, family life cycle development, empowerment. Prerequisite: admission to Ph.D. program or consent of instructor.
- 042:302 Knowledge Building in Social Welfare Policy** 3 s.h.
 Family, child, and elderly policy research viewed through philosophical, political science, economic, and social science theory; underlying assumptions in different views of social policy and theoretical analysis of formal argument. Prerequisite: admission to Ph.D. program or consent of instructor.
- 042:303 Social Work Research Practicum** 1-6 s.h.
 Joint research with faculty; development of research design, choice or construction of measurement tools, selection of sample, collection and analysis of data, writing of a research report. Prerequisite: admission to Ph.D. program or consent of instructor.
- 042:304 Advanced Research Seminar** 3 s.h.
 Theory construction; methodological approaches useful in clinical, administrative, community practice; emphasis on ongoing projects in research practicum, dissertation proposal. Prerequisite: admission to Ph.D. program or consent of instructor.
- 042:305 Social Work Pedagogy: Theory and Practice** 3 s.h.
 Teaching methods, theories, related research in social work education; issues of cultural competence in educational programs, course design, and delivery. Prerequisite: admission to Ph.D. program.
- 042:306 Social Work Teaching Practicum** 3 s.h.
 Development of knowledge, values; skills essential for effective, culturally competent social work educators; applied teaching experience and seminar. Prerequisite: admission to Ph.D. program.
- 042:330 Ph.D. Dissertation** arr.

Sociology

Chair: Michael Lovaglia

Professors: Celesta Albonetti (Sociology/Law), Jennifer Glass (Sociology/Community and Behavioral Health), Karen V. Heimer, Jae-On Kim (Distinguished Service Professor), Kevin Leicht, Michael Lovaglia, Lisa Troyer
Professors emeriti: Charles W. Mueller, James L. Price
Associate professors: Robert Baller, Stephen G. Wieting

Associate professor emeritus: John R. Stratton

Assistant professors: Mary Campbell, Jennifer Glanville, Steve Hitlin, Mary Noonan, Anthony Paik, Wayne Santoro, Michael Sauder, Maria Velez

Undergraduate degrees: B.A., B.S. in Sociology

Undergraduate nondegree program: Minor in Sociology

Graduate degrees: M.A., Ph.D. in Sociology

Web site: <http://www.uiowa.edu/~soc>

Undergraduate Programs

The undergraduate major in sociology provides a liberal arts and sciences education. Although the program does not prepare students for a specific career, it provides background for employment in fields such as human services, criminal justice, corrections, sales, public relations, advertising, personnel, applied social research, community organization, and teaching social science in secondary schools. It also provides a foundation for graduate or professional study in social work, urban planning, law, criminal justice, social policy, and similar areas. Finally, the degree prepares students to work toward advanced degrees in sociology, which qualify them for college or university teaching and work in academic, private, and governmental research.

Undergraduate students majoring in sociology may pursue either the Bachelor of Arts or the Bachelor of Science. Students interested in graduate degrees, postgraduate study, or professional careers in the social sciences are advised to seek the Bachelor of Science.

Students who wish to obtain teacher licensure in the social sciences while majoring in sociology should contact the Department of Teaching and Learning in the College of Education.

Bachelor of Arts

The B.A. requires a minimum of 34-35 s.h. in the major. Several courses required for the major have specific course prerequisites, and in some cases, students must earn a minimum grade in a prerequisite course. In planning to complete the major, students must be careful to take courses in the proper sequence.

The following sociology courses cannot be used to complete the B.A. requirements: 034:029 First-Year Seminar, 034:197 Teaching Internship, and 034:198 Directed Individual Study.

In addition to the specific courses required for the degree, students are advised to take 6 s.h. of course work in at least one of these departments: anthropology, economics, geography, political science, or psychology.

Transfer students majoring in sociology must meet the same requirements as other sociology students. They must take at least 12 s.h. in sociology at The University of Iowa and must have their transferred courses approved for credit in the major by a sociology advisor.

INTRODUCTORY COURSES

These courses should be taken early, to lay the foundation for all other work in the major.

034:001 Introduction to Sociology: Principles	3-4 s.h.
22M:009 Elementary Functions (or a more advanced mathematics course)	4 s.h.

THEORY AND METHODS COURSES

These courses should be completed as early as possible. The college-level mathematics course is a prerequisite for 034:010. Students must earn a grade of C or higher in 034:009, 034:010, and 034:011 in order to complete the major. Students must take 034:009 and 034:010 before enrolling in 034:011.

034:009 Sociological Theory	3 s.h.
034:010 Quantitative Data Analysis	3 s.h.
034:011 Research Methods	3 s.h.

ELECTIVES

Students complete 15 s.h. of elective course work in sociology, chosen from all the courses offered by the department (except 034:029,

034:197, and 034:198). Two electives must be taken after completing 034:011 (except 034:002, 034:029, 034:197, and 034:198).

CAPSTONE COURSE

This special project illustrates the student’s accomplishments in the major. It is taken during the student’s last semester of major course work. In order to enroll in the capstone course, students must complete 034:011 with a grade of C or higher.

034:195 Capstone Course in Sociology 3 s.h.

THE MAJOR PORTFOLIO

When each student graduates, he or she is required to provide the department with documents that will constitute his or her Sociology Major Portfolio. The portfolio provides a record of the student’s development in the department. It also is an attractive set of materials that can serve as evidence of interests and work for prospective employers and graduate schools.

The portfolio should include at least three documents: a paper from the first two years of sociology classes, such as a book review or statement comparing competing theories; a research paper that reports the findings of original research; and a statement summarizing an experience in which the student applied sociological knowledge, such as a report on an internship, a consideration of contributions that sociological information made to a summer job, or a reflection on a period of study abroad.

Together, the materials should display development toward technical correctness in citing others’ work, accurate use of sociological concepts, technical proficiency in using research methods, and the ability to explain implications of research findings.

Bachelor of Science

The Bachelor of Science in sociology requires a minimum of 45 s.h. in the major, including at least 30 s.h. in sociology. The program prepares students for graduate training in sociology.

Several courses required for the major have specific course prerequisites, and in some cases, students must earn a minimum grade in a prerequisite course. In planning to complete the major, students must be careful to take courses in the proper sequence.

Several sociology courses cannot be used to complete the B.S. requirements, including 034:029 First-Year Seminar, 034:197 Teaching

Internship, and 034:198 Directed Individual Study.

In addition to the specific courses required for the degree, students are advised to take 6 s.h. of course work in at least one of these departments: anthropology, economics, geography, political science, or psychology.

Transfer students majoring in sociology must meet the same requirements as other sociology students. They must take at least 12 s.h. in sociology at The University of Iowa and must have their transferred courses approved for credit in the major by a sociology advisor.

INTRODUCTORY COURSES

These courses should be taken early, to lay the foundation for all other work in the major.

034:001 Introduction to Sociology: Principles 3-4 s.h.

One of these sequences:
 22M:025-22M:026 Calculus I-II 8 s.h.
 22M:031-22M:032 Engineering Mathematics I-II 8 s.h.

THEORY AND METHODS COURSES

These courses should be completed as early as possible. The college-level mathematics course is a prerequisite for 034:010. Students must earn a grade of C or higher in 034:009, 034:010, and 034:011 in order to complete the major. Students must take 034:009 and 034:010 before enrolling in 034:011.

034:009 Sociological Theory 3 s.h.
 034:010 Quantitative Data Analysis (or an approved course in statistics) 3 s.h.
 034:011 Research Methods 3 s.h.
 22S:120 Probability and Statistics 4 s.h.

One of these:
 026:103 Introduction to Symbolic Logic 3 s.h.
 026:104 Introduction to Philosophy of Science 3 s.h.

ELECTIVES

Students complete 15 s.h. of elective course work in sociology, chosen from all the courses offered by the department (except 034:029, 034:197, and 034:198). Two of the electives must be taken after completing 034:011 (except 034:002, 034:029, 034:197, and 034:198).

CAPSTONE COURSE

This special project illustrates the student’s accomplishments in the major. It is taken during the student’s last semester of major course work.

In order to enroll in the capstone course, students must complete 034:011 with a grade of C or higher.

034:195 Capstone Course in Sociology 3 s.h.

THE MAJOR PORTFOLIO

When each student graduates, he or she is required to provide the department with documents that will constitute his or her Sociology Major Portfolio. The portfolio provides a record of the student's development in the department. It also is an attractive set of materials that can serve as evidence of interests and work for prospective employers and graduate schools.

The portfolio should include at least three documents: a paper from the first two years of sociology classes, such as a book review or statement comparing competing theories; a research paper that reports the findings of original research; and a statement summarizing an experience in which the student applied sociological knowledge, such as a report on an internship, a consideration of contributions that sociological information made to a summer job, or a reflection on a period of study abroad.

Together, the materials should display development toward technical correctness in citing others' work, accurate use of sociological concepts, technical proficiency in using research methods, and the ability to explain implications of research findings.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Sequencing of course work is important in meeting the four-year plan.

Bachelor of Arts

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 034:001 or equivalent, and at least half of the semester hours required for graduation

Before the seventh semester begins: a college-level math course numbered 22M:009 or above, 034:009, 034:010, and at least

three-quarters of the semester hours required for graduation

Before the eighth semester begins: 034:011 and two electives in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 034:001 or equivalent, 034:009, one sociology elective, and at least half of the semester hours required to graduate

Before the seventh semester begins: 034:010 or equivalent, 034:011, calculus I-II, one more sociology elective, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 22S:120 and two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The University Honors Program provides a stimulating and integrative educational experience for undergraduate majors who perform at a high level. Membership in the Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

To qualify for the honors program in sociology, students must have a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in the major in sociology courses.

To earn a degree with honors in sociology, students complete 034:100 Honors Proseminar in the spring semester of their junior year, one advanced undergraduate course or graduate course approved by the honors director, and a senior honors project. The honors project gives students an opportunity to do sociological research in consultation with a faculty member of the student's choice.

National Honor Society

The department sponsors a chapter of Alpha Kappa Delta International Sociological Honor Society. Students who have a cumulative and sociology g.p.a. of 3.00 or higher and have attained junior or higher standing are considered for membership. Consult the Alpha Kappa Delta faculty advisor for details.

Minor

In addition to its programs for majors, the department provides supporting course work and several course clusters of value to undergraduate students who want to combine a minor in sociology with a major in another field, particularly other social sciences, business, elementary education, or nursing. Requirements for the minor include a minimum of 15 s.h. of credit in sociology courses with a g.p.a. of 2.00 or higher; 12 of the 15 s.h. must be taken at The University of Iowa. The minor must include 034:009. No course accepted toward the minor may be taken pass/nonpass.

Graduate Programs

Graduate programs in sociology prepare students for professional and academic careers. Master of Arts students choose between programs that prepare them for doctoral studies or for professional positions applying sociology. The Doctor of Philosophy has a research emphasis and primarily prepares sociologists for academic positions in colleges and universities or research positions in academic, private, and government institutions. Opportunities for research using survey, experimental, and observational methods are readily available in the department.

Master of Arts

The Master of Arts in sociology requires 30 s.h. of graduate credit with a thesis or research paper, or 38 s.h. without. The program without thesis is intended for students seeking a terminal degree and for whom a wider range of course content in sociology is appropriate.

All candidates for the M.A. must complete the following with grades of B-minus or higher.

034:201 History of Sociological Theory	3 s.h.
034:214 Introduction to Sociological Data Analysis	3 s.h.
034:215 Sampling, Measurement, and Observation Techniques	3 s.h.

034:216 Linear Models in Sociological Research

3 s.h.

Joint M.A./J.D.

The Department of Sociology and the College of Law offer a joint program that leads to a Master of Arts in sociology and a Juris Doctor. The program is highly individualized, allowing students to explore various aspects of the relationship between law and society.

At the discretion of the Department of Sociology and/or the College of Law, students may apply up to 12 s.h. of graduate credit, earned to satisfy the requirements of either degree, toward both the M.A. in sociology (30 or 38 s.h.) and the 90 s.h. required for the J.D. This allows students to receive both degrees by taking less course work than they would if pursuing both degrees separately.

Separate application to each program is required.

Doctor of Philosophy

The Doctor of Philosophy in sociology requires a minimum of 72 s.h. of graduate credit, including the post-M.A. course 034:218 Advanced Statistical Modeling of Data, 3 s.h. of elective course work in methods/statistics, and 3 s.h. of elective course work in theory. Most courses for the Ph.D. are taken in the student's two areas of interest. Candidates also must pass two area examinations, write and defend a dissertation prospectus, and write and successfully defend a dissertation.

Doctoral students take two area exams—one from list A, the other from list A, B, or C (list A has six standing committees, list B has two, as follows).

List A: social psychology; crime, law, and deviance; stratification; political sociology; organizations; and family

List B: theory, and methods

List C: an area not included in list A or B for which the student can identify an examining committee of three people, with both the area and the committee approved by the graduate committee

For a detailed statement of graduate study regulations, contact the Department of Sociology. Prospective doctoral candidates should examine this statement carefully.

Training for Teaching Assistants

All new students are expected to attend a three-day orientation for teaching assistants before the beginning of classes. In addition, 034:382 Teaching Sociology is required for students who wish to teach their own courses.

Admission

Admission to graduate study in sociology usually requires an undergraduate g.p.a. of at least 3.25 and a score of 1100 or higher (quantitative plus verbal) on the Graduate Record Examination (GRE) General Test. International students whose first language is not English should submit scores from the Test of English as a Foreign Language (TOEFL). Applicants must meet the admission requirements of the Graduate College; see Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Applicants also must complete the sociology department application and use the department's personal reference forms to obtain three letters of recommendation; forms can be printed from the Department of Sociology web page.

All application materials for fall admission must be received by January 1. The deadline for applying for departmental financial support is January 1. Evaluation of applications begins in early January.

Admission decisions are based on consideration of prior academic performance, personal reference letters, scores on the GRE General Test, and the applicant's statement of reasons for pursuing advanced work in sociology at The University of Iowa. The department has no specific undergraduate course requirements for admission, but a background in the social sciences with some mathematical training is useful. A foreign language is not required for admission and there are no foreign language requirements for either the M.A. or Ph.D. in sociology. Direct admission inquiries to the chair of the admissions committee, Department of Sociology.

Financial Support

The Department of Sociology offers four types of awards to graduate students: teaching assistantships, research assistantships, University of Iowa Presidential Fellowships, and Graduate Merit Fellowships. Out-of-state students who receive awards are charged resident tuition.

Students who receive one-half-time teaching or research assistantships work 20 hours each week for faculty members on either teaching or research assignments.

Research Centers and Facilities

Center for the Study of Group Processes

The Center for the Study of Group Processes has an 18-room small-group laboratory with eight computer-controlled subject rooms that provide audiovisual and psychophysiological recording capabilities, two large-group rooms with an adjoining observation room, an audiovisual control room, a sociophysiological instrumentation lab, a virtual social environment lab, and other flexible research office spaces.

Center for Criminology and Sociological Studies

The Center for Criminology and Sociological Studies is an interdisciplinary research and teaching program for the study of crime, law, deviance, social control, and mental health. It sponsors a colloquium series in crime, law, and social control, in which affiliates, graduate students, and outside speakers present their ongoing research, and a working-paper series in which members disseminate research papers to the academic community. The center also provides research support and a research infrastructure for faculty and graduate students and offers graduate research assistantships for interested students. Internship in Criminal Justice and Corrections (034:148) is administered through the center.

Center for Asian and Pacific Studies

The Center for Asian and Pacific Studies provides excellent opportunities for studying Asia from a social science perspective. It supports related Asia studies and offers a monthly seminar that features lively discussions by scholars from many different disciplines. Several sociology faculty members are affiliated with the center.

Computer Facilities

The department operates a remote computer terminal and a personal computer cluster for graduate students. Both terminals and personal computers can access mainframe computers that

provide all of the important statistical and mathematical computing programs.

Courses

For Undergraduates

The following courses are open only to undergraduates. Courses without prerequisites open to first-year students are 034:001, 034:002, 034:018, 034:020, 034:029, 034:066, 034:154, and 034:158. All other undergraduate courses are open to first-year students with stated prerequisites.

034:001 Introduction to Sociology: Principles 3-4 s.h.
How individuals are organized into social groups, ranging from intimate groups to bureaucracies, and how these influence individual behavior; nature and interrelationships of basic social institutions, such as family, education, religion, economy. GE: social sciences.

034:002 Social Problems 3-4 s.h.
Emergence and distribution of selected social problems; alternative solutions; may include population, inequality, female-male relationships, racism, crime. GE: social sciences.

034:009 Sociological Theory 3 s.h.
Theoretical perspectives in sociology; construction, evaluation of sociological explanations. Prerequisite: 034:001 or consent of instructor.

034:010 Quantitative Data Analysis 3 s.h.
Applied statistics for sociology majors: frequency distributions, graphic presentation, measures of central tendency, measures of variability, elementary probability, populations and samples, sampling distributions, estimation and confidence intervals, hypothesis testing, chi-square test, regression and correlation, analysis of variance; computer software used in data analysis; emphasis on appropriate use and interpretation of statistics in the study of sociological topics. Prerequisites: 034:001, 22M:009 or a higher-level math course, a grade of C or higher in 034:009, and sociology major or consent of instructor.

034:011 Research Methods 3 s.h.
Basic scientific concepts; emphasis on theoretical thinking, statement of researchable propositions, logic and meaning of proof operant in the research process; general issues in designing social research, including problems of sampling and measurement, analysis, presenting research data, interpreting research findings. Prerequisites: grades of C or higher in 034:009 and 034:010, and sociology major or consent of instructor.

034:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

034:100 Honors Proseminar 2 s.h.
Topic development for senior honors projects. Offered spring semesters. Prerequisite: sociology honors standing.

034:190 Selected Topics in Sociology 3 s.h.
Topics vary.

034:195 Capstone Course in Sociology 3 s.h.
Senior project illustrating student's accomplishments during his or her undergraduate career; prepared in collaboration with sociology faculty member or other experts in the student's area of sociological interest; record for student's own reflection, information for potential employers and graduate programs. Prerequisite: grade of C or higher in 034:011.

034:196 Field Experience arr.
Supervised field experience in sociology; primarily for students participating in Washington Center internship. Prerequisites: sociology major, junior standing, and consent of advisor.

034:197 Teaching Internship 3 s.h.
Experience providing supervised support for instructors teaching basic courses in sociology. Prerequisites: appointment as sociology undergraduate teaching aide and consent of instructor.

034:198 Directed Individual Study arr.
Prerequisite: consent of instructor.

034:199 Honors Research arr.
Research projects under faculty supervision. Prerequisite: consent of instructor.

Advanced Courses

Social Theory

034:200 Graduate Proseminar 1-2 s.h.
General introduction to department and discipline for entering graduate students; departmental and graduate college requirements, program and career planning, interaction with faculty members, consideration of student interests and concerns. Two semesters beginning in fall.

034:201 History of Sociological Theory 3 s.h.
Ideas of major 19th- and 20th-century social thinkers (e.g., Marx, Weber, Durkheim, Simmel, Mead).

034:202 Theory Construction and Analysis 3 s.h.
Contemporary theoretical issues and nature of theory, theory's place in research, strategies of theory construction.

034:203 Seminar: Selected Topics in Sociological Theory 3 s.h.
Repeatable.

034:205 Seminar: Selected Topics in Sociology 3 s.h.
Current theoretical and methodological issues. Prerequisite: sociology graduate standing or consent of instructor.

034:213 Qualitative Methods 3 s.h.
Logic of qualitative research; basic skills necessary for a qualitative research project. Prerequisite: sociology graduate standing or consent of instructor.

034:214 Introduction to Sociological Data Analysis 3 s.h.
Statistical measures for descriptive methods and association; logic of statistical inference, hypothesis testing; background essential to understanding linear models, models for categorical data analysis. Prerequisite: introductory statistics or consent of instructor.

034:215 Sampling, Measurement, and Observation Techniques 3 s.h.
Research designs; sampling designs and techniques; questionnaire construction, interviewing techniques; participant and nonparticipant observation; coding and preparation of data for analysis; measurement techniques, reliability, and validity. Prerequisite: 034:214 or consent of instructor.

034:216 Linear Models in Sociological Research 3 s.h.
Statistical techniques associated with general linear model; emphasis on multiple regression, its generalizations; corresponding computer programs. Prerequisite: 034:214 or consent of instructor.

034:217 Advanced Sociological Data Analysis 3 s.h.
Advanced statistics, including categorical data analysis, event history analysis, structural equation modeling, time series analysis, network analysis. Repeatable. Prerequisites: 034:214, 034:215, and 034:216; or consent of instructor.

034:218 Advanced Statistical Modeling of Data 3 s.h.
Models for analysis of categorical data, including loglinear, logit, related discrete data models. Prerequisites: advanced graduate standing and consent of instructor.

034:219 Structural Equation Modeling 3 s.h.

Social Psychology

034:020 Principles of Social Psychology 3-4 s.h.
Introduction to theory and research in small groups; interpersonal and intergroup processes. GE: social sciences.

034:125 Small Group Analysis 3 s.h.
Internal processes governing small groups (e.g., friendship cliques, families, the president's cabinet, committees); how small groups relate to the larger social environment; groups' impact on their members. Prerequisite: 034:001 or 034:002 or 034:022.

034:128 Sociology of Mental Illness 3 s.h.
The socially constructed nature of mental illness; theoretical perspectives and research on social antecedents and social consequences of mental health. Prerequisites: 034:001, 034:002, and 034:020; or consent of instructor.

034:220 Contemporary Approaches to Social Psychology 3 s.h.
Review and critical analysis of current theoretical approaches to and systems of social psychological analysis.

034:221 Seminar: Selected Topics in Social Psychology 3 s.h.
Selected theoretical and methodological issues. Repeatable.

034:259 Social Network Analysis 3 s.h.
Relational, data-oriented approach to representing linkages or relationships among social units, and to examine the relevance of these social structures in social processes. Prerequisite: basic multiple regression or consent of instructor.

Deviance, Delinquency, Crime, and Law

034:040 Criminology 3 s.h.
Nature and causes of crime; the criminal justice process, correctional treatment, crime prevention. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:141 Juvenile Delinquency 3 s.h.
Delinquency as an individual and social problem; theories of the causes of juvenile delinquency; law enforcement and the juvenile court; methods of correction and prevention. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:148 Internship in Criminal Justice and Corrections 1-5 s.h.
Supervised field work in a criminal justice or correctional agency. Prerequisites: 034:040 or 034:141, sociology major, junior standing, and consent of director of the Center for Criminology and Socio-Legal Studies.

034:149 Sociology of Criminal Punishment 3 s.h.
Sociological theories and research on criminal punishment; classical and contemporary theories; research on imprisonment and capital punishment. Prerequisite: 034:009.

034:182 Sociology of Law 3 s.h.
Conceptual, historical, and theoretical issues of law and operation of the criminal justice system; theory and research on law and the criminal justice system. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:186 Criminal Legal System 3 s.h.
Discretionary decision making in the U.S. criminal courts, from arrest through sentencing; legal and sociolegal issues relevant to

each stage of felony adjudication; sociological and social-psychological theories of decision making in adjudication, empirical research testing these theories. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:240 Seminar: Criminological Theories 3 s.h.
Theories of crime causation and their relationships to the cultures in which they have functioned.

034:242 Communities and Crime 3 s.h.
Distribution of crime as rooted in community-level conditions such as concentrated affluence or poverty, racial residential segregation, unemployment, family disruption, and immigration. Prerequisite: sociology graduate standing or consent of instructor.

034:244 Seminar: Selected Topics in Deviance and Control 3 s.h.
Critical analysis of current research; emphasis on theoretical contributions and methodological foundations. Repeatable.

034:246 Morals, Markets, and Crime 3 s.h.
Impact of markets on the moral and social order of advanced capitalist societies; market conditions that promote or suppress crime. Prerequisite: sociology graduate standing or consent of instructor.

034:248 Social Psychology of Crime and Delinquency 3 s.h.
Social-psychological explanations of crime and delinquency examined by tracing the origins of individual-level criminological theories. Prerequisite: sociology graduate standing or consent of instructor.

034:282 Sociology of Law Seminar 3 s.h.
Relationship between law and society explored through writings and research of classical and contemporary sociologists and legal scholars. Prerequisite: sociology graduate standing or consent of instructor.

Family, Life-Style, Children, Aging

034:018 Gender and Society 3-4 s.h.
Role and status of women in society; sex differences, sex role socialization, theories about origin and maintenance of sexual inequalities, changes in social life cycle of women, implications for social institutions and processes; focus on contemporary United States. GE: cultural diversity. Same as 131:018.

034:061 The American Family 3 s.h.
Structure and process; change over the life cycle; interrelations with other institutions; historical changes; variations by social class and ethnic group. Prerequisite: 034:001.

034:159 Families in Comparative Perspective 3 s.h.
Prerequisite: 034:001 or 034:061.

034:162 Work and Family Institutions 3 s.h.
Contemporary problems in the integration of work and family life; origins of work-family conflict in process of industrialization; effects of job-family conflicts on mothers, fathers, children; cross-cultural differences in dealing with work-family conflict. Prerequisite: 034:001 or 034:002 or consent of instructor. Same as 131:160.

034:266 Gender Inequalities 3 s.h.
Current sociological research on public policies that affect family life and well-being; divorce and child custody policies, teen pregnancy and abortion, family poverty, child care and work/family policies. Same as 131:266.

034:269 Seminar: Selected Topics in Family Sociology 3 s.h.
Selected theoretical and methodological issues. Repeatable. Prerequisite: social science graduate standing or consent of instructor.

Social Institutions, Social Change

034:022 Introduction to Social Work 4 s.h.
 Social welfare as a social institution; settings and methodologies of social work practice; profession of social work; historical development of American social welfare and social work; minimum of 60 hours volunteer work. Prerequisite: sophomore standing or consent of instructor. Same as 042:022.

034:126 Social Movements in the U.S. 3 s.h.
 Social unrest; crowd behavior; social movements treated as a form of social change. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:151 Sociology of the Third World 3 s.h.
 Analysis and measurement of development/underdevelopment; ideological perspectives on the Third World; the modern world system; selected issues in the study of social change in Asia, the Mideast, Latin America, Africa. Prerequisite: 034:001 or introductory course in economics or anthropology or consent of instructor. Same as 113:151.

034:153 Public Opinion 3 s.h.
 Role of public opinion in making public policy; formation and change of political attitudes and opinion; political ideology; measurement of public opinion; understanding opinion polls. Prerequisite: 034:001 or consent of instructor. Same as 030:171.

034:154 Society and Politics in East Asia 3 s.h.
 Japan, China, South and North Korea, Taiwan; major theoretical issues in social change and development through East Asian experiences in the modern era.

034:275 Development Policy and Planning in the Third World 3 s.h.
 Cross-cultural and interdisciplinary analysis of problems associated with urbanization and development in the developing nations. Prerequisite: graduate standing in a social science. Same as 07B:275, 042:275, 044:275, 102:275, 113:275.

034:285 Complex Organizations 3 s.h.

034:291 Seminar: Collective Action and Social Movements 3 s.h.
 Comparative, historical analysis of variations in social movements, their impact on social change.

034:310 Education and Social Change 2-3 s.h.
 Role of educational institutions, in connection with political and economic structures, in social change; illumination of theories of social change through case studies of educational systems in less developed nations. Same as 07B:210.

Social Class, Inequality, Race, Organizations, Politics

034:066 Social Inequality 3 s.h.
 Major theoretical perspectives for understanding inequality in economics, power, prestige; the magnitude of social inequality in the United States; sex and race inequality; trends in and causes of social mobility; selected consequences of social inequality. GE: cultural diversity.

034:135 Sociology of Sexuality 3 s.h.
 Sociological perspectives on sexuality, including theoretical and conceptual developments, empirical regularities, and social implications; sexual expression in the United States. Prerequisite: 034:001 or 034:002 or consent of instructor. Same as 154:145.

034:147 Sociology of African American and Latino Crime 3 s.h.
 Sociological approach to understanding African American and Latino crime in the United States.

034:150 Political Sociology 3 s.h.
 Sociological analysis of political behavior and belief, group conflict and political process, group consensus, political institutions, power and policy-making systems; relationship of the political system to the social system. Prerequisite: 034:001 or consent of instructor.

034:152 African American and Latino Inequality 3 s.h.
 African American and Latino experiences in inequality, such as skin-tone stratification, majority-minority group relations, and residential segregation.

034:155 Comparative Studies in Race and Ethnicity 3 s.h.
 Multidisciplinary study of intergroup relations, with emphasis on historical, sociological, and social psychological issues in the study of American minority groups. Prerequisite: 034:001 or 113:003 or consent of instructor.

034:158 Economy and Society 3 s.h.
 Economic debates that faced advanced market economies in the 20th century with extensions to the developing world; development and maintenance of investment elites and labor markets, development and extension of state activity.

034:164 Organizations and Modern Society 3 s.h.
 Approaches to the sociological study of economic and noneconomic organizations; the role of power and authority within the organization, and between the organization and its environment. Prerequisite: 034:001 or 034:020 or consent of instructor.

034:165 Sociology of Work and Occupations 3 s.h.
 Work commitment; prestige of occupations; occupational and professional careers; occupational groups and organizations; alienation; women, minorities, and occupational structures; capitalism and occupations. Prerequisite: 034:001 or 034:020 or consent of instructor.

034:175 Community and Urban Sociology 3 s.h.
 Impact of urbanization on social life, social networks; how social forces shape patterns of urban growth; racial segregation, gentrification; consequences of the growth of suburbs; urban crises, including concentrated poverty and crime. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:250 Seminar: Selected Topics in Political Sociology 3 s.h.
 Repeatable.

034:253 Social Stratification 3 s.h.
 Classical and contemporary theories; current research on the causes and magnitude of inequality in economics, power, and prestige; social mobility; critical issues in stratification.

034:254 Seminar: Selected Topics in Social Stratification 3 s.h.
 Prerequisite: social science graduate standing or consent of instructor.

034:256 Gender Stratification Seminar 3 s.h.
 Occupational gender segregation; gender gap in pay; role of family caregiving in women's lower pay; devaluation of caregiving work; comparable worth. Same as 131:256.

034:257 Seminar: Sociology of Labor Markets 3 s.h.
 Sociological and economic theories and research concerning area/regional/local labor markets, industrial sectors and the dual labor market, occupational/internal labor markets; other structural explanations of inequality.

034:258 Seminar: Economy and Society 3 s.h.
 Relationships between social classes and nation-states in capitalist societies; historical experience of the United States; comparative perspective, especially regarding Western Europe.

Teaching

034:382 Teaching Sociology 2-3 s.h.

Supervised preparation for teaching sociology courses; literature on teaching; course objectives, alternative teaching techniques; preparation of course syllabus, lectures, discussions, exams. Prerequisites: advanced graduate standing and consent of instructor.

Independent Reading and Research

034:381 Summer Research Practicum 2 s.h.

Students discuss their participation in ongoing research, review and critique each other's projects, write research reports describing their work. Prerequisite: sociology graduate standing or consent of instructor.

034:383 Readings and Research Tutorial arr.
Repeatable. Prerequisite: consent of supervising faculty member.

034:385 Master's Thesis arr.
Repeatable.

034:386 Ph.D. Dissertation arr.
Repeatable.

Spanish and Portuguese

Chair: Thomas E. Lewis

Professors: Daniel Balderston (Spanish and Portuguese/Cinema and Comparative Literature), Oscar Hahn, Thomas E. Lewis, Adriana Méndez Rodenas

Associate professors: María José Barbosa, María A. Duarte, Denise K. Filios, Brian Gollnick, Paula M. Kempchinsky, Philip W. Klein, Judith E. Liskin-Gasparro, Kathleen Newman (Spanish and Portuguese/Cinema and Comparative Literature), Mercedes M. Niño-Murcia, Carlos E. Piñeros, Francisco J. Sánchez, Diana Vélez

Adjunct associate professors: Sue E. Otto, Leslie Schrier

Assistant professors: Luis Martín-Estudillo, Jason Rothman, Eileen Willingham

Lecturers: Roberto Ampuero, Amber Brian, Ozzie Díaz-Duque, María Nilsson

Undergraduate degrees: B.A. in Spanish, Portuguese

Undergraduate nondegree programs: Minor in Spanish, Portuguese

Graduate degrees: M.A., Ph.D. in Spanish

Web site: <http://www.uiowa.edu/~spanport>

The Department of Spanish and Portuguese provides course work for undergraduate and graduate majors in Spanish or Portuguese and for the satisfaction of foreign language requirements for baccalaureate and advanced degrees in other fields. Undergraduate majors in comparative literature often choose from the department's courses to satisfy requirements in their major.

Undergraduate Programs

The department offers a Bachelor of Arts in Spanish and in Portuguese.

Elementary and intermediate courses in Spanish interrelate five performance goals—listening, reading, speaking, writing, and cultural knowledge—in a staged progression whose overall goal is to develop proficiency. The curriculum emphasizes acquisition of Spanish language skills in communicative contexts, enrichment of vocabulary through an introduction to Hispanic culture, and development of grammatical accuracy in speaking and writing.

The beginning course in Portuguese is for students without previous study or experience with the language. There also is a special Portuguese course for students who already know Spanish. Portuguese classes provide a great

deal of individual attention in an informal language-learning environment. Courses emphasize speaking, comprehending, and reading Brazilian Portuguese. They also incorporate cultural material in the form of videos and music.

Bachelor of Arts in Spanish

The Bachelor of Arts in Spanish is built on course work in Spanish peninsular and Spanish American literature, Hispanic cultures, Hispanic linguistics, and advanced language skills. The goal of the major is twofold: to study content areas related to the Spanish language, such as literature, culture, and linguistics; and to develop proficiency in the Spanish language in all four skills: speaking, listening, reading, writing. Students who major in Spanish may go on to graduate study in areas such as Spanish and Spanish American literature, Hispanic linguistics, or comparative literature. They also may combine their Spanish studies with other areas to prepare for career opportunities in international business, government, travel, or communications, where knowledge of another language and other cultures is essential.

The B.A. in Spanish requires 36 s.h. in the major (12 courses) that are beyond the level of the General Education Program. The core requirements are one course each from the principal academic areas of the department (see "Required Courses"). The remaining eight courses may focus on one or more of these areas or may include a broad range of courses within the department. These eight elective courses may include course work in Spanish language skills as well as more advanced language courses that focus on specialized language functions and purposes. They also may include courses in Portuguese or in related areas from other departments, such as history, anthropology, or linguistics, subject to restrictions (see "Restrictions"). Spanish majors are required to take at least three courses numbered 035:170 or above. Senior Seminar (035:195) is recommended for all Spanish majors.

Required Courses

One course in Hispanic linguistics	3 s.h.
One course in Spanish peninsular literature	3 s.h.

One course in Spanish American literature	3 s.h.
One course in culture (peninsular or Spanish American)	3 s.h.

For lists of courses in each of these four areas, contact the Department of Spanish and Portuguese.

Elective courses in Spanish	24 s.h.
Total	36 s.h.

RESTRICTIONS

All course work taken for the major must be at the 100 level, including three numbered 035:170 through 035:198.

No more than five of the following courses or equivalent transfer or study abroad courses (as determined by the department's study abroad advisor) may be applied toward the major.

035:103 Writing in Spanish	3 s.h.
035:104 Hispanic Institute: Language	3 s.h.
035:106 Spanish for Native Speakers	3 s.h.
035:107 Journalistic Writing in Spanish	3 s.h.
035:108 Taller de Escritura Creativa	3 s.h.
035:116 Advanced Composition and Conversation	3 s.h.
035:118 Business Spanish	3 s.h.
035:170 Advanced Spanish Review	3 s.h.
038:103 Composition and Conversation (Portuguese)	3 s.h.

No credit from 038:100 Accelerated Elementary Portuguese may be applied toward the Spanish major. Of the 5 s.h. earned in 038:101 Accelerated Intermediate Portuguese, 3 s.h. may be applied toward the Spanish major. A maximum of 6 s.h. of course work in Portuguese may be applied toward the Spanish major.

A maximum of 6 s.h. of related course work from outside the department may be applied toward the Spanish major. Related courses must be approved by the director of undergraduate studies and must be 100-level courses. For a list of approved related courses, contact the Department of Spanish and Portuguese.

A maximum of 6 s.h. in courses taught in English, either in the Department of Spanish and Portuguese or in other departments, may be applied toward the Spanish major.

A maximum of 15 s.h. of credit in approved courses may be transferred from other institutions toward the requirements for the major in Spanish.

Advanced undergraduates preparing to earn the B.A. with honors may enroll in graduate courses with the permission of their advisor and the

department chair. Ordinarily, permission is granted only to students who have completed a minimum of 30 s.h. of course work in the major and whose g.p.a. in the major is 3.75 or higher.

Elementary and Secondary Teaching Licensure in Spanish

Spanish majors interested in teaching Spanish at the elementary and/or secondary level must successfully complete the requirements for the Spanish major, as well as the requirements for teacher licensure students administered by the College of Education's Teacher Education Program in foreign language. For more information, contact the Department of Teaching and Learning.

Four-Year Graduation Plan in Spanish

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the third semester begins:

Intermediate Spanish I (or equivalent second-year, first-semester competence in Spanish) and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: two courses in Spanish beyond Intermediate Spanish II (or equivalent second-year, second-semester competence) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: a total of nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in Spanish

Admission to the honors program in Spanish requires a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.50 in

Spanish (contact the University Honors Program for more information about honors study at Iowa). Graduation with honors in Spanish requires that one course (3 s.h.) taken to complete major requirements be chosen for honors designation, in consultation with the department honors advisor. It also requires registration for 3 s.h. in 035:198 Honors Research and Thesis. To complete 035:198 successfully, students must present an honors thesis written in Spanish and must present it orally to a faculty committee in a meeting conducted in Spanish.

Minor in Spanish

A minor in Spanish requires 15 s.h. of course work in Spanish with a g.p.a. of 2.00 or higher. At least 12 of the 15 s.h. must be earned at The University of Iowa or in a University of Iowa study abroad program in courses numbered 100 and above.

All courses applied toward the minor must be taught in Spanish. Courses elected for the minor may not be taken pass/fail.

International Study Programs in Spanish

The department participates in several study abroad programs. Its summer programs include the Board of Regents, State of Iowa, programs in Valladolid, Spain, the CIC Summer Program in Mexico, and the University Studies Abroad Consortium in Alicante, Madrid, and San Sebastián, Spain, and in Heredia, Costa Rica.

Included in the department's semester or year-long programs are the CIEE Language and Area Studies Program (Alicante, Spain), the CIEE Language and Society Program (Seville, Spain), the CIEE Liberal Arts Program (Alcalá de Henares, Alicante, and Seville, Spain), the CIEE Humanities and Regional Studies Program (Barcelona, Spain), the CIEE Business and Society Program (Seville, Spain), and the University Studies Abroad Consortium (San Sebastián, Alicante, Madrid, and Bilbao, Spain; Santiago, Chile; Heredia and Puntarenas, Costa Rica; and Puebla, Mexico). Also included are CIEE programs in Buenos Aires, Argentina, and Santiago, Chile. For information about other foreign study programs in Spanish, contact the Office for Study Abroad.

Participation in a number of different programs allows the department to offer study abroad opportunities that take into account a variety of

student interests and needs. Credit earned in these or other study abroad programs may be applied toward the requirements for the Spanish major or minor. The amount of credit that may be accepted varies according to the program.

Interested students should contact the department's study abroad advisor. Credit earned in study abroad programs other than those listed above counts as transfer credit and is subject to the 15 s.h. maximum allowed for the major and the 3 s.h. maximum allowed for the minor.

Bachelor of Arts in Portuguese

Portuguese is spoken in Portugal, Brazil, Angola, Mozambique, Cape Verde, and Guine-Bissau. There are more speakers of Portuguese in South America than there are of Spanish. Knowledge of Portuguese and of Luso-Brazilian culture is extremely helpful for students interested in career opportunities in international business, government, or related fields.

The Bachelor of Arts in Portuguese requires a minimum of 30 s.h. in the major, including the following courses or their equivalents. All course work in the major must be beyond the second-year level. Courses listed under "Prerequisites" may not be counted toward the 30 s.h.

PREREQUISITES

038:100 Accelerated Elementary Portuguese	5 s.h.
One of these:	
038:101 Accelerated Intermediate Portuguese	5 s.h.
038:102 Portuguese for Spanish Speakers	3 s.h.

REQUIRED COURSES

038:103 Composition and Conversation	3 s.h.
038:105-038:106 Brazilian Literature I-II	6 s.h.
038:107 Introduction to Portuguese Literature	3 s.h.
038:114 Culture and Civilization of the Portuguese-Speaking World	3 s.h.

ELECTIVES

Portuguese courses numbered above 038:102	15 s.h.
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A maximum of 6 s.h. may be taken in approved courses in related areas (e.g., art, anthropology, comparative literature, geography, history, Latin American studies, linguistics, sociology, Spanish).

Four-Year Graduation Plan in Portuguese

The following checkpoints list the minimum requirements students must complete in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins:

competence in first-year Portuguese and at least one-quarter of the semester hours needed for graduation

Before the fifth semester begins: competence in intermediate Portuguese and at least one-half of the semester hours needed for graduation

Before the seventh semester begins: three or four additional courses for the major and at least three-quarters of the semester hours needed for graduation

Before the eighth semester begins: a total of seven courses in the major

During the eighth semester: enrollment in remaining major course work, any remaining General Education courses, and sufficient semester hours to graduate

Honors in Portuguese

Admission to the honors program in Portuguese requires a cumulative g.p.a. of at least 3.33 and a g.p.a. of at least 3.50 in Portuguese (contact the University Honors Program for more information about honors study at Iowa). Graduation with honors in Portuguese requires that students earn 3 s.h. in 038:198 Honors: Research and Thesis, plus 3 s.h. in a course chosen in consultation with the department honors adviser. Both courses (6 s.h.) count toward the total 30 s.h. required for the major in Portuguese. Students must write an honors thesis and present it orally to a committee of three faculty members.

Minor in Portuguese

A minor in Portuguese requires 15 s.h. of course work in Portuguese with a g.p.a. of 2.00 or higher. At least 12 of the 15 s.h. must be taken at The University of Iowa or in a University of Iowa study abroad program in courses numbered 038:103 and above. Courses elected for the minor may not be taken pass/fail.

International Study Programs in Portuguese

The department offers a seven-week program in Salvador, Bahia, Brazil that includes courses in language, culture, and literature. Contact the Office for Study Abroad for details.

Language for Nonmajors

The department offers several opportunities for students who wish to study Spanish and Portuguese—languages that are spoken in many cultures around the world and are important in the study of literature, art, film, and many other disciplines.

All new students—including transfer students—who have previous course work or other experience with Spanish should take the Spanish Foreign Language Placement Test, offered at no charge during summer orientation programs and monthly by Evaluation and Examination Service. The test helps determine the level at which a student should begin Spanish language study at The University of Iowa. Students should take the test before they register for their first University of Iowa Spanish course.

Students with experience in Portuguese may receive individual evaluations from the department.

The department's language courses are open to any student who has satisfied the specified prerequisites.

General Education Foreign Language Component

The department offers courses in Spanish and in Portuguese that may be used to complete the General Education Program foreign language component.

The first course in the Spanish sequence, 035:001, is most appropriate for students who have had no previous experience in Spanish. The Spanish Foreign Language Placement Test can help determine where other students should begin study. Entering students who have completed two years of secondary-level Spanish study typically begin with 035:005. Upon completion of elementary Spanish (either 035:002 or 035:005), students take intermediate Spanish (035:011 and 035:012). The accelerated course 035:013 combines 035:011 and 035:012 into one semester and may be appropriate for some students.

The Portuguese sequence 038:100 and 038:101 provides a full two-year course in two semesters. The sequence is open to any student with an interest in the language.

Other Courses for Nonmajors

Undergraduate students in other disciplines may complete portions of the College of Liberal Arts and Sciences General Education Program with 035:020 Contemporary Spanish American Narrative, 038:077 Brazil: The Erotic/Exotic Lure, and 038:020 Contemporary Brazilian Narrative, which are taught in English. Culture and Civilization of the Portuguese-Speaking World (038:114) also is approved for General Education and is taught in English. The department offers several other literature, film, and cultural survey courses of general interest that are taught in English.

International Business Certificate

The College of Liberal Arts and Sciences and the Henry B. Tippie College of Business offer a joint program leading to the Certificate in International Business. The program entails study of international business and economics; international relations and institutions; a foreign language, such as Spanish or Portuguese; and related area studies. It is designed not only for students who intend to pursue careers in international business but also for those interested in gaining a better understanding of the global economy and a broader awareness of the political, historical, and social environment in which international business operates.

The wide range of electives in the program permits students to tailor areas of specialization to their interests and to complement majors in both liberal arts and sciences and business administration.

For more information, see International Business in the Catalog and contact CLAS Academic Programs & Services in the College of Liberal Arts and Sciences or the Undergraduate Program Office in the Tippie College of Business.

Latin American Studies Certificate

The department plays an important and active role in the Latin American Studies Program, an interdisciplinary undergraduate program focusing on the history, politics, social organization,

economy, art, music, religion, and literature of Latin America. Work in the program may lead to a certificate or a minor in Latin American studies.

To receive the Certificate in Latin American Studies, students must have sufficient competence in Spanish or Portuguese to do background readings in the language before enrolling in the required senior seminar. See Latin American Studies in the Catalog.

Graduate Programs

The department offers two graduate degrees: Master of Arts and Doctor of Philosophy in Spanish.

Master of Arts in Spanish

The Master of Arts in Spanish requires 30 s.h. of graduate credit. It offers two emphases: literature, which provides training in literary analysis and broad knowledge of representative works in principal areas of Hispanic literature; and linguistics, which provides training in linguistic analysis and argumentation and broad knowledge of the principal subfields of Hispanic linguistics. Applicants to the M.A. program should have completed the equivalent of the undergraduate Spanish major with a g.p.a. of at least 3.00 in course work for the major.

The M.A. requires the following 10 courses.

Literature Emphasis

035:200 Foreign Language Teaching Methods	3 s.h.
Two courses in Spanish linguistics numbered 035:170 and above	6 s.h.
Two courses in Spanish (peninsular) literature numbered 035:170 and above	6 s.h.
Two courses in Spanish American literature numbered 035:170 and above	6 s.h.
One course in literary theory	3 s.h.
Two electives	6 s.h.

At least eight of the 10 courses must be taken in the Department of Spanish and Portuguese and must be numbered above 035:170. The remaining two may be taken either in the Department of Spanish and Portuguese (numbered above 035:170) or in related departments, subject to approval by the director of graduate studies.

Linguistics Emphasis

035:200 Foreign Language Teaching Methods	3 s.h.
035:204 Introduction to Spanish Linguistic Analysis	3 s.h.
Two courses in Spanish or Spanish American literature numbered 035:170 and above	6 s.h.
Two courses in syntax	6 s.h.
Two courses in phonetics/phonology	6 s.h.
One course in history of the Spanish language, language variation, or applied linguistics/language acquisition	3 s.h.
One elective	3 s.h.

Of these 10 courses, at least six must be offered by the Department of Spanish and Portuguese and numbered above 035:170. The remaining four may be offered by the Department of Spanish and Portuguese (numbered above 035:170) or the Department of Linguistics.

Language Tool Requirement

M.A. students must complete the equivalent of one year of college-level study of any approved second foreign language; Portuguese is highly recommended. They may satisfy this requirement either by examination or through courses taken at The University of Iowa or another accredited university; such course work does not count toward the 30 s.h. required for the M.A.

Maximum Study Loads

Maximum course registration is 15 s.h. of graduate-level course work during fall or spring semesters and 8 s.h. of graduate-level work during summer sessions. One-quarter-time and one-third-time teaching assistants are permitted to register for the maximum study loads. One-half-time teaching assistants may not register for more than 12 s.h. in fall or spring semesters or for more than 6 s.h. during summer sessions. Additional semester hours may be taken only with Graduate College approval.

Transfer Credit

A maximum of 9 s.h. of graduate credit in approved courses may be transferred from other institutions toward the 30 s.h. required for the M.A.

Examinations

The M.A. comprehensive examination includes written and oral components. The written portion consists of a two-hour examination in

each of three areas; an oral examination follows, usually lasting 90 minutes. The examining committee is composed of four departmental faculty members.

Students in the literature emphasis may choose to be examined in three literature areas or in two literature areas and one linguistics area. At least one literature area must be in Spanish literature and at least one must be in Spanish American literature. If three literature areas are chosen, at least one must represent literature written before 1700 (peninsular and/or Spanish American).

Students in the linguistics emphasis may choose to be examined in three linguistics areas or in two linguistics areas and one literature area. At least one of the linguistics areas must be in syntax or phonology. For students in both emphases, the third examination area may be a film area.

For reading lists, contact the Department of Spanish and Portuguese.

Doctor of Philosophy in Spanish

The Doctor of Philosophy in Spanish requires 72 s.h. of graduate credit. Ph.D. students choose from two programs; one is dedicated to Hispanic literatures, the other to Hispanic linguistics. The literary studies program trains students in textual analysis and literary history, criticism, and theory. The linguistic studies program provides training in linguistic analysis and theory.

Both the literature and linguistics tracks require a minimum of 57 s.h. of course work (19 courses), of which 30 s.h. may have been earned for an M.A. in Spanish at The University of Iowa or at another institution, as approved by the director of graduate studies. The Ph.D. also requires 3-15 s.h. earned in 035:299 Thesis, to fill the 72 s.h. required for the degree. Course requirements for each track are as follows.

Program I: Literature Track

Students must earn at least 27 s.h. (9 courses) beyond the M.A. (or 19 courses beyond the bachelor's degree). Courses taken for the M.A. may be used to meet part of this requirement. The following course work is required.

- Two courses in literary theory
- Three courses in Spanish literature, at least one of which must be pre-1700 literature
- Three courses in Spanish American literature

One course in cinema
 Two 300-level seminars in literary studies
 One literature course in another Romance language (see “Language and Literature Tool Requirements”)
 035:299 Thesis 3-15 s.h.

Each student’s plan of study is tailored to his or her area of emphasis and must be approved by the student’s advisory committee. Ph.D. course work in Spanish (taken after the M.A.) must be at the 200 and 300 levels, except the Romance literature course taken for the language tool requirement.

LANGUAGE AND LITERATURE TOOL REQUIREMENTS

Before the comprehensive examination, students must complete the equivalent of three years of college-level study in another Romance language and become well-acquainted with its literature in limited areas of specialization; the study of Luso-Brazilian literature is highly recommended. This requirement can be satisfied only through course work at The University of Iowa or another accredited university.

The equivalent of one year of college-level study of another approved foreign language also is required. If Portuguese is not the language chosen to fulfill the Romance literature requirement, it must be used for this requirement. Students who choose to write dissertations on topics in Spanish or Portuguese literature before 1700 must have one year of college-level Latin or the equivalent.

Students may satisfy the language tool requirement by examination or by course work at The University of Iowa or at another accredited university; language tool course work does not count toward the 72 s.h. required for the degree.

Program II: Linguistics Track

Students must earn at least 27 s.h. (9 courses) beyond the M.A. (or 19 courses beyond the bachelor’s degree). Courses taken for the M.A. may be used to meet part of this requirement. The following course work is required.

- 035:207 Topics in Comparative Romance Linguistics 3 s.h.
- 035:209 Spanish Phonology 3 s.h.
- 035:210 Spanish Syntax 3 s.h.
- 103:110 Articulatory and Acoustic Phonetics 3 s.h.
- 103:201 Introduction to Syntax 3 s.h.
- 103:202 Syntactic Theory 3 s.h.
- 103:203 Introduction to Phonology 3 s.h.

- One of these:
- 103:204 Phonological Theory 3 s.h.
- 103:212 Advanced Syntactic Theory 3 s.h.

Two courses from one or more of these: historical linguistics, language variation, language acquisition/psycholinguistics
 Two 300-level seminars in Hispanic linguistics
 035:299 Thesis 3-15 s.h.

Each student’s plan of study is tailored to his or her area of emphasis and must be approved by the student’s advisory committee. Ph.D. course work in Spanish (taken after the M.A.) must be at the 200 and 300 levels, except some courses offered by the Department of Linguistics and the required third-year-level course in Portuguese (see “Language Tool Requirements”).

LANGUAGE TOOL REQUIREMENTS

Students in the linguistics track must complete the equivalent of three years of college-level study of Portuguese, and the equivalent of one year of college-level study of each of two other languages. For students specializing in historical linguistics, one of those two languages must be Latin.

Students may satisfy the language tool requirement by examination or by course work at The University of Iowa or at another accredited university. The language tool course work does not count toward the 57 s.h. of pre-thesis course work required for the degree, except the third-year-level course work in Portuguese, which may be counted with the faculty advisor’s approval.

Comprehensive Examination

The purpose of the Ph.D. comprehensive examination is to determine whether the student has gained sufficient breadth and depth of research knowledge in Hispanic literatures or linguistics to enter the profession as a teacher-scholar. The examining committee is composed of five departmental faculty members or four departmental faculty members and a fifth faculty member from a related department.

The Ph.D. comprehensive examination includes written and oral components. The written portion consists of a three-hour examination in each of four areas; an oral examination follows, usually lasting two hours.

The four examination areas for each track are as follows.

Literature Track

Examination areas include a broad area in Spanish literary history, a broad area in Spanish American literary history, and two specialized areas of the student's choice.

The two specialized areas of the student's choice might involve further exploration of particular periods, genres, or movements within Spanish, Spanish American, and/or Luso-Brazilian literary and cultural history; or they might involve in-depth study of specific problems in Hispanic literary criticism or in literary theory. Areas involving cinema also may be included.

The reading lists for the broad areas are based on the departmental core reading lists for each genre and time period, with a supplemental list for each of the broad areas prepared by the student in consultation with the faculty member(s) directing the exam area. The student compiles the reading lists for each of the specialized areas in consultation with the faculty member(s) directing the area.

At least one of these specialized areas must be related to the dissertation topic. The student must submit a three-page preprospectus abstract to the examining committee before the exam in the specialized area that relates to the dissertation topic. The abstract is discussed during the oral doctoral exam.

Linguistics Track

Examination areas include Spanish syntax, Spanish phonology, Spanish language acquisition, and an additional area, typically involving exploration of specialized topics in the core areas of syntax, phonology, or language acquisition, or study of particular topics in comparative Romance linguistics, Spanish dialectology, history of the Spanish language, Portuguese linguistics, comparative foreign language pedagogy, sociolinguistics, or linguistic theory.

The reading lists for the three required areas are based on the departmental core reading lists, with a supplemental list for each area prepared by the student in consultation with the faculty member(s) directing the area. The student compiles the reading list for the specialized area in consultation with the faculty member(s) directing that area. Of the four exam areas, two should be broad, and two—including the specialized topic—should be focused.

At least one of these specialized areas must be related to the dissertation topic. The student must submit a three-page preprospectus abstract to the examining committee before the exam in the specialized area that relates to the

dissertation topic. The abstract is discussed during the oral doctoral exam.

Dissertation Prospectus

No later than the fourth week of the semester after the Ph.D. comprehensive examination is completed, the candidate submits a dissertation prospectus for the dissertation committee's approval. The dissertation committee is composed of five faculty members, one of whom must be from outside the department.

Financial Support

Teaching and research assistantships are available to qualified graduate students. Usually, two years of support are available for completion of the M.A. and three years beyond the receipt of the M.A. for the Ph.D. As long as their studies and performance meet department standards, graduate students continue to receive support over a reasonable period of time, but usually not for more than a total of six years. Applications for financial support should be made directly to the Department of Spanish and Portuguese.

Facilities

The Language Media Center (LMC) provides students and faculty with a broad range of services and facilities that include a state-of-the-art audio language laboratory, individual audio recording carrels, video viewing rooms for small groups, video viewing stations for individuals, and networked microcomputer and interactive multimedia workstations. The LMC maintains a number of instructional technology classrooms that have special video, audio, and computer equipment for in-class presentations. The center's extensive collection of international media resources on audio tape, videotape, computer diskette, videodisc, and CD-ROM serves learners at many levels and in many disciplines.

Courses**Basic Spanish**

Students must have permission from the chair of the Department of Spanish and Portuguese to take an elementary course for credit after having completed a higher-level course for which the elementary course or its equivalent is a prerequisite.

035:001 Elementary Spanish I 4 s.h.
Emphasis on oral and written skills. Taught in Spanish. GE: foreign language. Prerequisite: no previous study of Spanish. .

035:002 Elementary Spanish II 4 s.h.
Continuation of 035:001; emphasis on oral and written skills. Taught in Spanish. GE: foreign language. Prerequisite: 035:001 or equivalent.

035:005 Elementary Spanish Review 5 s.h.
Intensive treatment of material presented in 035:001-035:002. Taught in Spanish. GE: foreign language. Prerequisite: two years of secondary school Spanish.

035:011 Intermediate Spanish I 3-4 s.h.
Communication in speaking and writing; cultural topics. Taught in Spanish. GE: foreign language. Prerequisite: 035:002 or 035:005 or equivalent.

035:012 Intermediate Spanish II 3-4 s.h.
Continuation of 035:011. GE: foreign language. Prerequisite: 035:011 or equivalent.

035:013 Accelerated Intermediate Spanish 6 s.h.
The 035:011-035:012 sequence in one semester. GE: foreign language. Prerequisites: 035:002 or 035:005 or equivalent, and consent of Spanish GE coordinator.

035:020 Contemporary Spanish American Narrative 3 s.h.
Themes and narrative techniques in major texts, 1960-present; overview of cultural, sociopolitical aspects. Taught in English, readings in English. GE: foreign civilization and culture or humanities. Prerequisite: 08G:001.

035:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.

035:053 Special Work 1-3 s.h.

035:070 Introduction to Latin American Studies 3 s.h.
Same as 038:070, 130:070, 187:070.

Spanish Level 1, Primarily for Undergraduates

Students should take these courses at the start of the Spanish major.

035:103 Writing in Spanish 3 s.h.
Bridge from second-year Spanish to more advanced courses in Spanish language, linguistics, and literature; emphasis on skill development in writing, critical reading in Spanish, and oral communication. Taught in Spanish. Prerequisite: 035:012 or equivalent.

035:104 Hispanic Institute: Language 3 s.h.
Grammar essentials, written exercises, short compositions, conversational activities. Prerequisite: 035:012 or equivalent.

035:105 Hispanic Institute: Study/Life in Spain 1 s.h.

035:106 Spanish for Native Speakers 3 s.h.
Reading and writing; introduction to systematic study of Spanish grammar; for bilingual students who have already acquired listening and speaking skills in Spanish. Prerequisite: consent of instructor.

035:107 Journalistic Writing in Spanish 3 s.h.
Spanish writing skills; introduction to style and practice of journalistic reporting and writing. Prerequisite: one Spanish course numbered above 035:100.

035:108 Taller de Escritura Creativa 3 s.h.
Development of writing skills in Spanish through creative writing. Taught in Spanish. Prerequisite: 035:103 or equivalent.

035:109 Study of Language: Myths and Concepts 3 s.h.
How linguists look at language; basic concepts of linguistics and grammar. Prerequisite: 035:012 or equivalent.

035:110 Readings in Spanish Literature and Culture 3 s.h.
Tools for improving reading skills; basic concepts for textual understanding; historical overview of literary works, with focus on literature of Spain. Prerequisite: no more than one Spanish course numbered above 035:100.

035:111 Readings in Spanish American Literature and Culture 3 s.h.
Tools for improving reading skills; basic concepts for textual understanding; historical overview of literary works, with focus on Spanish American literature. Prerequisite: 035:012 or equivalent.

035:112 Introduction to Literary Analysis 3 s.h.
Close readings of literary texts from Spain and Spanish America; basic concepts of genre (narrative, poetry, theater, essay); writing about literary texts. Prerequisite: 035:012 or equivalent.

035:113 Screening Latin America 3 s.h.
Latin American film; histories of the four major national film industries; aesthetic and political debates surrounding the New Latin American Cinema movement of the 1960s and 1970s. Prerequisite: 035:012 or equivalent.

Spanish Level 2, Primarily for Undergraduates

Students should have at least one Level 1 course before starting these courses. Some courses have additional prerequisites.

Language Skills

035:116 Advanced Composition and Conversation 3 s.h.
Grammar review, class presentations and discussions; evolution of student compositions through peer editing, instructor critique, author's analysis; summary portfolio. Prerequisite: one Spanish course numbered above 035:100.

035:118 Business Spanish 3 s.h.
Clear, concise business writing; emphasis on linguistic and cultural proficiency. Prerequisite: one Spanish course numbered above 035:100.

Hispanic Linguistics

035:121 Introduction to Hispanic Linguistics 3 s.h.
Basic linguistic theory as applied to analysis of Spanish language; systematic study of sound patterns, sentence construction, word formation; meanings, historical linguistics, sociolinguistics, psycholinguistics. Prerequisite: one Spanish course numbered above 035:100.

035:122 Spanish Sound Structure 3 s.h.
Articulation of Spanish sounds—description and practice; how Spanish sounds are organized into classes, relations among the different classes, how they are implemented in context, patterns they exhibit. Prerequisite: one Spanish course numbered above 035:100.

035:123 Foundations in Sociolinguistics 3 s.h.
Dialects, speech communities, variation, choosing a code, solidarity and politeness, language and gender, language planning. Prerequisite: one Spanish course numbered above 035:100.

035:124 Introduction to Bilingualism 3 s.h.

Spanish-English bilingualism in the United States; language usage, maintenance, attitudes, shift, transfer, loss; code-switching. Prerequisite: one Spanish course numbered above 035:100.

035:127 Social History of the Romance Languages 3 s.h.

Evolution of Romance languages from Roman Empire to present; emphasis on the sociopolitical context in which spoken Latin of the Roman Empire evolved into Romance languages. Prerequisite: 035:121 or 035:123 or equivalent.

035:128 Foundations of Spanish Language Acquisition 3 s.h.

Basic principles of language acquisition theory applied to acquisition of Spanish as a first and second language. Prerequisite: 035:121 or equivalent.

035:129 Structure of the Spanish Language 3 s.h.

Detailed analysis of sentence grammar, contrasting Spanish structures with English ones; topics include pronouns, subordinate and relative clauses, word order, types of Spanish-English constructions, characteristics of questions, negations, passives, and commands. Prerequisite: 035:121 or equivalent.

Spanish American Literature and Culture

035:130 Spanish American Civilization 3 s.h.

Pre-Columbian, colonial, modern periods; socioeconomic structure, form of government, culture. Prerequisite: one Spanish course numbered above 035:100.

035:131 Contemporary Spanish American Fiction 3 s.h.

Major 20th-century short-story writers and novelists (Borges, Cortázar, Fuentes, García-Márquez, Rulfo, etc.) through representative works. Prerequisite: one Spanish course numbered above 035:100.

035:132 Spanish American Poetry 3 s.h.

Poetry as a literary genre, short history of its development, early forms in Spanish America, poets from Modernism to present; readings from writers including Rubén Darío, Pablo Neruda, César Vallejo, Octavio Paz, J.L. Borges. Prerequisite: one Spanish course numbered above 035:100.

035:134 Spanish American Short Story 3 s.h.

Works by 19th- and 20th-century Spanish American writers; emphasis on reading strategies and historical, cultural, literary backgrounds. Prerequisite: one Spanish course numbered above 035:100.

035:135 Latinos in the United States 3 s.h.

Latina/o cultural practices and products as dynamic expressions that affirm, contest, resist and are shaped in and against the mappings of race, class, nation, gender, sexuality, colonialism. Prerequisite: one Spanish course numbered above 035:100.

035:136 Culture and Language in the Andes 3 s.h.

The Andean world; transformations wrought by arrival of Europeans; continuity, change in principles of organization with emphasis on indigenous responses to conquest and continued domination by non-Andeans. Prerequisite: one Spanish course numbered above 035:100.

035:137 Introduction to Chicano Literature and Culture 3 s.h.

Recent fiction and poetry by Chicano and Chicana writers. Taught in English. Prerequisite: one Spanish literature or culture course numbered above 035:100. Same as 008:152.

035:139 Spanish American Love Poetry 3 s.h.

Development of the love theme in Spanish American lyric poetry during Romantic, Modernist, Avant-Garde periods; Darío, Mistral, Neruda, Paz, Cardenal. Prerequisite: one Spanish course numbered above 035:100.

035:140 Spanish American Literature of Fantasy 3 s.h.

Principal manifestations from 19th-century origins to culmination in 20th-century masterpieces; analysis. Prerequisite: one Spanish course numbered above 035:100.

035:142 Introduction to Caribbean Studies 3 s.h.

Same as 187:142.

035:143 Cuban American Literature and Culture 3 s.h.

Experiences of Cuban exiles in the United States; emergence of a literature and culture based on sense of dispossession, marginality, and memory of island past. Taught in English. GE: cultural diversity. Prerequisite: 08G:001 or equivalent. Same as 048:196.

035:144 Latin American Women Writers 3 s.h.

Focus on 20th century; how Latin American women subjects view themselves through literature; textual practice specific to women; psychoanalytic approaches, contemporary feminist criticism. Prerequisite: one Spanish course numbered above 035:100. Same as 131:162.

035:145 Latin America Cinema 3 s.h.

Latin American film; histories of the four major national film industries; aesthetic and political debates surrounding the New Latin American Cinema movement of the 1960s and 1970s. Taught in English. Prerequisite: one Spanish course numbered above 035:100 or one course numbered above 048:050. Same as 048:145.

035:147 Topics in National Literatures/Cultures 3 s.h.

Prerequisite: one Spanish course numbered above 035:100.

035:148 Topics in Cinema, Literature and Society 3 s.h.

Concept of national cultures examined through major texts in literary and film history in one Latin American nation. Prerequisite: one Spanish course numbered above 035:100.

035:149 Colonial Spanish American Culture 3 s.h.

Facets of the Spanish American Colonial world, including literature, arts, music, architecture, and other forms of cultural expression; major themes and concepts, including discovery, conquest, evangelization, intercultural contact, memory, identity. Taught in Spanish. Prerequisite: one Spanish course numbered above 035:100.

Spanish Literature and Culture

035:150 Spanish Civilization 3 s.h.

Political, religious, social, economic background; important cultural, literary movements. Prerequisite: one Spanish course numbered above 035:100.

035:151 Renaissance and Golden Age Literature 3 s.h.

Introduction to literary questions of 15th to 17th centuries in Spain; understanding of literary Spanish and cultural issues of the period—end of the feudal mind, beginning of individualism, poetry, emergence of theater, crisis of empire. Prerequisite: one Spanish course numbered above 035:100.

035:152 Modern Spanish Literature 3 s.h.

Important trends from Romanticism to generation of 1927. Prerequisite: one Spanish course numbered above 035:100.

035:153 Don Quijote 3 s.h.

Close reading of Cervantes' comic novel about utopia and alienation in early Modern Spain. Prerequisite: one Spanish course numbered above 035:100.

035:154 Hispanic Institute: Culture 3 s.h.

Overview of geography, history (political, economic, social), architecture, painting, music of Spain; readings, slides, video and audio cassettes, visits to local sites of cultural significance. Prerequisite: 035:012 or equivalent.

035:155 Hispanic Institute: Literature 3 s.h.

Introduction to poetry, narrative, and theater in Spanish literature; textual commentary and critical interpretations of major

representative works of selected historical periods. Prerequisite: one Spanish course numbered above 035:100 or equivalent.

035:160 Medieval Spanish Literature in Context 3 s.h.
Introduction to Medieval Spanish literature, culture, history; *Poema del Cid* and the Reconquest; *Milagros de Nuestra Señora* and the Camino de Santiago; *Libro de buen amor* and popular culture; *Cancioneros* and the Trastámara dynasty. Prerequisite: one Spanish course numbered above 035:100.

035:161 Masterpieces of Modern Spanish Literature 3 s.h.
Works of the last 30 years of the 19th century, up to the outbreak of the Spanish Civil War; Realism, Naturalism, generation of 1898, generation of 1913, generation of 1927. Prerequisite: one Spanish course numbered above 035:100.

Spanish/Spanish American Literature and Culture

035:166 Advanced Literary Analysis 3 s.h.
Introduction to theoretical concepts and methods through reading and analysis of Hispanic literary texts. Prerequisite: 035:110 or 035:111 or 035:112.

Spanish Level 3, for Undergraduate and Graduate Students

Undergraduates should take the following courses during their last semesters of enrollment. These courses are also open to M.A. students. All of these courses require a research paper. Prerequisites vary.

035:170 Advanced Spanish Review 3 s.h.
Attention to problem areas of vocabulary and grammar; structured practice of realistic communication tasks; advanced level. Prerequisites: two courses in Spanish numbered above 035:102, one of which must be numbered above 035:115.

035:172 Topics in Cultural Studies 3 s.h.
Prerequisites: two Spanish courses numbered above 035:100.

035:173 Colonial Spanish American Literature 3 s.h.
Readings from the formative period of Spanish American culture; may include discovery and conquest, ethnicity and gender, dissent and popular resistance. Prerequisite: one Spanish literature course numbered above 035:130.

035:174 Contemporary Mexican Theater and Performance 3 s.h.
Contemporary theatrical and performance production in Mexico since the 1960s. Prerequisite: one Spanish literature course numbered above 035:130.

035:175 Cultural Identity in Caribbean Literature 3 s.h.
Main currents in 20th-century Hispanic Caribbean literature: *americanismo literario*, *poesía negra*, testimonial narrative centered on slavery and women's fiction; Caribbean cultural context in music, humor, Afro-Caribbean rituals. Prerequisite: one Spanish literature course numbered above 035:130.

035:176 Latin American Studies Seminar 3 s.h.
Interdisciplinary approach. Taught in English. Recommended: Spanish or Portuguese sufficient for background readings. Same as 038:176, 048:153, 113:132, 130:176.

035:178 Topics in Spanish American Literature 3 s.h.
Prerequisite: one Spanish literature course numbered above 035:130.

035:179 Survey of Twentieth-Century Puerto Rican Literature 3 s.h.
Prerequisite: one literature course in Spanish numbered above 035:130.

035:180 Spanish Golden Age Fiction 3 s.h.
Literature and society in first centuries of Spanish Modernity, Renaissance and Baroque periods, love and the self, alienation, utopias, the body and morals, cultural dimensions of genres. Prerequisite: one Spanish literature course numbered above 035:130.

035:181 Topics in Spanish Literature 3 s.h.
Prerequisite: one Spanish literature course numbered above 035:130.

035:182 Spanish Picaresque Literature 3 s.h.
Major texts on the Spanish Golden Age's antihero; rogue and pseudo-autobiographical narratives; questions of poverty, social mobility in beginning of modern Spanish society; male, female social offenders; *Lazarillo de Tormes*, *Guzmán de Alfarache*, *La hija de Celestina*. Prerequisite: one Spanish literature course numbered above 035:130.

035:183 Spain 1700-1900 3 s.h.
Literature and culture of modernization in Spain during the eighteenth and nineteenth centuries; literary and cultural periods including the Enlightenment, Romanticism, Realism, Modernism. Prerequisite: one Spanish literature course numbered above 035:130.

035:184 Linguistic Aspects of Second Language Acquisition 3 s.h.
Theoretical linguistic approaches to acquisition of Spanish as a second language. Prerequisite: 035:121 or equivalent.

035:185 Topics in Hispanic Linguistics 3 s.h.
Prerequisite: 035:121 or equivalent.

035:186 Introduction to Spanish Syntax 3 s.h.
Basic principles of transformational syntax as applied to analysis of Spanish syntactic structure; extensive syntactic analysis. Prerequisite: 035:121 or equivalent.

035:187 Spanish Word Formation 3 s.h.
Basic principles of morphology (derivational and inflectional) applied to analysis of Spanish complex word formation; extensive practice in morphological analysis. Prerequisite: 035:121 or equivalent.

035:188 History of the Spanish Language 3 s.h.
Development of phonetic, morphological, syntactical properties of the Spanish language from its Latin roots; emphasis on internal history and process of expansion from a minor dialect (Castilian) to a significant world language. Prerequisite: 035:121 or equivalent.

035:189 Introduction to Spanish Phonology 3 s.h.
Sound patterns of Spanish; how various theoretical approaches solve basic problems in Spanish phonology; identification of linguistic universals, how they are manifested in the sound structure of Spanish. Prerequisite: 035:121 or 035:122 or equivalent.

035:190 Chicano Cinema 3 s.h.
History of Chicano independent and industry film and television production since the Chicano political and cultural movement began in the 1960s. Taught in English. Prerequisite: one Spanish literature or culture course numbered above 035:100 or one film studies course. Same as 048:190.

035:191 Topics in Latin American Cinema 3 s.h.
Taught in English. Prerequisite: one Spanish literature or culture course numbered above 035:130 or one film studies course. Same as 048:178.

035:192 Topics in Film Studies 3 s.h.
Prerequisite: one Spanish literature or culture course numbered above 035:130 or one film studies course.

035:193 Sexualities in Hispanic Cultures 3 s.h.
 Historical, social, and theoretical concepts of sexuality in Spanish, Spanish American, and U.S. Latino/a cultures; constructions of gender and sexual identity. Taught in English. Prerequisite: 154:110 or consent of instructor. Same as 154:185.

035:194 Topics in Literary Studies 3 s.h.
 Prerequisite: at least one Spanish literature course numbered above 035:130.

035:195 Senior Seminar 3 s.h.
 Analysis of works of a major author or theme from the Latin American or the Peninsular traditions or on a focused set of problems in Hispanic linguistics.

035:196 Spanish-to-English Translation Workshop 3 s.h.
 Translation theory and practice of literary translation; effectiveness of translations done by students, markets for literary translation, copyright law, authors' rights. Prerequisite: two Spanish literature courses numbered 035:130 or above.

035:198 Honors: Research and Thesis 2-3 s.h.
 Prerequisite: honors standing.

035:199 Special Work 1-3 s.h.

Spanish, Primarily for Graduate Students

035:200 Foreign Language Teaching Methods 3 s.h.
 Readings in pedagogical theory and practice and second language acquisition; experience designing activities for teaching and assessment, with critiques based on current theories and approaches; development of reflective practices toward one's own language teaching.

035:201 Second Language Acquisition Research and Theory I 3 s.h.
 Theories of second language acquisition; perspectives (linguistic, psychological, sociological, etc.) that inform SLA theory; paradigms and approaches used in SLA research and in learning to read literature critically and intelligently; research project designed by students. Same as 009:237, 039:200, 39J:201, 164:201.

035:202 Second Language Acquisition Research and Theory II 3 s.h.
 Same as 039:201, 164:202.

035:204 Introduction to Spanish Linguistic Analysis 3 s.h.
 Introduction to goals and concepts of generative linguistics as applied to Spanish: main subfields of linguistics; skill development in linguistic analysis, argumentation.

035:206 Spanish Language Acquisition 3 s.h.
 Theoretical linguistic approaches to monolingual, bilingual, and second language acquisition of Spanish and Portuguese. Prerequisite: 035:204 or equivalent.

035:207 Topics in Comparative Romance Linguistics 3 s.h.
 Comparative study of phonology, morphology, or syntax of the main Romance languages as informed by linguistic theory; diachronic or synchronic perspective. Repeatable. Prerequisite: 035:204 or equivalent. Recommended: additional graduate course work in linguistics. Same as 20E:201, 103:262.

035:209 Spanish Phonology 3 s.h.
 Modern approaches to synchronic phonology as applied to Spanish; focus on traditional descriptive problems, recent generative analyses. Prerequisite: phonology or linguistics course.

035:210 Spanish Syntax 3 s.h.
 Spanish syntactic constructions examined in framework of selected syntactic theory; emphasis on development of syntactic argumentation. Prerequisite: 035:204 or equivalent. Recommended: additional course work in syntax.

035:211 Topics in Hispanic Linguistics 3 s.h.
 Taught in Spanish or English. Repeatable.

035:212 Multimedia and Second Language Acquisition 3 s.h.
 Same as 009:238, 013:253, 164:211.

035:214 Advanced CALL Curriculum Development 3 s.h.
 Same as 009:239, 013:254, 164:214.

035:221 Spanish American Dialectology 3 s.h.
 Regional and social dialects, dialect zones, peninsular dialect base; indigenous and African influences; linguistic analysis of representative data samples of Spanish American speech.

035:225 Topics in Literary Studies 3 s.h.
 Repeatable.

035:226 Topics in Cultural Studies 3 s.h.
 Repeatable.

035:227 Topics in SLA: Writing 3 s.h.
 Theory, research approaches, and assessment in second language writing. Taught in English. Same as 010:275, 164:227.

035:228 Topics in SLA: Speaking 3 s.h.
 Same as 009:236, 164:221.

035:230 Spanish American Narrative: Nineteenth Century 3 s.h.
 Review of narrative, with emphasis on Romanticism.

035:231 Spanish American Narrative: Modern and Regional 3 s.h.

035:233 Spanish American Poetry of the Twentieth Century 3 s.h.
 Principal works of vanguard poets and characteristics of their poetry; Vicente Huidobro, César Vallejo, Pablo Neruda, Jorge Luis Borges, Octavio Paz, Nicanor Parra.

035:234 Spanish American Poetry Before 1918 3 s.h.
 European and Spanish American forerunners of modernism; modernistic poetic motifs in verse and prose; early modernists; Rubén Darío and flowering of modernism; death and transfiguration of the swan.

035:236 Contemporary Spanish American Narrative 3 s.h.
 Narrative from mid-20th century to present; emphasis on the Boom, post-Boom.

035:239 Queer Theory 3 s.h.
 Same as 008:239, 048:239.

035:240 Topics in Culture and Politics 3 s.h.
 Comparative and interdisciplinary approaches to current theoretical debates regarding culture and politics. Repeatable. Same as 048:240.

035:245 Spanish American Short Story of Fantasy 3 s.h.
 Theories of Tzvetan Todorov, Irène Bessi re on literature of fantasy; diachronic study of literature of fantasy, from Juan Montalvo's "Gaspar Blondin" to work of Bioy Casares, Julio Cort zar; other authors including Dar o, Lugones, Nervo, Borges, Carpenter, Fuentes, Garc a M rquez.

035:246 Women Writers of Latin America 3 s.h.
 Emergence of a new female subject in 20th-century Latin American women's writing; Latin American women writers' contribution to contemporary feminist thought. Same as 131:246.

035:247 Readings: Latin American History arr.
 Questions that have preoccupied major Latin American *pensadores* of 19th and 20th centuries: constitutional organization, secularization of society, colonial heritage, race and nationality, the Indian, "Latin democracy," cultural identity, social revolution, economic dependency and development. Same as 016:288.

- 035:248 Topics in Film Studies** 3 s.h.
Repeatable.
- 035:250 Medieval Spanish Literature** 3 s.h.
Critical reading of canonical medieval texts in their cultural context; application of modern theory to medieval texts; works such as *El Poema del Cid*, *El Romancero Viejo*, *Milagros de Nuestra Señora*, *El Conde Lucanor*, *El Libro de Buen Amor*.
- 035:255 Spanish Renaissance and Baroque Literature** 3 s.h.
Critical analysis of social, moral, political function of literature in early modern Spain; Renaissance and Baroque poetry; *La Celestina*; pastoral literature; *Don Quijote*; narratives of the court; modern subjectivity; the question of genre.
- 035:256 The Picaresque Novel** 3 s.h.
Spanish Renaissance, Baroque from perspective of the narratives of deception, moral crisis; aesthetic, social dimensions of a literary work; intertextuality, subjectivity; *Lazarillo*, *Guzmán de Alfarache*; works by Quevedo, Cervantes, Salas Barbadillo, Castillo Solórzano.
- 035:257 Spanish Romanticism** 3 s.h.
Spanish literature and culture 1814-1850, in context of political and economic history.
- 035:258 Nineteenth-Century Spanish Novel** 3 s.h.
Development of the novel in Spain, from Romanticism to the Generation of 1898; novel's role in helping to consolidate ideologies and structures of 19th-century bourgeois society.
- 035:259 Contemporary Spanish Fiction** 3 s.h.
The post-Franco novel in Spain; literary "postmodernism" and relationships between Spanish literature, politics, and society since 1975; representative significant works.
- 035:260 Contemporary Non-Castilian Narrative Spain** 3 s.h.
Readings in Spanish of novels and short stories written in another language of the Spanish state or by a member of one of Spain's non-Castilian historic nationalities.
- 035:262 Jiménez, García Lorca, and the Generation of '27** 3 s.h.
Poetry and poetic theory of Juan Ramón Jiménez, Federico García Lorca, Rafael Alberti, Pedro Salinas, Jorge Guillén.
- 035:263 Twentieth-Century Spanish Drama** 3 s.h.
Principal playwrights, trends to present day; works by Benavente, García Lorca, Casona, Buero Vallejo, Sastre.
- 035:269 Topics in Spanish American Literature** 3 s.h.
Repeatable.
- 035:270 Topics in Spanish Literature** 3 s.h.
Repeatable.
- 035:271 Crossing Borders Proseminar** 1 s.h.
Same as 01H:330, 013:260, 016:244, 030:243, 044:287, 048:244, 113:248.
- 035:272 Crossing Borders Seminar: Introductory** 3-4 s.h.
Same as 008:230, 01H:230, 013:264, 016:293, 030:241, 044:285, 048:230, 113:230.
- 035:273 Crossing Borders Seminar** 2-3 s.h.
Same as 008:231, 01H:247, 013:262, 016:247, 030:242, 044:286, 048:247, 113:247, 129:231.
- 035:281 Introduction to Contemporary Literary Theory** 3 s.h.
Major currents, how theories construct literary texts; structuralist, semiotic, psychoanalytic, Marxist, reader response, feminist, deconstructive criticism. Taught in English. Same as 048:217.

- 035:283 Literary Polemics in Spanish America** 3 s.h.
Principal literary debates in Latin America from birth of national literatures to present; social, political significance of the different polemics as quest for individual Latin American identity.
- 035:284 Types of Modern Criticism** 3 s.h.
A contemporary literary theory, such as semiotics, Marxist literary theory, deconstruction, feminism. Taught in English. Same as 008:284, 048:284.
- 035:286 Colonial Spanish American Literature** 3 s.h.
Chronicles of the Conquest: close reading with focus on role of writing and operations of "othering"; balance between critical secondary sources and primary sources.
- 035:298 Special Work** arr.
Prerequisite: consent of instructor.
- 035:299 Thesis** arr.
- 035:300 Seminar: Spanish Linguistics** 3 s.h.
Repeatable with different topics. Same as 103:300.
- 035:302 Nineteenth-Century Spanish American Literature** 3 s.h.
Repeatable with different topics.
- 035:303 Twentieth-Century Spanish American Literature** 3 s.h.
Repeatable with different topics.
- 035:304 Medieval Spanish Literature** 3 s.h.
Repeatable with different topics.
- 035:305 Seminar: Spanish Golden Age Literature** 3 s.h.
Repeatable with different topics.
- 035:306 Seminar: Nineteenth-Century Spanish Literature** 3 s.h.
Repeatable with different topics.

Portuguese for Undergraduate and Graduate Students

- 038:020 Contemporary Brazilian Narrative** 3 s.h.
Novels, short stories, other narrative forms, beginning with neorealists of 1930s; cultural background of different periods, innovative literary approaches of writers through films, other media. GE: foreign civilization and culture or humanities. Prerequisite: 08C:001 or consent of instructor.
- 038:053 Special Work** arr.
Prerequisite: consent of instructor.
- 038:070 Introduction to Latin American Studies** 3 s.h.
Same as 035:070, 130:070, 187:070.
- 038:077 Brazil: The Erotic/Exotic Lure** 3 s.h.
Popular culture (carnaval, soccer, lay and religious festivities), the land, and the people. Taught in English.
- 038:100 Accelerated Elementary Portuguese** 0-5 s.h.
First-year course in one semester; comprehending, speaking, reading, writing modern Portuguese; emphasis on speaking. GE: foreign language.
- 038:101 Accelerated Intermediate Portuguese** 0-5 s.h.
Second-year course in one semester; reading comprehension, oral and writing skills; grammar review. GE: foreign language. Prerequisite: 038:100 or equivalent.
- 038:102 Portuguese for Spanish Speakers** 3 s.h.
Systematic differences and similarities between Spanish and Portuguese; emphasis on reading, writing. Prerequisite: consent of instructor.

038:103 Composition and Conversation 3 s.h.

Speaking, writing skills through discussion and oral presentations, grammar and vocabulary review, composition; materials from current Brazilian newspapers, magazines, short fiction, telenovelas and films. Prerequisite: 038:101 or equivalent.

038:104 Introduction to Literary Analysis 3 s.h.

Basic concepts of genre, literary periods, narrative and literary analysis; close reading of literary texts in Portuguese; tools for improving reading and writing skills. Taught in Portuguese. Prerequisite: 038:101 or equivalent.

038:105 Brazilian Literature I 3 s.h.

Beginnings through end of 19th century; representative readings from all periods and genres; focus on works of major Brazilian authors such as Gonzaga, Alencar, Castro Alves, Machado de Assis, Cruz e Sousa. Taught in Portuguese. Prerequisite: 038:101 or equivalent.

038:106 Brazilian Literature II 3 s.h.

Twentieth-century poetry, novels, short stories; modernism, regionalism, generation of '45, concretism; works of principal figures behind these movements; focus on major writers of modern period, such as Lima Barreto, Mário de Andrade, Drummond, Jorge Amado, Cabral de Melo Neto, Guimarães Rosa, Lispector, and contemporary writers. Taught in Portuguese. Prerequisite: 038:101 or equivalent.

038:107 Introduction to Portuguese Literature 3 s.h.

Representative readings including Portuguese lyric and epic poetry, Renaissance theater, romantic and realist novels, 20th-century symbolist verse, neorealist prose. Taught in Portuguese. Prerequisite: 038:101 or equivalent.

038:112 Topics in Luso-Brazilian Literature 3 s.h.

Genres, themes, movements. Taught in Portuguese. Prerequisite: a Portuguese literature course or consent of instructor.

038:114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.

Modern Brazil, Portugal, Angola, Mozambique through historical background, socioeconomic and political structures, culture, literature of ethnic, national groups. Taught in English. GE: foreign civilization and culture.

038:120 Topics in Luso-Brazilian Culture 3 s.h.

Comparative analysis of Brazil and Portuguese-speaking countries in Africa; colonization, independence, religion, music, language. Taught in Portuguese. Prerequisite: 038:101 or equivalent or consent of instructor.

038:176 Latin American Studies Seminar 3 s.h.

Interdisciplinary approach. Recommended: Spanish or Portuguese sufficient for background readings. Taught in English. Same as 035:176, 048:153, 113:132, 130:176.

038:179 Special Work 1-3 s.h.

Prerequisite: consent of instructor.

038:198 Honors Research and Thesis 2-3 s.h.

Prerequisite: honors standing.

038:279 Special Work arr.

Prerequisite: consent of instructor.

Speech Pathology and Audiology

Chair: Paul J. Abbas

Professors: Paul J. Abbas (Speech Pathology and Audiology/Otolaryngology—Head and Neck Surgery), Ruth A. Bentler, Carolyn Jane Brown (Speech Pathology and Audiology/Otolaryngology—Head and Neck Surgery), Kate E. Gfeller (Music/Speech Pathology and Audiology), Richard R. Hurtig, Ingo R. Titze (Speech Pathology and Audiology/Music, UI Foundation Distinguished Professor), J. Bruce Tomblin (Speech Pathology and Audiology/Otolaryngology—Head and Neck Surgery, Spriestersbach Distinguished Professor in the Liberal Arts), Chris W. Turner (Speech Pathology and Audiology/Otolaryngology—Head and Neck Surgery), Richard S. Tyler (Otolaryngology—Head and Neck Surgery/Speech Pathology and Audiology)

Professors emeriti: Erich S. Luschei, Kenneth L. Moll, Hughlett L. Morris, Arnold M. Small, Duane C. Spriestersbach, Duane R. Van Demark

Adjunct professors: Fariborz Alipour-Haghighi, Lorraine Ramig

Associate professors: Douglas Baynton (History/Speech Pathology and Audiology), Eileen Finnegan (Speech Pathology and Audiology/Otolaryngology—Head and Neck Surgery), Penelope K. Hall, Michael P. Karnell (Otolaryngology—Head and Neck Surgery/Speech Pathology and Audiology), Karla McGregor, Jerald B. Moon, Patricia M. Zebrowski

Associate professor emeritus: Charles V. Anderson

Associate professors (clinical): Toni D. Cilek, Ann M. Fennell, Lenore Holte, Danielle Kelsay, Linda Louko, Diane P. Niebuhr, Anne K. Wallace

Adjunct associate professors: Carolyn Jean Brown, Charles A. Miller, Ronald C. Scherer, Katherine Verdolini, Gerald N. Zimmermann

Assistant professors: Sandie Bass-Ringdahl, Shawn J. Goodman, Jean Gordon, Amanda Owen

Assistant professors (clinical): Karen Bryant, Stephanie Fleckenstein

Adjunct assistant professors: Kelly Schmidt-Clay, Alice Smith, Brad Story, Gail Takahashi

Adjunct instructors in practicum instruction: Barbara Anderson, Julie Bridges, Paige Burden, Debora Downey, Katherine Emrich, Barbara A. Gienapp, Peggy Gingerich, Daniel Hansen, Emily Hart, Rebecca Hubbard, Claudia L. Knutson, Marsha Barth Leick, Mary Lowder, Pena Lubrica, Mary F. Lukas, Joan D. Marttila, Elizabeth Merrifield, Rebecca R. Miller, Aaron Packer, Debra K. Robin, Janette Rogers, Sandra D. Show, Christine Troxell

Undergraduate degree: B.A. in Speech and Hearing Science

Graduate degrees: M.A. in Speech Pathology and Audiology, Ph.D. in Speech and Hearing Science, Au.D. in Audiology

Web site: <http://www.shc.uiowa.edu>

The courses and degree programs of the Department of Speech Pathology and Audiology are planned to meet the needs of students preparing for careers in clinical service, college and university teaching, and research concerned with speech, language, or hearing processes and disorders. The department also offers courses for students with vocational and professional goals in other fields—for example, engineering, psychology, education, speech, theatre arts, dentistry, and medicine—whose preparation may be enriched by the study of speech and hearing processes and their disorders.

Advanced degree holders in this field provide clinical services for people with speech, hearing, or language problems in hospitals, community clinics, rehabilitation facilities, elementary and secondary schools, and private practice. They teach in colleges and universities and conduct research in laboratories concerned with communication processes and disorders.

All of the department's professional programs leading to the M.A. or Au.D. are accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association.

Undergraduate Program

Since the master's degree or Au.D. is the minimum level of preparation for persons seeking professional careers in this field, the undergraduate curriculum leading to the B.A. in speech and hearing science does not qualify an individual to work professionally in the field. Instead, it is designed primarily to prepare students for graduate work. Hence, the undergraduate program emphasizes the normal processes of speech, hearing, and language. The undergraduate program also may be taken by students earning College of Liberal Arts and Sciences degrees who are not seeking careers in this field.

Course Requirements

The B.A. in speech and hearing science requires 55-56 s.h. in the major, including nine core courses offered by the department and eight cognate courses offered by other departments. Students may choose cognate courses that also

help complete the College of Liberal Arts and Sciences General Education Program. The requirements are as follows.

All of these:

003:015 Introduction to Speech and Hearing Processes and Disorders	3 s.h.
003:110 Phonetics: Theory and Applications	3 s.h.
003:111 Basic Acoustics for Speech and Hearing	3 s.h.
003:112 Anatomy and Physiology of Speech Production	4 s.h.
003:113 Introduction to Hearing Science	4 s.h.
003:116 Basic Neuroscience for Speech and Hearing	3 s.h.
003:117 Psychology of Language	3 s.h.
003:118 Language Development	3 s.h.
003:185 Hearing Loss and Audiometry	3 s.h.
031:001 Elementary Psychology	3 s.h.
103:100 Introduction to Linguistics	3 s.h.

One of these:

07P:025/22S:025 Elementary Statistics and Inference	3 s.h.
07P:143/22S:102 Introduction to Statistical Methods	3 s.h.
22S:030 Statistical Methods and Computing	3 s.h.
22S:101 Biostatistics	3 s.h.

One of these:

004:007 General Chemistry I	3 s.h.
004:011 Principles of Chemistry I	4 s.h.
029:008 Basic Physics (preferably with lab)	4 s.h.
029:011 College Physics	4 s.h.

One of these:

031:013 Introduction to Clinical Psychology	3 s.h.
031:050 Psychology of Aging	3 s.h.
031:063 Abnormal Psychology: Health Professions	3 s.h.
042:108 Basic Aspects of Aging	3 s.h.

One of these:

07P:106 Child Development	3 s.h.
031:014 Introduction to Child Development	3 s.h.

One of these:

002:002 Introductory Animal Biology (with lab)	4 s.h.
002:010 Principles of Biology I (with lab)	4 s.h.

One of these:

22M:015 Mathematics for the Biological Sciences	4 s.h.
22M:016 Calculus for the Biological Sciences	4 s.h.
22M:025 Calculus I	4 s.h.

First-year calculus is encouraged, particularly for those who are interested in pursuing a graduate degree in audiology.

Transfer students must complete a minimum of 15 s.h. in departmental courses at The University of Iowa.

Students have the opportunity and are encouraged to obtain 25 hours of supervised clinical observation, a prerequisite for participation in clinical practicums at the graduate level. This requirement is satisfied by completion of independent observations or required observations made for elective departmental courses.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: The major requires specific mathematics and science competencies that may be satisfied with courses approved for the General Education Program.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: three courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: nine courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 12 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The junior/senior-year program leading to the B.A. with honors in speech and hearing science is open to students, who at the beginning of their junior year, have completed at least 10 s.h. of course work that can be counted toward a major in the department and have earned a g.p.a. of at least 3.50 in all course work at the University.

At any time during their undergraduate study, students who have a cumulative University of Iowa g.p.a. of at least 3.33 and who did not enter the University as honors students may enroll in the University Honors Program (contact the University Honors Program for more information). Students with a g.p.a. of 3.50 or higher may enter the department's honors program upon recommendation of the departmental honors advisor. To graduate with honors, students must be members of the University Honors Program and must complete both 003:097 Honors Seminar and 003:098 Honors Thesis. Students register for 003:097 in the spring of their junior year and for 003:098 in both fall and spring of their senior year.

Graduate Programs

Master of Arts with Research Emphasis (General Emphasis)

The Master of Arts in speech pathology and audiology with research emphasis (general emphasis) requires a minimum of 38 s.h. of graduate credit. The program is designed for students who intend to pursue a Ph.D. or who seek additional education but do not intend to work professionally in the United States as speech language pathologists or audiologists. It typically includes a substantial portion of the courses in the professional M.A. and Au.D. curricula.

Students in the research emphasis M.A. program are required to complete a thesis and defend their research successfully at a final oral examination.

The program typically requires two years to complete. Specific course work required depends on the student's background and interests.

Master of Arts with Speech-Language Pathology Emphasis

The Master of Arts in speech pathology and audiology with professional emphasis in speech-language pathology requires a minimum of 38 s.h. of graduate credit. The program prepares clinicians in speech-language pathology or audiology to be able to function independently in a variety of clinical settings. Graduates of the program meet all academic and practicum requirements for clinical certification by the American Speech-Language-Hearing Association

and for licensure by the state of Iowa. The program is designed to ensure that upon graduation, the student will meet requirements for immediate professional employment.

M.A. students usually have a background of undergraduate courses in speech and hearing science, psychology of language, and human behavior that is equivalent to an undergraduate major in this field at The University of Iowa.

Before registering in the program, entering M.A. students receive descriptive materials about basic science core courses considered to be required preparation for the M.A. program, and clinical core courses required for the M.A. for which comparable courses taken at the undergraduate level may be accepted. Decisions about incorporating background course work in these areas are made by the faculty advisor in consultation with the student and the instructors of the basic science or clinical core courses. Entering students must have completed the following courses or their equivalents.

003:110 Phonetics: Theory and Applications	3 s.h.
003:111 Basic Acoustics for Speech and Hearing	3 s.h.
003:112 Anatomy and Physiology of Speech Production	4 s.h.
003:113 Introduction to Hearing Science	4 s.h.
003:116 Basic Neuroscience for Speech and Hearing	3 s.h.
003:117 Psychology of Language or	3 s.h.
003:218 Psycholinguistics	3 s.h.
003:118 Language Development	1-3 s.h.
003:185 Hearing Loss and Audiometry	3 s.h.
07P:025 Elementary Statistics and Inference	3 s.h.
Biology, physics, chemistry, or mathematics courses (must include at least one biology, physics, or chemistry course)	6 s.h.
Behavioral science or social science courses (must include at least one psychology course)	6 s.h.

Students pursuing the professional M.A. with speech-language pathology emphasis must complete at least 4 s.h. of work related to research. This may be accomplished by any combination of enrollment in seminars (2 s.h. each) and/or research hours. Completion of the research hours may consist of work toward a thesis or preparation of a paper involving one or a combination of the following: literature review, prospectus development, and presentation of data. A paper is required at the end of each

semester's enrollment. An exception to this requirement can be made in the case of research hours leading to a thesis.

Candidates for an M.A. with professional emphasis in speech-language pathology are not required to complete a thesis, although all students demonstrating research aptitude and interest are encouraged to do so. Students who do not elect the thesis option are required to take final written comprehensive examinations.

A typical M.A. program with professional emphasis usually takes two calendar years to complete but may take longer, depending on the student's background and personal interests.

CORE REQUIREMENTS

All students seeking an M.A. with professional emphasis in speech-language pathology must take the following.

003:135 Foundations of Clinical Practice I	3 s.h.
003:136 Foundations of Clinical Practice II	1 s.h.
003:137 Foundations of Clinical Practice III	1 s.h.

In addition, they must take the following courses unless they completed equivalent courses as undergraduates.

003:114 Introduction to Voice Disorders	2 s.h.
003:115 Structural Disorders	2 s.h.
003:116 Basic Neuroscience for Speech and Hearing	3 s.h.
003:140 Manual Communication	1 s.h.
003:145 Developmental Speech and Language Disorders	3 s.h.
003:146 Neurogenic Disorders of Language	3 s.h.
003:147 Neurogenic Disorders of Speech	2 s.h.
003:183 Introduction to Stuttering	2 s.h.
003:185 Hearing Loss and Audiometry	3 s.h.
003:244 Rehabilitative Audiology	3 s.h.

Students must take 003:510 Seminar: Introduction to Research in Speech and Hearing (1 s.h.) during the fall semester of their first year.

They must take 003:515 Proseminar (0 s.h.) during the fall and spring semesters of their first year.

Also required are additional semester hours of practicum registration sufficient to meet supervised, direct clinical experience requirements for the Certificate of Clinical Competence of the American Speech-Language-Hearing Association and the Iowa license, and to provide broad, supervised practicum experience.

In addition to the core requirements listed above, all students preparing to be speech-language pathologists must take a minimum of 12 s.h. from the following.

003:201 Principles of Voice Production	3 s.h.
003:206 Language Disorders in Children 0-18 Years	3 s.h.
003:213 Voice Habilitation	2 s.h.
003:222 Speech and Hearing Anatomy (dissection)	2 s.h.
003:228 Stroboscopy	1 s.h.
003:233 Aphasia	2 s.h.
003:234 Motor Speech Disorders	2 s.h.
003:236 Swallowing Disorders	2 s.h.
003:237 Cleft Palate and Related Disorders	2 s.h.
003:260 Designing Assistive Devices	1-3 s.h.
003:282 Phonological Development and Disorders	2 s.h.
003:283 Stuttering	2 s.h.
003:350 Preceptorship in Augmentative Communication	1 s.h.
07E:104 Remedial Methods in Speech and Hearing	2 s.h.

Students also must earn a total of 4 s.h. in 003:590 Research; or 4 s.h. by taking two seminar courses (e.g., 003:521 and 003:523); or 4 s.h. in a combination of research and seminar courses.

Master of Arts with Audiology Emphasis

Students considering an M.A. with professional emphasis in audiology who want to work in a clinical setting following graduation should consult their advisors, since the degree may not meet the requirements for national accreditation by the American Speech-Language-Hearing Association. All students working toward an M.A. in audiology must take the following.

003:219 Fundamentals of Laboratory Instrumentation	3 s.h.
003:240 Hearing Aids I	3 s.h.
003:242 Hearing Aids II	3 s.h.
003:244 Rehabilitative Audiology	3 s.h.
003:245 Pediatric Audiology	2 s.h.
003:246 Advanced Audiology	3 s.h.
003:247 Medical Audiology	2 s.h.
003:290 Objective Measures	3 s.h.

They also must take two seminars, and two advanced courses chosen from the following.

003:222 Speech and Hearing Anatomy	2 s.h.
003:224 System and Signal Theory for Speech and Hearing Science	3 s.h.

003:230 Advanced Hearing Science and Speech Perception	4 s.h.
003:243 Hearing Aid Assembly and Repair	2 s.h.
003:249 Cochlear Implants	3 s.h.
003:256 Physiology of Hearing	3-4 s.h.
003:292 Advanced Rehabilitative Audiology	2 s.h.
07E:104 Remedial Methods in Speech and Hearing	2 s.h.

Students may select additional practicum, research, and elective course work.

Students planning to work as audiologists in a school setting must take 07E:104 Remedial Methods in Speech and Hearing along with appropriate practicum experiences.

Requirements for Employment

A number of states, including Iowa, require a state license in speech-language pathology or audiology for persons who work in settings other than the public schools. Students who meet the requirements listed above for the M.A. with professional emphasis also meet the academic requirements for the license in Iowa as well as in most other states. In 2007 the requirements to earn ASHA national certification in audiology will change. Certification will require a clinical doctoral degree or the equivalent. Currently, it is not known how this change will affect state licensure. Students preparing for careers in audiology should consult their advisors.

Public School Licensure

Students preparing for clinical positions in public schools typically must meet school licensure or certification requirements of the states in which they plan to work. The following criteria meet the requirements for endorsement as speech-language pathologists or audiologists in Iowa and most other states.

- A master's degree with professional emphasis in speech-language pathology or audiology
- Completion of an approved human relations component
- Completion of courses that cover the education of the disabled and the gifted and talented (e.g., exceptional persons, education of the gifted)
- Completion of the requirements in speech-language pathology or audiology and the 20 s.h. professional education sequence, including 07E:104 Remedial Methods in Speech

and Hearing and 07E:192 Special Area Student Teaching as a speech-language pathologist or audiologist; course work in the following areas must be completed to meet the professional education sequence:

Curriculum (e.g., reading, methods, curriculum development)

Foundations (e.g., philosophy of education, foundations of education)

Educational measurement (e.g., tests and measurements, measures and evaluations of instruction)

Educational psychology (e.g., educational psychology, counseling theories and techniques)

Special education (e.g., introduction to special education, exceptional persons, learning disabilities)

Child development (e.g., human growth and development, principles and theories of child development, history and theories of early childhood education)

Note: General Education Program courses (e.g., introduction to psychology, sociology, history, literature, and humanities) do not meet the requirements of the professional education sequence.

Doctor of Audiology (Au.D.)

Students who wish to work as audiologists in the United States are encouraged to earn a clinical Doctor of Audiology (Au.D.) rather than an M.A. with professional emphasis in audiology. The four-year program requires 95 s.h. and is designed for students with an undergraduate degree in speech pathology and hearing science. Au.D. students must complete the following courses. They may be excused from taking courses whose equivalents they completed successfully during undergraduate study.

22M:016 Calculus for the Biological Science (or one semester of calculus)	4 s.h.
003:135 Foundations of Clinical Practice I	3 s.h.
003:145 Developmental Speech and Language Disorders	3 s.h.
003:219 Fundamentals of Laboratory Instrumentation	3 s.h.
003:224 System and Signal Theory for Speech and Hearing Science	3 s.h.
003:230 Advanced Hearing Science and Speech Perception	4 s.h.
003:238 Capstone Project	1 s.h.
003:240 Hearing Aids I	3 s.h.

003:242 Hearing Aids II	3 s.h.
003:244 Rehabilitative Audiology	3 s.h.
003:245 Pediatric Audiology	2 s.h.
003:246 Advanced Audiology	3 s.h.
003:247 Medical Audiology	2 s.h.
003:249 Cochlear Implants	3 s.h.
003:255 Educational Audiology	2 s.h.
003:256 Physiology of Hearing	3-4 s.h.
003:290 Objective Measures	3 s.h.
003:292 Advanced Rehabilitative Audiology	2 s.h.
003:311 Clinical Practice in Audiology	arr.
07P:243 Intermediate Statistical Methods or	4 s.h.
171:161 Introduction to Biostatistics	3 s.h.

Students also must select a minimum of three courses from the following electives; one must be a seminar. With their advisors' consent, students may substitute other University of Iowa course work to satisfy this requirement.

003:222 Speech and Hearing Anatomy	2 s.h.
003:243 Hearing Aid Assembly and Repair	2 s.h.
003:526 Seminar: Rehabilitative Audiology	2 s.h.
003:535 Seminar: Evoked Potentials	2 s.h.
003:537 Seminar: Clinical Audiology	2 s.h.
003:538 Seminar: Auditory Physiology	2 s.h.
07E:104 Remedial Methods in Speech and Hearing	2 s.h.
068:199 Basic Otolaryngologic Science	2 s.h.
132:180 Fundamental Neurobiology	4 s.h.
158:101 Topics in Deaf Studies	3 s.h.
158:110 Teaching Deaf and Hard of Hearing Students	3 s.h.

Doctor of Philosophy

The Doctor of Philosophy in speech and hearing science requires a minimum of 72 s.h. of graduate credit. The program provides flexible, comprehensive training for scholar-researchers interested in communication processes and their disorders. Students with diverse backgrounds in the natural and behavioral sciences are encouraged to apply and develop their skills in an atmosphere of interdisciplinary research.

The Ph.D. program reflects the broad interests of its multidisciplinary faculty, whose members have diverse backgrounds in speech, language, hearing, engineering, physiology, physics, psychology, linguistics, and bioengineering. Faculty members are committed to an interdisciplinary approach to questions at every level of the speech and language production/perception system.

The purpose of the doctoral program is to provide the integrated knowledge necessary for a productive career in speech-language pathology and audiology, communication science, and related areas.

The department encourages candidates with special interests, goals, or backgrounds to develop individualized programs of study. There are no required courses for the Ph.D.; rather, a program of study is developed by each student in consultation with a faculty committee. The course of study is developed from courses offered by the department, courses in other areas (e.g., physics, engineering, psychology, mathematics, statistics, physiology, neurology, anatomy, and others), and special reading and research experiences.

The following courses are offered by the department of Speech Pathology and Audiology primarily for Ph.D. students. (Students interested in specific areas of research and selected publication citations of the faculty are encouraged to write to the department.)

003:201 Principles of Voice Production	3 s.h.
003:218 Psycholinguistics	3 s.h.
003:219 Fundamentals of Laboratory Instrumentation	3 s.h.
003:224 System and Signal Theory for Speech and Hearing Science	3 s.h.
003:230 Advanced Hearing Science and Speech Perception	4 s.h.
003:250 Acoustics of Speech	4 s.h.
003:251 Biomechanics of Speech	4 s.h.
003:252 Physiology of Speech Production	5 s.h.
003:256 Physiology of Hearing	3-4 s.h.
003:511 Introduction to Doctoral Research (taken spring of the first year)	1 s.h.

In addition, seminars offered by the department cover a broad range of topics relevant to doctoral study.

Students in the Ph.D. program usually are expected to register for research credit (003:590 Research) during each semester of residence and to register for and participate in 003:515 Proseminar.

Knowledge in each of the areas of hearing, speech, language, mathematics, statistics, computer science, and instrumentation is required of all students. Decisions regarding the extent of this knowledge and how it is obtained (e.g., course work or independent study) are made jointly by the student and the student's faculty committee.

Doctoral students who have not written a master's thesis must complete the equivalent of a

master's thesis project as well as the comprehensive examination. They also must successfully complete and submit a dissertation based on original research.

Admission, Appointments

The Department of Speech Pathology and Audiology has requirements for admission and graduate appointments that supplement those specified by the Graduate College. A brief summary of department requirements is presented below. More detailed information is available from the director of graduate studies.

All applicants for admission to graduate study in the Department of Speech Pathology and Audiology must complete the Graduate College application form. In addition, they must complete the departmental information form, available from the department.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Admission to the M.A. and Au.D. Programs

The department bases M.A. admission on applicants' credentials relative to those presented by other applicants for the same term. While an undergraduate g.p.a. above 3.20 does not ensure admission, the department admits few applicants with an undergraduate g.p.a. below 3.20.

Completed applications must be received no later than January 15 for enrollment the next summer session or fall semester. Later applications are considered only in special situations. Applications to begin study spring semester are considered only under special circumstances and only if received no later than the preceding November 1.

Admission to the Ph.D. Program

Completed applications should be received by February 1 for summer session and fall semester and November 1 for spring semester. Applicants who want to be considered for graduate appointments must file the admission application by February 1. Applicants usually are notified of action on their admission within six weeks of the application deadline.

Application for Graduate Appointments

The following information applies to all financial appointments administered by the department.

- Graduate appointments usually begin only in fall semester. Students beginning study spring semester or summer session are considered for appointments for the following fall semester.
- Scores on the Graduate Record Examination (GRE) General Test are required for consideration for financial assistance.
- Appointment applications must be received by January 15 to ensure consideration for an appointment beginning the following fall semester.
- Initial appointment offers generally are made between April 1 and June 1; however, the department continues to make offers after this time.

Clinical Facilities

The clinical training program benefits greatly from Iowa City's standing as the principal health center of the state, and from the ready availability of health service facilities for clinical training of students in speech-language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services include the Wendell Johnson Speech and Hearing Clinic; the division of speech and hearing in the University of Iowa Hospitals and Clinics (UIHC) Department of Otolaryngology—Head and Neck Surgery; UIHC Consolidated Speech and Swallowing Services, which provides services to the Departments of Neurology, Child Psychiatry, and Otolaryngology—Head and Neck Surgery; speech and hearing services in the Center for Disabilities and Development; Pediatrics Regional Child Health Specialty Clinics; and the audiology and speech pathology service in the Veterans Affairs Iowa City Health Care System. Directors of these programs form the Council on Speech Pathology and Audiology at The University of Iowa.

The Wendell Johnson Speech and Hearing Clinic serves the University and the general public. Included in its services are outpatient evaluation and rehabilitation programs for speech, hearing, and language problems; one-week intensive summer programs in stuttering, language development, reading, and aural rehabilitation; and a six-week summer preschool program for hearing-impaired children. These clinical programs give students supervised clinical

experience with a wide variety of speech, hearing, and language disorders.

In addition to the clinical training in the Wendell Johnson Speech and Hearing Clinic, training also may be acquired in supervised clinical practice with elementary school children through various state area education agencies; and in supervised clinical practice in speech, language, and hearing services provided by the University of Iowa Hospitals and Clinics Consolidated Speech and Swallowing Services, the Regional Child Health Specialty Clinics, Center for Disabilities and Development, and the Veterans Affairs Iowa City Health Care System.

Public and private departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

Research Facilities

Facilities in the Wendell Johnson Speech and Hearing Center include audiometric testing suites, diagnostic and remediation suites, equipment for diagnosis and therapy, a closed-circuit television system, and laboratories and equipment for acoustic, physiologic, and perceptual studies of speech, and for audiologic, psychoacoustic, and neurophysiologic studies of hearing. Mechanical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation with varied departments in the Carver College of Medicine and the College of Dentistry makes additional laboratory facilities available for research on problems in speech and hearing. The participation and cooperation of specialists from various fields, including psychology, child development, education, engineering, statistics, and medicine, further broaden the scope of research activities in speech and hearing.

Courses

For Undergraduates

003:015 Introduction to Speech and Hearing Processes and Disorders **3 s.h.**

Speech, language, auditory behavior as fields of scientific study; major types of speech, hearing, language disorders. Offered fall and spring semesters.

003:029 First-Year Seminar **1 s.h.**

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

003:096 Research Practicum **arr.**

Individual or small group participation in faculty research projects. Prerequisite: consent of instructor.

003:097 Honors Seminar **2 s.h.**

Research topics and procedures in speech and hearing sciences; ongoing faculty research, research opportunities, possible research projects. Prerequisite: honors standing with intent to complete an honors thesis.

003:098 Honors Thesis **2 s.h.**

Close work with a faculty mentor. Prerequisite: 003:097.

For Undergraduate and Graduate Students

003:110 Phonetics: Theory and Applications **3 s.h.**

Basic concepts: articulatory and acoustic description of speech sound production, dialect variations, language differences; development of phonetic transcription skills with emphasis on English phonetics, clinical applications to developing and disordered speech. Offered fall semesters.

003:111 Basic Acoustics for Speech and Hearing **3 s.h.**

Principles of sound, simple harmonic motion, sound pressure and intensity, decibels, complex waves, Fourier analysis, resonance and filters, distortion, transmission of sound. Offered spring semesters. Prerequisite: 029:008 or 029:011.

003:112 Anatomy and Physiology of Speech Production **4 s.h.**

Normal anatomy, physiology of structures used to produce speech; principles, methods for instrumental study of speech production. Offered spring semesters. Prerequisite: 003:110. Pre-corequisite: 003:111 or consent of instructor.

003:113 Introduction to Hearing Science **4 s.h.**

Normal auditory process; anatomy and physiology of auditory system; subjective correlates of auditory stimuli. Offered fall semesters. Prerequisite: 003:111 or consent of instructor.

003:114 Introduction to Voice Disorders **2 s.h.**

Basic foundations for management of voice disorders. Offered spring semesters. Prerequisite: 003:112.

003:115 Structural Disorders **2 s.h.**

Therapy approaches used to treat speech production and swallowing disorders associated with disorders that affect structure and physiology of the speech and swallowing mechanism; basic knowledge necessary for clinical practice by clinicians who do not specialize in management of patients with head and neck cancer, cleft palate, or neurological disorders. Offered fall semesters.

003:116 Basic Neuroscience for Speech and Hearing **3 s.h.**

Basic anatomy, physiology of central nervous system; emphasis on neural systems involved in normal and disordered communication. Offered fall semesters. Prerequisite: course in biological sciences or zoology or physiology, or consent of instructor. Same as 103:177.

003:117 Psychology of Language **3 s.h.**

Theoretical, empirical investigations of linguistic behavior; behaviorist, rationalist models in context of formal linguistic structure and context of models of speech perception and production. Offered spring semesters. GE: social sciences. Prerequisite: 103:100 or consent of instructor. Same as 103:172.

003:118 Language Development **1-3 s.h.**

Models of children's language acquisition; child language/communication development from infancy through school age, in context of current developmental research. Offered spring semesters. GE: social sciences. Prerequisites: 031:001 and 103:100 or consent of instructor for undergraduates; consent of instructor for graduate students. Same as 103:176.

- 003:140 Manual Communication** 1 s.h.
Training in use of sign systems in manual communication.
- 003:145 Developmental Speech and Language Disorders** 3 s.h.
The nature of developmental disorders—basic concepts, including behavioral characteristics, developmental patterns, etiology theories; assessment and intervention principles in phonology, semantics, morphology, syntax. Offered fall semesters. Prerequisites: 003:015, 003:110 or 103:110, 003:112, and 003:118; or consent of instructor.
- 003:146 Neurogenic Disorders of Language** 3 s.h.
Language disorders secondary to acquired brain damage in adults; clinical intervention issues. Offered fall semesters. Prerequisites: 003:015, 003:110 or 103:110, 003:112, and 003:116; or consent of instructor.
- 003:147 Neurogenic Disorders of Speech** 2 s.h.
Speech disorders secondary to acquired brain damage in adults; clinical intervention issues. Offered spring semesters. Prerequisite: 003:116.
- 003:165 Communication Disorders and Aging** 2 s.h.
Introduction to speech, language, and hearing processes and disorders among older adults; survey of characteristics of communication and communication breakdown, remediation, and strategies for improving communication with older adults with communication disorders; primarily for nonmajors and service providers other than speech-language pathologists and audiologists. Offered summer sessions of odd years. Same as 153:165.
- 003:183 Introduction to Stuttering** 2 s.h.
Theoretical perspectives on the nature of stuttering, including onset and development, basic phenomena, beginning treatment principles. Offered spring semesters. Prerequisite: 003:112.
- 003:185 Hearing Loss and Audiometry** 3 s.h.
Introduction to profession of audiology; overview of hearing disorders, evaluation, treatment; basic pure-tone and speech audiometry. Offered fall semesters. Pre- or corequisite: 003:113.
- 003:186 Problems: Speech/Hearing Processes and Disorders** arr.
Prerequisite: consent of instructor.
- ## For Graduate Students
- 003:135 Foundations of Clinical Practice I** 3 s.h.
Basic concepts of clinical practice, including models of diagnosis, fundamentals of clinical data collection and measurement, treatment planning, professional writing. Offered fall semesters. Prerequisites: 003:015, 003:110 or 103:110, 003:112, 003:118, and 07P:025, or equivalents; and graduate standing; or consent of instructor. Corequisite: 003:145.
- 003:136 Foundations of Clinical Practice II** 1 s.h.
Advanced concepts of clinical practice, including principles of human behavior change, clinical decision making, generalization, transfer and maintenance, models of service delivery, ethical practice, advanced professional writing. Offered spring semesters. Prerequisites: 003:135 and graduate standing, or consent of instructor.
- 003:137 Foundations of Clinical Practice III** 1 s.h.
Advanced principles of clinical practice, including risk management, public policy and models of third-party reimbursement, professional issues. Offered fall semesters. Prerequisites: 003:136 and graduate standing.
- 003:201 Principles of Voice Production** 3 s.h.
Basic physical, physiological, pedagogical principles in understanding professional, nonprofessional, impaired voice production; vocal anatomy, voice classification; control of loudness, pitch, register, quality; efficient, inefficient use of voice; instrumentation for voice analysis, synthesis. Offered fall semesters. Same as 025:201.
- 003:202 Methods of Teaching Voice** 3 s.h.
Comparison of pedagogical techniques; attitude assessment, language aptitude, physical, emotional characteristics; mental images modifying respiratory, phonatory, articulatory behavior; vocal hygiene; performance anxiety; student/teacher relationships. Offered spring semesters. Prerequisite: consent of instructor. Same as 025:202.
- 003:204 Voice for Performers** 2 s.h.
Same as 025:216, 049:201.
- 003:206 Language Disorders in Children 0-18 Years** 3 s.h.
Disorders resulting from phonological, semantic, pragmatic, and morphosyntactic deficits; receptive, expressive problems; special assessment and intervention procedures. Offered fall semesters of even years. Prerequisite: 003:145 or equivalent.
- 003:207 Speech and Language Disorders of Older Children: Five to Eighteen Years** 2 s.h.
- 003:209 Language Disorders: Multicultural Issues** 2 s.h.
- 003:210 Clinical Ethics in Audiology and Speech** 2 s.h.
- 003:213 Voice Habilitation** 2-3 s.h.
Application of methods of intervention in development, training, rehabilitation of vocal behavior; motor learning, efficacy of treatment strategies, factors affecting compliance with recommended therapy. Offered fall semesters. Prerequisites: 003:114 or equivalent, and 003:201. Same as 025:356.
- 003:218 Psycholinguistics** 3 s.h.
Theoretical, empirical issues in psycholinguistics; models demonstrating relation of formal language structure to psychological operations used in speech perception, production; laboratory emphasis on paradigmatic research in psycholinguistics. Offered fall semesters. Prerequisite: consent of instructor. Same as 103:218.
- 003:219 Fundamentals of Laboratory Instrumentation** 3 s.h.
Electrical circuits, emphasis on application to instrumentation used in speech and hearing; laboratory focus on instrumentation. Offered spring semesters.
- 003:221 Instrumentation for Voice Analysis** 2 s.h.
Same as 025:357.
- 003:222 Speech and Hearing Anatomy** 2 s.h.
Laboratory course in anatomy of speech and hearing mechanisms; instruction in dissection techniques. Offered summer sessions. Prerequisite: 003:112 or equivalent.
- 003:224 System and Signal Theory for Speech and Hearing Science** 3 s.h.
Principles of linear-systems theory applied to speech and auditory research, including system functions, filter properties, convolution, Fourier Series, Fourier transform. Offered spring semesters. Prerequisite: introductory calculus.
- 003:226 Hearing Loss Prevention** 2 s.h.
- 003:228 Stroboscopy** 1 s.h.
How to perform videolaryngoscopy using a rigid scope and applying knowledge of normalcy and pathophysiology; how to interpret findings; describe and report them concisely. Offered summer sessions. Prerequisite: 003:114.
- 003:230 Advanced Hearing Science and Speech Perception** 4 s.h.
Perception of speech and other sounds by human listeners, how these perceptual abilities relate to the physiology of the auditory system; perception of speech by hearing-impaired listeners through hearing aids or cochlear implants. Offered spring semesters. Prerequisite: 003:113 or consent of instructor. Same as 103:230.

- 003:233 Aphasia** 2 s.h.
 Assessment, diagnosis, and treatment of aphasia and other acquired language and cognition-based communication disorders. Offered spring semesters. Prerequisites: 003:117, and 003:146 or equivalent; or consent of instructor. Corequisite: 003:136.
- 003:236 Swallowing Disorders** 2 s.h.
 Physiology of normal, abnormal swallowing; assessment, treatment of swallowing disorders in adults, children. Offered fall semesters. Prerequisites: 003:112, 003:115 or equivalent, and 003:116; or consent of instructor.
- 003:237 Cleft Palate and Related Disorders** 2 s.h.
 Nature, etiologies, principles of treatment of common disorders associated with cleft lip and palate, associated disorders. Offered spring semesters. Prerequisite: 003:115 or equivalent.
- 003:238 Professional Issues in Audiology I/ Capstone Project** 1 s.h.
 Individual work with a faculty member on audiology topics; final project for clinical doctorate in audiology (Au.D.). Offered fall semesters. Prerequisite: consent of instructor.
- 003:239 Professional Issues in Audiology** 2 s.h.
- 003:240 Hearing Aids I** 3 s.h.
 Hearing aids, diagnostic procedures; laboratory emphasis on measurement procedures. Offered spring semesters. Prerequisite: 003:185 or consent of instructor.
- 003:242 Hearing Aids II** 3 s.h.
 Evaluation, verification procedures; emphasis on advanced technologies, strategies. Offered fall semesters. Prerequisite: 003:240 or consent of instructor.
- 003:243 Hearing Aid Assembly and Repair** 1-2 s.h.
 Hands-on work with components, fabrication of shells and earmolds, assembly of ITE hearing aids; repair of different types and models. Offered fall semesters. Prerequisite: consent of instructor.
- 003:244 Rehabilitative Audiology** 3 s.h.
 Theory, procedures for assessment, rehabilitation of speech, hearing, language deficits of people with hearing impairment. Offered spring semesters. Prerequisites: 003:145 and 003:185, or equivalents.
- 003:245 Pediatric Audiology** 2 s.h.
 Theory, procedures for assessment, rehabilitation of pediatric populations; laboratory emphasis on test administration. Offered fall semesters. Prerequisite: 003:185 or consent of instructor.
- 003:246 Advanced Audiology** 3 s.h.
 Theory, procedures for assessment of hearing loss in adult and pediatric populations; experience in test administration through supervised laboratory sessions. Offered fall semesters. Prerequisite: 003:185 or consent of instructor.
- 003:247 Medical Audiology** 2 s.h.
 Genetic, acquired, traumatic pathologies that affect auditory systems; nature, etiology, principles of assessment, treatment. Offered summer sessions of even years. Prerequisite: 003:185 or consent of instructor.
- 003:248 Measurement Theory and Applied Statistics** 3 s.h.
- 003:249 Cochlear Implants** 3 s.h.
 Introduction to cochlear implantation; history of cochlear implantation, introduction to cochlear technology, basics of device programming and trouble shooting, candidacy issues, outcomes in children and adults, auditory rehabilitation specific to cochlear recipients, the auditory brainstem implant, future trends in cochlear implantation. Offered fall semesters. Prerequisites: 003:185 and 003:244.
- 003:250 Acoustics of Speech** 4 s.h.
 Sound generation, propagation, radiation in human speech production; acoustic phonetics; analysis, synthesis, perception of speech. Offered fall semesters of odd years. Prerequisites: 003:111, 003:112, and a year of calculus; or consent of instructor. Same as 103:275.
- 003:251 Biomechanics of Speech** 4 s.h.
 Mechanics of air and tissue movement in speech production; muscle physiology and mechanics; computer simulation of articulatory and phonatory processes. Offered fall semesters of even years. Prerequisites: 003:111 and 003:112 or equivalents, and a year of calculus; or consent of instructor.
- 003:252 Physiology of Speech Production** 5 s.h.
 Same as 103:277.
- 003:255 Educational Audiology** 2 s.h.
 Training in skills necessary for working with the school-age population; case management and aural rehabilitation, amplification and classroom hearing technology, identification and assessment practices, federal legislation that affects services. Offered spring semesters. Prerequisites: 003:185, and 003:244 or equivalent; and 003:240 for Au.D. students.
- 003:256 Physiology of Hearing** 3-4 s.h.
 Anatomy of auditory system, cochlear mechanics, electrophysiology of peripheral and central auditory nervous system; laboratory emphasis on physiological techniques for study of ear. Offered fall semesters. Prerequisites: 003:113, 003:224, and consent of instructor.
- 003:260 Designing Assistive Devices** 1-3 s.h.
 System design (hardware and software) useful in building augmentative and alternative communication devices for the profoundly impaired; opportunity to build systems for theoretical and/or applied purpose; interdisciplinary, clinical perspectives. Offered summer sessions. Prerequisite: consent of instructor.
- 003:282 Phonological Development and Disorders** 2 s.h.
 Advanced topics in phonological development and disorders; current theoretical approaches to phonological analysis and typical phonological acquisition applied to assessment and intervention with children who have phonological disorders. Offered spring semesters. Prerequisites: 003:110 or 103:110, 003:118, 003:135, and 003:145; or consent of instructor.
- 003:283 Stuttering** 2 s.h.
 Issues, approaches to treatment of children, adults. Offered fall semesters. Prerequisite: 003:183 or equivalent. Corequisite: 003:135 or equivalent, or consent of instructor.
- 003:290 Objective Measures** 3 s.h.
 Introduction to evoked potential techniques for assessing auditory and vestibular function. Offered spring semesters. Prerequisites: 003:219 and consent of instructor.
- 003:292 Advanced Rehabilitative Audiology** 2 s.h.
 Current and developing procedures for assessment, habilitation of adults and children with hearing losses. Offered spring semesters. Prerequisite: consent of instructor.
- 003:301 Practicum: Speech-Language Pathology** arr.
 Supervised clinical practice. Repeatable. Prerequisite: M.A. professional emphasis. Corequisite: 003:135 or equivalent.
- 003:302 Practicum: Speech-Language Assessment** arr.
 Supervised clinical practice involving evaluation of individuals for speech or language impairments. Repeatable. Prerequisites: M.A. speech-language pathology emphasis and consent of instructor.
- 003:304 Speech Pathology Student Teaching** arr.
 Supervised teaching and observation in an area of speech pathology in the elementary schools. Prerequisite: consent of instructor.

- 003:310 Scientific Writing** 3 s.h.
Principles of writing for scientific posters, journal articles, grant proposals; effective communication of concepts and data.
- 003:311 Clinical Practice in Audiology** 2-3 s.h.
Varied topics relevant to professional issues in audiology clinical practice; presentations by clinical faculty members and guest speakers. Repeatable. Prerequisites: M.A. professional emphasis or Au.D. enrollment, and consent of instructor.
- 003:312 Practicum: Hearing Measurement** arr.
Evaluation of individuals for hearing impairment and its impact; clinical practice. Repeatable. Prerequisite: consent of instructor.
- 003:314 Audiology Student Teaching** arr.
Supervised teaching and observation in an area of audiology in the elementary schools.
- 003:315 Clinical Rotations in Audiology** arr.
Supervised clinical practice in audiology. Repeatable. Prerequisite: consent of instructor. Corequisite: 003:311.
- 003:316 Advanced Externship in Audiology** arr.
Advanced clinical externship in audiology. Repeatable. Prerequisites: 003:311, 003:315, and Au.D. enrollment.
- 003:350 Preceptorship in Augmentative Communication** 1 s.h.
Approaches to development of alternate modes of communication for individuals with limited oral communication. Offered fall semesters. Prerequisite: consent of instructor.
- 003:510 Seminar: Introduction to Research in Speech and Hearing** 1 s.h.
Philosophy of science; basic principles of research; issues in conducting research; review of research opportunities in the department. Offered fall semesters.
- 003:511 Introduction to Doctoral Research** 1 s.h.
Topics related to development and execution of research; doctoral program, use of library, human and animal subject issues, philosophy of science, use of common research tools, reading and writing research papers, research grant preparation. Offered fall and spring semesters. Prerequisite: consent of instructor.
- 003:515 Proseminar** 0 s.h.
Presentation of research ideas, results by faculty, students. Repeatable.
- 003:520 Seminar: Developmental Language Disorders** 2 s.h.
Critical issues, research; multicultural issues in service delivery; phonological approaches to speech sound disorders, single-subject designs in intervention, language assessment and remediation studies. Offered fall semesters and spring semesters of odd years. Repeatable. Prerequisite: consent of instructor.
- 003:521 Seminar: Stuttering** 2 s.h.
Theoretical issues, research literature. Offered spring semesters of even years. Repeatable. Prerequisite: consent of instructor.
- 003:523 Seminar: Voice** 2 s.h.
Research on normal and disordered voice production, perception; vocal abuse, fatigue, endurance; perceptual correlates of vocal pathologies; models of voice production; spasmodic dysphonia; assessment of voice improvement. Offered spring semesters of odd years. Prerequisite: consent of instructor.
- 003:525 Seminar: Cleft Palate** 2 s.h.
- 003:526 Seminar: Rehabilitative Audiology** 2 s.h.
Theoretical issues, research literature. Offered fall semesters. Repeatable. Prerequisite: consent of instructor.
- 003:528 Seminar: Neurogenic Communication Disorders** 2 s.h.
Speech, language, and cognitive problems associated with neurological disorders. Offered spring semesters. Repeatable.
- 003:530 Seminar: Communication Disorders and Aging** 2 s.h.
Emphasis on application of gerontology to speech-language pathology, audiology. Repeatable. Offered summer sessions of even years. Prerequisite: consent of instructor.
- 003:535 Seminar: Evoked Potentials** 2 s.h.
Auditory evoked potentials: theory, applications current issues. Offered summer sessions of odd years. Repeatable. Prerequisite: consent of instructor.
- 003:537 Seminar: Clinical Audiology** 2 s.h.
Selected topics. Offered fall semesters. Repeatable. Prerequisite: consent of instructor.
- 003:538 Seminar: Auditory Physiology** 2 s.h.
Topics of interest to group. Offered spring semesters of even years. Repeatable. Prerequisite: consent of instructor.
- 003:539 Seminar: Tinnitus** 2 s.h.
Clinical management and treatments of tinnitus; mechanisms, psychological problems, and treatments including counseling, sound therapies; published articles, topic summaries. Offered fall semesters.
- 003:590 Research** arr.
Repeatable. Prerequisite: consent of instructor.

Statistics and Actuarial Science

Chair: Luke Tierney

Professors: James D. Broffitt, Kathryn Chaloner (Biostatistics/Statistics and Actuarial Science), Kung-Sik Chan, Richard L. Dykstra, John Geweke (Economics/Statistics and Actuarial Science, Harlan E. McGregor Chair in Economic Theory), Jian Huang (Statistics and Actuarial Science/Statistical Genetics), Michael P. Jones (Biostatistics/Statistics and Actuarial Science), Johannes Ledolter (Management Sciences/Statistics and Actuarial Science), Russell V. Lenth, Paul S. Muhly (Mathematics/Statistics and Actuarial Science), Ralph P. Russo, Elias S.W. Shiu (Principal Financial Group Foundation Professor of Actuarial Science), Luke Tierney (Ralph E. Wareham Professor of Mathematical Sciences), George G. Woodworth (Statistics and Actuarial Science/Biostatistics), Dale Zimmerman (Statistics and Actuarial Science/Biostatistics)

Professors emeriti: Jonathan D. Cryer, Leonard S. Feldt (Psychological and Quantitative Foundations/Statistics and Actuarial Science), Robert V. Hogg, Timothy J. Robertson, Robert F. Woolson (Biostatistics/Statistics and Actuarial Science)

Associate professors: Mary Kathryn Cowles (Statistics and Actuarial Science/Biostatistics), Joseph B. Lang, Osnat Stramer

Associate professor emeritus: John J. Birch

Adjunct associate professor: B. John Manistre

Assistant professors: N.D. Shyamalkumar, Qihe Tang, Jun Yan

Adjunct assistant professor: James A. Sconing

Adjunct instructor: Mary D. Russo

Lecturer: Matthew A. Bognar

Undergraduate degrees: B.S. in Statistics, Actuarial Science

Undergraduate nondegree program: Minor in Statistics

Graduate degrees: M.S. in Actuarial Science (Statistics); M.S., Ph.D. in Statistics

Web site: <http://www.stat.uiowa.edu>

During the 20th century, probability and statistics developed into an important scientific discipline essential to all fields of study that rely on information obtained from data. Author H.G. Wells acknowledged the importance of statistical reasoning when he stated, “Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write.”

Today’s world is bombarded with numerical information. Informed decisions rely on the ability to separate fact from fiction by applying valid statistical analyses. Statisticians can provide crucial guidance in determining what information is reliable and which predictions may be trusted. They often help search for clues to the solution of

a scientific mystery and sometimes keep investigators from being misled by false impressions.

The work of a statistician may range from the theoretical (developing new methodologies and statistical theory) to the applied (working with scientists and decision makers to collect, analyze, and interpret data). Regardless of the areas in which they work, statisticians need a strong background in mathematics and computer use. Because uncertainty and data arise in many settings, statisticians have the opportunity to work on a variety of projects in industry, education, government, and research. Thousands of statisticians work in medicine, law, agriculture, public policy, marketing, manufacturing, engineering, and other fields in the social and natural sciences. The diversity of applications is an exciting aspect of the field and is one reason why the demand for well-trained statisticians continues to be strong.

An actuary is a business executive, professionally trained in the mathematical sciences. Actuaries specialize in the evaluation of financial risk—most often in the context of life, health, and casualty insurance, where they design, analyze, and refine various programs to meet the insurance needs of society. Most actuaries are employed by insurance companies, where they have responsibilities for all phases of the development and maintenance of their company’s products. They have considerable influence on the financial soundness of their company through work in pricing insurance policies and in compiling data for financial statements.

Many actuaries are employed as consultants. Their actuarial services are used by smaller insurance companies and by individual employers who need actuarial guidance in establishing insurance and retirement programs for their employees. A growing number of actuaries work in the area of asset/liability management. Some of these actuaries are employed by investment and consulting firms; others are employed by insurance companies.

Actuaries have been called financial architects and social mathematicians, because their combined analytical and business skills help to solve a growing variety of financial and social problems. The actuarial profession is a demanding yet rewarding career choice.

Graduates of the Department of Statistics and Actuarial Science have enjoyed great success in finding employment at all levels of the profession's fields.

Undergraduate Programs

The department offers a Bachelor of Science statistics and in actuarial science.

Bachelor of Science in Statistics

The B.S. in statistics requires a minimum of 46 s.h. in the major, including 10 core courses that provide essential instruction in statistical methods, applications, and theory. In addition, students concentrate on their particular interest areas by choosing one of the following three emphasis tracks, in which they complete at least four courses.

Statistics in Business, Industry, Government, and Research: This track emphasizes statistical applications and data analysis. It is appropriate for students interested in careers as applied statisticians.

Statistical Computing: The statistical computing track emphasizes statistical applications and requires additional course work in computing. It prepares students for statistical work that requires computing expertise for data management, analysis, and reporting.

Mathematical Statistics: The mathematics statistics track provides a solid foundation in statistical theory and applications. It requires additional course work in mathematics and is good preparation for graduate study in statistics.

The B.S. in statistics requires the following course work.

CORE COURSES

All students must complete the following.

Computer Science

22C:016 Computer Science I 4 s.h.

Mathematics

22M:025-22M:026 Calculus I-II 8 s.h.

22M:027 Introduction to Linear Algebra 4 s.h.

Statistics

22S:030 Statistical Methods and Computing 3 s.h.

*22S:130-22S:131 Introduction to Mathematical Statistics I-II 6 s.h.
 22S:152 Applied Linear Regression 3 s.h.
 22S:158 Experimental Design and Analysis 3 s.h.
 171:163 Introduction to the Design of Sample Surveys 3 s.h.

*The department recommends that well-prepared students who elect the Mathematical Statistics track take 22S:153 and 22S:154 in place of 22S:130 and 22S:131 to satisfy the core requirement in statistics.

Special Emphasis Tracks

Students take four courses from one of the following tracks.

STATISTICS IN BUSINESS, INDUSTRY, GOVERNMENT, AND RESEARCH

171:164 Research Data Management 3 s.h.

Three of these:

22S:133 Quality Control 3 s.h.

22S:138 Bayesian Statistics 3 s.h.

22S:156 Applied Time Series Analysis 3 s.h.

22S:161 Applied Multivariate Analysis 3 s.h.

22S:162 Applied Generalized Regression 3 s.h.

22S:167 Environmental and Spatial Statistics 3 s.h.

22S:168 Intermediate Experimental Design 3 s.h.

22S:173 Statistical Consulting 3 s.h.

171:173 Intermediate Design of Sample Surveys 3 s.h.

171:174/22S:160 Introductory Longitudinal Data Analysis 3 s.h.

STATISTICAL COMPUTING

22C:022 Object-oriented Software Development 4 s.h.

171:164 Research Data Management 3 s.h.

Two of these:

22C:072 Elementary Numerical Analysis 3 s.h.

22S:138 Bayesian Statistics 3 s.h.

22S:156 Applied Time Series Analysis 3 s.h.

22S:161 Applied Multivariate Analysis 3 s.h.

22S:162 Applied Generalized Regression 3 s.h.

22S:166 Computing in Statistics 3 s.h.

22S:167 Environmental and Spatial Statistics 3 s.h.

22S:168 Intermediate Experimental Design 3 s.h.

22S:173 Statistical Consulting 3 s.h.

171:174/22S:160 Introductory Longitudinal Data Analysis 3 s.h.

MATHEMATICAL STATISTICS

22M:055 Fundamental Properties of Spaces and Functions I	3 s.h.
One of these:	
22M:028 Calculus III	4 s.h.
22M:056 Fundamental Properties of Spaces and Functions II	4 s.h.
Two of these:	
22S:138 Bayesian Statistics	3 s.h.
*22S:153-154 Mathematical Statistics I-II	6 s.h.
22S:156 Applied Time Series Analysis	3 s.h.
22S:161 Applied Multivariate Analysis	3 s.h.
22S:162 Applied Generalized Regression	3 s.h.
22S:167 Environmental and Spatial Statistics	3 s.h.
22S:168 Intermediate Experimental Design	3 s.h.
22S:173 Statistical Consulting	3 s.h.
22S:195-22S:196 Probability and Stochastic Processes I-II	6 s.h.

*If 22S:153 and 22S:154 are used to satisfy the core requirements, they may not be used to satisfy the emphasis requirement.

Bachelor of Science in Actuarial Science

Actuaries achieve professional status by passing a series of examinations administered by the Society of Actuaries and/or the Casualty Actuarial Society. These examinations are challenging. Mastering the examination material requires tenacity and a substantial commitment of time.

The B.S. in actuarial science requires 59 s.h. in the major. It prepares students for careers in the actuarial profession and helps them learn material included in the professional examinations. Students take a variety of actuarial science courses. In addition, preparation for business aspects of the actuarial profession requires the study of accounting, law, finance, insurance, and economics. Courses relating to communication skills, such as writing and speaking, are also important.

Due to the demanding nature of the actuarial science major and the difficulty of the professional examinations, the department maintains a selective admission program for actuarial science. Students must apply and be admitted to the major.

Students interested in becoming actuaries should declare an interest in actuarial science as their major when they enter the University. Ordinarily, students apply for admission to the actuarial science major in the fall semester of their

sophomore year, after they have taken 22M:055 and 22S:130. Students should apply no later than the end of the spring semester of their junior year.

Students admitted to the actuarial science major usually have completed at least 40 s.h. at the University or at another postsecondary institution, including a three- or four-course calculus sequence, a course in linear algebra, and a calculus-based course in probability and statistics. The admission decision is based on the student's performance in these courses and other courses relevant to success in the major. The student's grades from semester to semester also are considered. ACT scores are considered in evaluating transfer students. Factors such as work ethic, enthusiasm, and commitment may be considered.

Students who have a thorough understanding of mathematics, as reflected by their performance in prerequisite math course work, tend to be most successful in actuarial science.

For application forms and more information about selective admission, contact the Department of Statistics and Actuarial Science.

Permission to substitute course work taken at another institution for required courses at Iowa is decided case-by-case.

The B.S. in actuarial science requires the following course work.

Computer Science

22C:016 Computer Science I	4 s.h.
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Economics

06E:001 Principles of Microeconomics	4 s.h.
06E:002 Principles of Macroeconomics	4 s.h.

Mathematics

22M:025-22M:026 Calculus I-II	8 s.h.
22M:027 Introduction to Linear Algebra	4 s.h.
22M:055-22M:056 Fundamental Properties of Spaces and Functions I-II	7 s.h.

Statistics and Actuarial Science

22S:130-22S:131 Introduction to Mathematical Statistics I-II	6 s.h.
22S:153-22S:154 Mathematical Statistics I-II	6 s.h.
22S:174 Quantitative Methods for Actuaries	3 s.h.
22S:175 Actuarial Models	3 s.h.
22S:180 Mathematics of Finance	4 s.h.
22S:181-22S:182 Life Contingencies I-II	6 s.h.

In exceptional cases, the advisor may grant permission to waive 22S:130 and/or 22S:131.

Sample Schedule

The following is a sample schedule for completing actuarial science degree requirements.

FIRST YEAR

Fall Semester

06E:001 Principles of Microeconomics	4 s.h.
22C:016 Computer Science I	4 s.h.
22M:025 Calculus I	4 s.h.

Spring Semester

06E:002 Principles of Macroeconomics	4 s.h.
22M:027 Introduction to Linear Algebra	4 s.h.
22M:026 Calculus II	4 s.h.

SECOND YEAR

Fall Semester

22M:055 Fundamental Properties of Spaces and Functions I	3 s.h.
22S:130 Introduction to Mathematical Statistics I	3 s.h.

Spring Semester

22M:056 Fundamental Properties of Spaces and Functions II	4 s.h.
22S:131 Introduction to Mathematical Statistics II	3 s.h.
22S:180 Mathematics of Finance	4 s.h.

THIRD YEAR

Fall Semester

22S:153 Mathematical Statistics I	3 s.h.
22S:174 Quantitative Methods for Actuaries	3 s.h.

Spring Semester

22S:154 Mathematical Statistics II	3 s.h.
22S:175 Actuarial Models	3 s.h.
22S:181 Life Contingencies I	3 s.h.

FOURTH YEAR

Fall Semester

22S:182 Life Contingencies II	3 s.h.
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Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Much of the work in the discipline is sequential, so students must begin requirements for the major as soon as possible. Individual study plans must be made carefully. Students who first enroll for a spring semester must consult the department to confirm a four-year plan.

B.S. in Statistics

Courses must be taken in sequence, so students must begin work early.

Before the third semester begins: three courses in the major, including 22M:025 and 22M:026 and 22S:030; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: four courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: seven or eight courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: nine or ten courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S. in Actuarial Science

Before the third semester begins: 22M:025 and 22M:026, 22M:027, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 22M:055 and 22M:056, 22S:130 and 22S:131, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: 22C:016, 22S:153 and 22S:154, 22S:174, 22S:175, 22S:180 and 22S:181, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 22S:182

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Qualified undergraduate students may earn a degree with honors.

To graduate with honors in statistics or in actuarial science, a student must be a member of the University Honors Program which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Honors students in statistics also must have a g.p.a. of at least 3.40 in departmental courses required for the major and must complete an honors project or suitable alternative. A student planning to graduate with honors should contact the statistics honors advisor.

Honors students in actuarial science also must have a g.p.a. of at least 3.40 in all departmental courses numbered 120 and above and a cumulative University of Iowa g.p.a. of at least 3.40. They must complete three courses beyond those required for the B.S., chosen from the following list.

22S:150 Regression, Time Series, and Forecasting	3 s.h.
22S:176 Credibility and Loss Distributions	4 s.h.
22S:185 Asset and Liability Management	3 s.h.
22S:197 Readings in Statistics and/or Actuarial Science (honors project)	1-3 s.h.
An approved economics or finance course	3 s.h.

Students who choose to complete an honors project may earn up to 3 s.h. of credit in 22S:197 Readings in Statistics and/or Actuarial Science.

Students are responsible for making arrangements with a faculty member to supervise their honors project.

Minor

Students can earn a minor in statistics by taking 22S:030, 22S:152, and three of the following: 22S:120, 22S:130, 22S:131, 22S:153, 22S:154, 22S:156, 22S:158, 22S:162, 22S:163, 22S:167, and 22S:195. Selections from this list must include either 22S:120 or the sequence 22S:130-22S:131. Students must have a g.p.a. of at least 2.00 in all courses taken for the minor.

There is no minor in actuarial science.

Graduate Programs

The department offers a Master of Science in actuarial science, and a Master of Science and Doctor of Philosophy in statistics.

Master of Science in Statistics

The Master of Science in statistics requires a minimum of 34 s.h. of graduate credit. It prepares students for careers as professional statisticians or for entry into the Ph.D. program. The program includes a solid foundation in statistical computing, regression analysis, experimental design, and mathematical statistics, plus electives in statistical methods and/or theory. Students have the opportunity to concentrate on theory, applications, or a combination of the two.

M.S. students may choose to write a thesis, which substitutes for two courses. The thesis defense usually replaces the master's final exam.

Each M.S. student has a committee of three or four members, which is responsible for recommending action on the student's degree. For nonthesis programs, the committee's recommendation usually is based on two written examinations on topics covered in the required courses. For thesis programs, the committee's final recommendation usually is based on an oral defense of the thesis, although it also may be based on a single written examination over the topics covered in the student's program of study.

NONTHESIS PROGRAM

The following course work is required for the M.S. in statistics without thesis. A computer programming proficiency test is administered during departmental orientation. Students who display inadequate programming skills are required to take an additional programming course.

Each semester in which a graduate student registers for at least 6 s.h., he or she must include at least one 2 s.h. course offered by the Department of Statistics and Actuarial Science, excluding 22S:191, 22S:197, and 22S:299.

22S:164-22S:165 Applied Statistics I-II	7 s.h.
22S:166 Computing in Statistics	3 s.h.
22S:173 Statistical Consulting	3 s.h.
22S:193-22S:194 Statistical Inference I-II	6 s.h.
22S:195 Probability and Stochastic Processes I	3 s.h.

At least four of these:

22S:138 Bayesian Statistics	3 s.h.
22S:156 Applied Time Series Analysis	3 s.h.
22S:161 Applied Multivariate Analysis	3 s.h.
22S:162 Applied Generalized Regression	3 s.h.
22S:163 Nonparametric Statistical Methods	3 s.h.
22S:167 Environmental and Spatial Statistics	3 s.h.

22S:168 Intermediate Experimental Design	3 s.h.
22S:190 Mathematical Methods for Statistics	3 s.h.
22S:196 Probability and Stochastic Processes II	3 s.h.
Any 200-level statistics course	
An elective approved by the advisor	

THESIS PROGRAM

The M.S. in statistics with thesis requires the following course work. A computer programming proficiency test is administered during departmental orientation. Students who display inadequate programming skills are required to take an additional programming course.

Each semester in which a graduate student registers for at least 6 s.h., he or she must include at least one 2 s.h. course offered by the Department of Statistics and Actuarial Science, excluding 22S:191, 22S:197, and 22S:299.

22S:164-22S:165 Applied Statistics I-II	7 s.h.
22S:166 Computing in Statistics	3 s.h.
22S:173 Statistical Consulting	3 s.h.
22S:191 Individual Study	6 s.h.
22S:193-22S:194 Statistical Inference I-II	6 s.h.
22S:195 Probability and Stochastic Processes I	3 s.h.

At least two of these:

22S:138 Bayesian Statistics	3 s.h.
22S:156 Applied Time Series Analysis	3 s.h.
22S:161 Applied Multivariate Analysis	3 s.h.
22S:162 Applied Generalized Regression	3 s.h.
22S:163 Nonparametric Statistical Methods	3 s.h.
22S:167 Environmental and Spatial Statistics	3 s.h.
22S:168 Intermediate Experimental Design	3 s.h.
22S:190 Mathematical Methods for Statistics	3 s.h.
22S:196 Probability and Stochastic Processes II	3 s.h.
Any 200-level statistics course	
An elective approved by the advisor	

The typical thesis is a statistical presentation of the results of a meaningful research project in another field, or a study of the characteristics of a new statistical method. The thesis work is directed by a supervising professor. Students earn academic credit for thesis work by registering for 22S:191 Individual Study.

Master of Science in Actuarial Science

The Master of Science in actuarial science is a nonthesis program that requires a minimum of 36 s.h. of graduate credit.

The program prepares students for actuarial careers by emphasizing the theory that underlies risk processes and the application of this theory to practical problems of insurance pricing and management. The required course work helps students prepare for the professional examinations administered by the Society of Actuaries and/or the Casualty Actuarial Society.

Each M.S. student has a committee of three or four members, which is responsible for recommending action on the student's degree. For nonthesis programs, the committee's recommendation usually is based on two written examinations on topics covered in the required programs.

Required courses include the following.

Each semester in which a graduate student registers for at least 6 s.h., he or she must include at least one 2 s.h. course offered by the Department of Statistics and Actuarial Science, excluding 22S:191, 22S:197, and 22S:299.

One of these sequences:

22S:153-22S:154 Mathematical Statistics I-II	6 s.h.
22S:193-22S:194 Statistical Inference I-II (for well-prepared students)	6 s.h.

All of these:

22S:150 Regression, Time Series, and Forecasting	3 s.h.
22S:174 Quantitative Methods for Actuaries	3 s.h.
22S:175 Actuarial Models	3 s.h.
*22S:176 Credibility and Loss Distributions	4 s.h.
22S:180 Mathematics of Finance	4 s.h.
22S:181-22S:182 Life Contingencies I-II	6 s.h.

*Beginning spring 2007, 22S:176 will be replaced by two 3 s.h. courses.

Doctor of Philosophy in Statistics

The Doctor of Philosophy in statistics prepares students for careers in research, applications, and teaching. The degree requires a minimum of 72 s.h. of graduate credit, including work completed in the M.S. program. All Ph.D. students must pass comprehensive exams and

write a dissertation. The program takes about three years to complete once the M.S. has been earned. Ph.D. students choose one of four concentration areas for their course work: biostatistics; probability/mathematical statistics; statistical modeling; and actuarial science/financial mathematics.

Biostatistics emphasizes exposure to various biostatistical methods, such as survival analysis, categorical data analysis, and longitudinal data analysis. It prepares students for consulting and other positions in industry.

Probability/mathematical statistics emphasizes a broad, solid foundation in techniques and underpinnings of mathematical statistics. Its focus on breadth and depth is intended to produce well-rounded, knowledgeable scholars. It is excellent preparation for academic positions in mathematical statistics and industrial or government positions that require broadly trained statisticians with a strong understanding of statistical theory.

Statistical modeling emphasizes the theory and application of a broad array of statistical models, such as linear, generalized linear, nonlinear, categorical, spatial, correlated response, and nonparametric regression models. This concentration area prepares students to specify and choose appropriate models; fit the models using available statistical software; and make sound statistical conclusions and interpretive statements. It is excellent preparation for students interested in academic, industrial, or government positions that involve data modeling and analysis.

Actuarial science/financial mathematics emphasizes the theory of actuarial science, finance, and asset-liability management. It is excellent preparation for academic positions in universities that offer actuarial science programs or for positions in the insurance, pension, and financial industries.

The actuarial science/financial mathematics program is highly mathematical and selective. Most students are admitted after earning an M.S. in actuarial science at The University of Iowa.

The Ph.D. in statistics requires the following course work.

CORE COURSES

22S:164-22S:165 Applied Statistics I-II	7 s.h.
22S:166 Computing in Statistics	3 s.h.
22S:173 Statistical Consulting	3 s.h.
22S:190 Mathematical Methods for Statistics	3 s.h.

22S:193-22S:194 Statistical Inference I-II	6 s.h.
22S:195 Probability and Stochastic Processes I	3 s.h.
22S:203-22S:204 Foundations of Probability I-II	6 s.h.
22S:253-22S:254 Advanced Inference I-II	6 s.h.
22S:255 Linear Models	4 s.h.
At least 2 s.h. of 22S:291, 22S:293, or 22S:295 (seminars)	
At least 18 s.h. of 22S:299 Reading Research	

CONCENTRATION AREA

Students take at least four courses in one of the following concentration areas. At least two of these must be 200-level courses.

Biostatistics

22S:161 Applied Multivariate Analysis	3 s.h.
22S:162 Applied Generalized Regression	3 s.h.
22S:167 Environmental and Spatial Statistics	3 s.h.
22S:220 Analysis of Categorical Data	3 s.h.
22S:225 Survival Data Analysis	3 s.h.
171:241 Applied Categorical Data Analysis	3 s.h.
171:264 Longitudinal Data Analysis	3 s.h.
185:274 Theory of Statistical Genetics	3 s.h.

Probability/Mathematical Statistics

22S:196 Probability and Stochastic Processes II	3 s.h.
22S:235 Time Series Analysis	3 s.h.
22S:238 Bayesian Analysis	3 s.h.
22S:256 Multivariate Analysis	3 s.h.

Statistical Modeling

22S:156 Applied Time Series Analysis	3 s.h.
22S:161 Applied Multivariate Analysis	3 s.h.
22S:162 Applied Generalized Regression	3 s.h.
22S:167 Environmental and Spatial Statistics	3 s.h.
22S:168 Intermediate Experimental Design	3 s.h.
22S:220 Analysis of Categorical Data	3 s.h.
22S:235 Time Series Analysis	3 s.h.
22S:238 Bayesian Analysis	3 s.h.
22S:248 Computer Intensive Statistics	3 s.h.

Actuarial Science/Financial Mathematics

06F:225 Finance Theory I	3 s.h.
06F:227 Finance Theory II	3 s.h.
22S:185 Asset and Liability Management	3 s.h.
22S:196 Probability and Stochastic Processes II	3 s.h.
22S:235 Time Series Analysis	3 s.h.

In addition, each semester in which a graduate student registers for at least 6 s.h., he or she

must include at least one 2 s.h. course offered by the Department of Statistics and Actuarial Science, excluding 22S:191, 22S:197, and 22S:299.

During the graduate program, students may take course work or seminars in other departments to achieve doctoral program's auxiliary goals: to relate an area of specialization to other fields of knowledge, to acquire the ability to use electronic digital computing equipment, or to learn the language skills needed to read foreign scientific journals and respond in personal contacts with foreign scholars.

COMPREHENSIVE EXAM

Ph.D. students take a comprehensive examination after completing most of the course work on their approved plan of study, typically during the third year of graduate study.

The comprehensive examination consists of a written core examination and an oral examination on statistical inference, linear models, and probability. These topics are generally covered in 22S:193, 22S:194, 22S:195, 22S:203, 22S:253, and 22S:255. Study guides for the core examination are available from the department. Ph.D. students in the science track may qualify to take an exam designed by their advisor and approved by the director of graduate studies.

A program that does not conform to the prescribed requirements but is of high quality may be approved by the department chair.

Financial Support

Funds are available to help support outstanding applicants. Fellowships, teaching assistantships, and research assistantships provide an attractive stipend plus resident tuition status and tuition scholarships for students who are appointed at least one-quarter time. In some cases, full tuition waivers are granted.

Students who wish to be considered for financial assistance for their third year in the program should request a Ph.D. candidacy review no later than the spring semester of their second year.

Facilities

The Department of Statistics and Actuarial Science is housed in Schaeffer Hall, adjacent to Old Capitol, a National Historic Landmark and the center of campus. The department operates two computer labs in Schaeffer Hall. One, which also is used as an electronic classroom, contains

30 IBM PCs. The second houses 18 high-end UNIX workstations. Students use these labs for both class work and research.

Courses

Primarily for Undergraduates

Once students have earned credit in a Department of Statistics and Actuarial Science course numbered above 105, they cannot earn credit in one numbered below 105. Students may earn credit for only two of these: 22S:002, 22S:008, 22S:025 (same as 07P:025), and 22S:030. Credit for 22S:002 can be earned only if the course is taken before 22S:008, 22S:025 (same as 07P:025), or 22S:030. Students may receive credit for only one course from each of these pairs: 22S:030 and 22S:105, 22S:101 and 22S:102, and 22S:120 and 22S:130.

22S:002 Statistics and Society 3 s.h.
Statistical ideas and their relevance to public policy, business, and the social, health, and physical sciences; focus on critical approach to statistical evidence. GE: quantitative or formal reasoning. Prerequisite: 22M:001 or equivalent.

22S:008 Statistics for Business 4 s.h.
Descriptive statistics, elementary probability, estimation and testing, regression, correlation; statistical computer packages. GE: quantitative or formal reasoning. Prerequisite: 22M:002 or equivalent.

22S:025 Elementary Statistics and Inference 3 s.h.
Graphing techniques for presenting data, descriptive statistics, correlation, regression, prediction; logic of statistical inference, elementary probability models, estimation and tests of significance. GE: quantitative or formal reasoning. Prerequisite: 22M:001 or equivalent. Same as 07P:025.

22S:030 Statistical Methods and Computing 3 s.h.
Methods of data description and analysis using SAS; descriptive statistics, graphical presentation, estimation, hypothesis testing, sample size, power; emphasis on learning statistical methods and concepts through hands-on experience with real data. GE: quantitative or formal reasoning. Prerequisite: 22M:002.

22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
Descriptive statistics, exploratory data analysis, random variables, important discrete and continuous distributions, point and interval estimation, tests of hypotheses, regression; design of experiments, including factorial and fractional factorial designs. Prerequisite: 22M:032 or equivalent.

For Undergraduate and Graduate Students

22S:101 Biostatistics 3 s.h.
Statistics in biohealth science; probability, evidence, Bayes Rule; relative risks, design of experiments; linear, logistic, Cox regression; survival analysis; statistical adjustment. Prerequisite: 22M:001 or equivalent.

22S:102 Introduction to Statistical Methods 3 s.h.
Same as 07P:143.

- 22S:105 Statistical Methods and Computing** 3 s.h.
Methods of data description and analysis using SAS; descriptive statistics, graphical presentation, estimation, hypothesis testing, sample size, power; emphasis on learning statistical methods and concepts through hands-on experience with real data. Prerequisite: 22M:002.
- 22S:120 Probability and Statistics** 4 s.h.
Models, discrete and continuous random variables and their distributions, estimation of parameters, testing statistical hypotheses. Prerequisite: 22M:026 or 22M:032.
- 22S:130 Introduction to Mathematical Statistics I** 3 s.h.
Descriptive statistics, probability, discrete and continuous distributions, sampling, sampling distributions. Prerequisite: 22M:026 or 22M:032.
- 22S:131 Introduction to Mathematical Statistics II** 3 s.h.
Estimation, testing statistical hypotheses, linear models, multivariate distributions, nonparametric methods. Prerequisite: 22S:130.
- 22S:133 Quality Control** 3 s.h.
Prerequisite: 22S:039. Same as 056:162.
- 22S:138 Bayesian Statistics** 3 s.h.
Bayesian statistical analysis, with focus on applications; Bayesian and frequentist methods compared; Bayesian model specification, choice of priors, computational methods; hands-on Bayesian data analysis using appropriate software; interpretation and presentation of analysis results. Prerequisites: 22S:120 and 22S:152, or equivalent. Same as 07P:148.
- 22S:140 Design and Analysis of Biomedical Studies** 3 s.h.
Prerequisite: 171:161. Same as 171:162.
- 22S:148 Intermediate Statistical Methods** 4 s.h.
Prerequisite: 22S:102 or equivalent. Same as 07P:243.
- 22S:150 Regression, Time Series, and Forecasting** 3 s.h.
Regression analysis, forecasting, time series methods; use of statistical computing packages. Prerequisite: 22S:154 or 22S:194.
- 22S:152 Applied Linear Regression** 3 s.h.
Regression analysis with focus on applications; model formulation, checking, selection; interpretation and presentation of analysis results; simple and multiple linear regression; logistic regression; ANOVA; hands-on data analysis with SAS software. Prerequisite: 22S:030 or 22S:039 or equivalent. Same as 056:176.
- 22S:153 Mathematical Statistics I** 3 s.h.
Probability, conditional probability, random variables, distribution and density functions, joint and conditional distributions, various families of discrete and continuous distributions, mgf technique for sums, convergence in distribution, convergence in probability, central limit theorem. Prerequisites: 22M:027 and 22M:028, or equivalents.
- 22S:154 Mathematical Statistics II** 3 s.h.
Transformations, order statistics, point estimation, sufficient statistics, Rao-Blackwell Theorem, delta method, confidence intervals, likelihood ratio tests, applications. Prerequisite: 22S:153 or equivalent.
- 22S:156 Applied Time Series Analysis** 3 s.h.
General stationary, nonstationary models, autocovariance autocorrelation functions; stationary, nonstationary autoregressive integrated moving average models; identification, estimation, forecasting in linear models; use of statistical computer packages. Offered spring semesters. Prerequisites: 22S:131, and 22S:152 or 22S:164.
- 22S:157 Correlation and Regression** 4 s.h.
Prerequisite: 22S:148 or equivalent. Same as 07P:244.
- 22S:158 Experimental Design and Analysis** 3 s.h.
Single- and multifactor experiments; analysis of variance; multiple comparisons; contrasts; diagnostics; fixed, random, and mixed effects models; designs with blocking and/or nesting; two-level factorials and fractions thereof; use of statistical computing packages. Prerequisites: 22S:030 and 22S:152.
- 22S:159 Design of Experiments** 4 s.h.
Prerequisite: 22S:148. Same as 07P:246.
- 22S:160 Introductory Longitudinal Data Analysis** 3 s.h.
Same as 171:174.
- 22S:161 Applied Multivariate Analysis** 3 s.h.
MANOVA, discriminant analysis, factor analysis, principal components, canonical analysis, nonmetric scaling, cluster analysis, categorical data analysis, use of multivariate statistical computer packages. Offered fall semesters. Prerequisites: 22S:152 and 22S:158, or equivalents; and facility with matrix algebra. Same as 07P:245.
- 22S:162 Applied Generalized Regression** 3 s.h.
Applications of semiparametric linear models, generalized linear models, nonlinear normal errors models, model fitting, correlated response models; use of statistical packages, especially SAS. Prerequisites: introductory statistics and applied linear models.
- 22S:163 Nonparametric Statistical Methods** 3 s.h.
One- and two-sample location tests and estimation methods, measures of association and analysis of variance; emphasis on relationship with classical parametric procedures. Prerequisite: 22S:120 or 22S:148 or consent of instructor. Same as 07P:247.
- 22S:164 Applied Statistics I** 4 s.h.
Introduction to computing environment and statistical packages, descriptive statistics, basic inferential methods (confidence intervals, chi-square tests); linear models (regression and ANOVA models—specification and assumptions, fitting, diagnostics, selection, testing, interpretation). Prerequisites: 22S:120 or equivalent, and facility with matrix algebra.
- 22S:165 Applied Statistics II** 3 s.h.
Design of experiments, analysis of designed experiments, sample survey design. Prerequisite: 22S:164 or equivalent.
- 22S:166 Computing in Statistics** 3 s.h.
Database management; graphical techniques; importing graphics into word-processing documents (e.g., LaTeX); creating reports in LaTeX; SAS, IML, and macro language; simulation methods (Monte Carlo studies, bootstrap, etc.). Prerequisites: 22S:164 and 22S:165, or equivalents.
- 22S:167 Environmental and Spatial Statistics** 3 s.h.
Methods for sampling environmental populations, sampling design, trend detection and estimation, geostatistics, kriging, variogram estimation, lattice data analysis, analysis of spatial point patterns. Prerequisites: 22S:152 and 22S:154, or equivalents.
- 22S:168 Intermediate Experimental Design** 3 s.h.
Continuation of 22S:165, which is prerequisite; factorial and fractional factorial designs; response surface methods; canonical analysis; longitudinal data analysis; advanced topics in design. Prerequisite: 22S:165.
- 22S:171 Topics in Actuarial Science** 3 s.h.
Prerequisite: consent of instructor.
- 22S:172 Topics in Statistics** 3 s.h.
Prerequisite: 22S:154 or consent of instructor.
- 22S:173 Statistical Consulting** 3 s.h.
Realistic supervised data analysis experiences, including statistical packages, statistical graphics, writing statistical reports, dealing with complex or messy data. Offered spring semesters. Prerequisites: 22S:152 and 22S:158, or 22S:164 and 22S:165.

22S:174 Quantitative Methods for Actuaries 3 s.h.

Algorithms, finite differences, interpolation, graduation, cubic splines, linear and quadratic programming, individual risk models, life tables. Offered fall semesters. Prerequisites: multivariate calculus and linear algebra. Corequisite: 22S:153 or 22S:193.

22S:175 Actuarial Models 3 s.h.

Poisson processes, Markov chains, frequency and severity distributions, individual and collective models, simulation. Offered spring semesters. Prerequisite: grade of C or higher in 22S:174.

22S:176 Credibility and Loss Distributions 4 s.h.

Application of statistical theory to development and estimation of loss distributions; fitting distributions to truncated and grouped data; analysis of simulated data; classical, Bayesian, and Bühlmann credibility models for experience rating. Offered spring semesters. Prerequisites: 22S:154 or 22S:194, and grade of C or higher in 22S:175.

22S:180 Mathematics of Finance 4 s.h.

Mathematics of compound interest, including annuities certain, amortization schedules, yield rates, sinking funds, bonds; introduction to life contingencies. Offered fall and spring semesters. Prerequisite: 22M:026.

22S:181 Life Contingencies I 3 s.h.

Survival distributions and life table, life insurance, life annuities, benefit premiums. Offered spring semesters. Prerequisites: 22S:153 or 22S:193, and grades of C or higher in 22S:174 and 22S:180.

22S:182 Life Contingencies II 3 s.h.

Continuation of 22S:181; benefit premiums and reserves, multiple-decrement and multilife models. Offered fall semesters. Prerequisite: grade of C or higher in 22S:181.

22S:185 Asset and Liability Management 3 s.h.

Interest rate risk; immunization; duration analysis; cash flow matching; fundamental theorem of asset pricing; term structure of interest rate models. Prerequisite: grade of C or higher in 22S:175 or 22S:181, or consent of instructor.

22S:188 Actuarial Exam Preparation arr.

22S:190 Mathematical Methods for Statistics 3 s.h.

Real numbers, point set theory, limit points, limits, sequences and series, Taylor series (multivariate), uniform convergence, Riemann-Stieltjes integrals. Prerequisite: statistics graduate standing or consent of instructor.

22S:191 Individual Study arr.

Prerequisite: consent of advisor.

22S:193 Statistical Inference I 3 s.h.

Review of probability, distribution theory (multiple random variables, moment-generating functions, transformations, conditional distributions), sampling distributions, order statistics, limit theory, principles of data reduction. Prerequisites: 22M:028 and 22S:131, or equivalents.

22S:194 Statistical Inference II 3 s.h.

Continuation of 22S:193, which is prerequisite; point estimation theory (MLE, Bayes, UMWU), hypothesis testing, interval estimation, decision theory.

22S:195 Probability and Stochastic Processes I 3 s.h.

Conditional expectations; Markov chains, including random walks and gambler's ruin; classification of states; stationary distributions; branching processes. Prerequisite: 22S:130, or 22S:120 and consent of instructor.

22S:196 Probability and Stochastic Processes II 3 s.h.

Continuous-time Markov chains, including birth and death processes and time reversibility; renewal theory, including regenerative processes and semi-Markov processes; Brownian motion, stationary processes. Prerequisite: 22S:195.

22S:197 Readings in Statistics and/or Actuarial Science arr.

Prerequisite: consent of instructor.

Primarily for Graduate Students

22S:203 Foundations of Probability I 3 s.h.

Probability theory, with emphasis on constructing rigorous proofs; measure spaces, measurable functions, random variables and induced measures, distribution functions, Lebesgue integral, product measure and independence, Borel Cantelli lemma, modes of convergence. Prerequisite: 22S:190.

22S:204 Foundations of Probability II 3 s.h.

Laws of large numbers, characteristic functions and properties, central limit theorem, Radon-Nikodym derivatives, conditional expected value and martingales. Prerequisite: 22S:203.

22S:220 Analysis of Categorical Data 3 s.h.

Survey of theory and methods for categorical response and count data; exact and approximate inference for contingency tables, logistic and Poisson regression, ordinal and multinomial logit models. Prerequisites: 22S:164 and 22S:194, or consent of instructor. Same as 171:262.

22S:225 Survival Data Analysis 3 s.h.

Same as 171:261.

22S:235 Time Series Analysis 3 s.h.

Stationary time series, ARIMA models, spectral representation, linear prediction inference for the spectrum, multivariate time series, state space models and processes, nonlinear time series. Prerequisites: 22S:153, 22S:154, and 22S:156.

22S:238 Bayesian Analysis 3 s.h.

Decision theory, coherence and utility, subjective probability, likelihood principle, conjugate families, structure of Bayesian inference, asymptotic approximations for posterior distributions, sequential experiments, exchangeability, hierarchical models, nonparametric Bayes procedures, empirical Bayes methods, numerical and Markov chain Monte Carlo methods. Prerequisites: 22S:190 and 22S:194.

22S:248 Computer Intensive Statistics 3 s.h.

Computer arithmetic: random variate generation; numerical optimization; numerical differentiation, integration, and linear algebra; smoothing techniques; bootstrap methods; cross-validation; MCMC; EM and related algorithms; other topics per student/instructor interests. Prerequisites: 22S:164 or 171:201, and proficiency in Fortran or C or C++ or Java.

22S:253 Advanced Inference I 3 s.h.

Concepts of convergence, asymptotic methods including the delta method, sufficiency, asymptotic efficiency, Fisher information and information bounds for estimation, maximum likelihood estimation, the EM algorithm, Bayes estimation, decision theory. Prerequisites: 22S:190 and 22S:194.

22S:254 Advanced Inference II 3 s.h.

Hypothesis testing, asymptotics of the likelihood ratio test, asymptotic efficiency, statistical functionals, robustness, bootstrap and jackknife, estimation with dependent data. Prerequisite: 22S:253.

22S:255 Linear Models 4 s.h.

Linear spaces and matrix theory, multivariate normal distribution and distributions of quadratic forms, full-rank and non-full-rank linear models, estimability, interval estimation, hypothesis testing, random and mixed models, applications. Prerequisites: 22S:164, 22S:165, and 22S:194.

22S:256 Multivariate Analysis	3 s.h.
Multivariate distributions, tests and estimates, multivariate general linear model, MANOVA, discriminant analysis, canonical correlation, factor analysis, principal components. Prerequisite: 22S:255.	
22S:273 Advanced Topics in Actuarial Science	arr.
Repeatable. Prerequisite: consent of instructor.	
22S:291 Seminar: Mathematical Statistics	arr.
Repeatable. Prerequisite: consent of instructor.	
22S:293 Seminar: Probability	arr.
22S:295 Seminar: Applied Statistics	arr.
Repeatable. Prerequisite: consent of instructor.	
22S:299 Reading Research	arr.
Repeatable. Prerequisite: consent of advisor.	

Women's Studies

Interim chair: Margaret Mills (Russian/Women's Studies)

Professors: Susan Birrell (Health and Sport Studies/Women's Studies/American Studies), Jennifer Glass (Sociology/Women's Studies), Ellen Lewin (Women's Studies/Anthropology)

Associate professors: Leslie Schwalm (History/Women's Studies), Rosemarie Scullion (French and Italian/Women's Studies)

Associate professor emerita: Sue Lafky

Assistant professor: Meena Khandelwal (Anthropology/Women's Studies)

Undergraduate degree: B.A. in Women's Studies

Undergraduate nondegree program: Minor in Women's Studies

Graduate degree: Ph.D. in Women's Studies

Web site: <http://www.uiowa.edu/~women>

Women's studies is a multidisciplinary department focusing on the study of women in culture, society, history, and literature. Its major goal is to bring to the University community new research on women and gender—research frequently overlooked by traditional disciplines. By taking courses through many departments, students become acquainted with feminist scholarship and its methodologies in the humanities and the social sciences.

Faculty from across the University participate in the Department of Women's Studies as affiliated faculty members (for a complete list, see the department's web site). Other University of Iowa faculty members occasionally offer courses and participate in the department's research, study, and interdisciplinary activities.

Undergraduate Programs

The department offers a Bachelor of Arts and a minor for undergraduates.

Bachelor of Arts

The Bachelor of Arts in women's studies requires 35 s.h. in the major. It emphasizes breadth, depth, and interdisciplinary study. Objectives of the major include knowledge of the field's history, facility with major theoretical debates, knowledge of feminist issues outside the United States and Western Europe, knowledge of one major area of feminist scholarly concern, and

familiarity with debates in other areas. Students apply this knowledge to an individual research project in their senior year.

Students may declare the major in women's studies at any time. They are advised by the Academic Advising Center until they have completed 131:010 or 131:055. Transfer credit is evaluated case-by-case and is limited to 9 s.h.

The required 35 s.h. of course work in the major includes the undergraduate core and 18 s.h. of electives. It culminates in the senior research seminar. Other requirements for the major include 2 s.h. of practicum work that reflects the importance of community needs and current social issues in framing questions of women's studies scholarship and in assessing the usefulness of relevant research.

The B.A. requires the following.

UNDERGRADUATE CORE

The B.A. core consists of six courses (17 s.h.). Two introductory courses (131:010 and 131:055) are prerequisites for all other courses in the major; they orient students to the major conceptual areas that constitute women's studies as an interdisciplinary field. Gender, Race, and Class in the U.S. (131:055) introduces basic issues of race, class, and gender systems in the United States and provides a foundation for the majors in women's studies. Students take 131:199 Senior Research Seminar in their last semester.

The undergraduate core is as follows.

131:010 Introduction to Women's Studies	3 s.h.
131:055 Gender, Race, and Class in the U.S.	3 s.h.
*131:105 Women's Studies Practicum	2 s.h.
131:151 Feminist Theory	3 s.h.
A women's studies course with an international focus	3 s.h.
131:199 Senior Research Seminar	3 s.h.

*Students who took 131:010 Introduction to Women's Studies prior to fall 2004 for 4 s.h. need only 1 s.h. of practicum work.

ELECTIVES

In addition to the undergraduate core, each student chooses 18 s.h. (six courses) of additional

course work, 12 s.h. of which must be upper-level courses chosen in consultation with the student's advisor. Only 6 s.h. of the elective courses may be chosen from lower-level courses, and those must be courses with women's studies course numbers.

Students are encouraged to pursue a course of study that emphasizes both breadth and depth. Students should choose a focus area of at least three or four courses in an area in which they would like to gain deeper knowledge. The area may be within a specific discipline, such as literature, anthropology, or history, which will be especially useful for double majors. Students may count up to three courses they have taken to complete a second major toward the major in women's studies.

The specialization area need not be limited to a traditional discipline. Students may seek more specialized education in fields such as sexuality studies or international issues. Breadth also is important; advisors direct students who have taken several courses in one area to take additional electives in another area.

Electives may be chosen from courses offered or cross-referenced in women's studies or from courses in other departments approved for the major. For a list of approved courses, contact the Department of Women's Studies or visit its web site.

Students may request permission to use other upper-level courses as women's studies electives. At least half of the course content must address gender, and as much as possible, the student's written and other work in the course should focus on gender. For more information on requesting permission to use a course, contact the Department of Women's Studies undergraduate advisor.

Four-Year Graduation Plan

The Women's Studies Department does not participate in the Four-Year Graduation Plan. Students are encouraged to design a graduation plan with their women's studies advisor.

Honors

Qualified students may work toward a bachelor's degree with honors in women's studies. Honors students must maintain a g.p.a. of at least 3.50 in women's studies course work and a cumulative University of Iowa g.p.a. of at least 3.33. During the semester before they enroll in the required 131:198 Honors Senior Thesis, students must

complete an independent research project under a faculty member's supervision. The project provides the basis for their honors thesis. Contact the Department of Women's Studies undergraduate advisor for more information.

For information about honors study at Iowa, contact the University Honors Program.

Minor

Undergraduate students may complete a minor in women's studies by taking 15 s.h. of course work chosen from courses associated with the department, with a g.p.a. of at least 2.00. The minor must include 131:010 Introduction to Women's Studies. It also must include 12 s.h. of 100-level course work; or 131:055 Gender, Race, and Class in the U.S. plus 9 s.h. of 100-level course work. It is strongly recommended that students include 131:151 Feminist Theory.

Students may not count more than 3 s.h. of course work used to complete a major toward requirements for the women's studies minor.

Concentration for Nonmajors

Nonmajors who are interested in women's studies but who chose not to pursue a minor in the department can take a set of electives. Students contemplating a concentration in women's studies are advised to take 131:010 Introduction to Women's Studies.

Graduate Study

Doctor of Philosophy

The Doctor of Philosophy in women's studies is committed to feminist research, teaching, and scholarship. It emphasizes the application of theoretical and methodological models developed from the broad range of cultural issues that affect both women and men. While pressing for inclusion of feminist critiques and theories in the curricula of specific disciplines, it also advocates training in interdisciplinary, international feminist approaches.

Students who complete their Ph.D. at Iowa are expected to gain a firm grounding in the history of feminist inquiry, histories of feminisms, and feminist pedagogy; the ability to move easily among the disciplines in their research and teaching; and a broad understanding from interdisciplinary work balanced with depth from concentration in a single discipline.

The Ph.D. in women's studies requires a minimum of 72 s.h. of graduate credit, as follows. In order to prepare students to seriously contest traditional practices in a discipline, the program requires a minimum of 18 s.h. in one discipline or interdisciplinary field of inquiry, and close work with a faculty member from that discipline on relevant research projects.

Graduate core	14 s.h.
Gender and diversity core	9 s.h.
Women's studies electives	18 s.h.
Course work in a single discipline or area (e.g., anthropology, history, literature)	18 s.h.
Dissertation	9-13 s.h.

GRADUATE CORE

131:200-131:201 Foundations for Feminist Inquiry I-II	6 s.h.
131:203 Proseminar (taken the first semester)	1 s.h.
131:205 Graduate Practicum	1 s.h.
131:210 Feminist Pedagogy (required of all women's studies teaching assistants)	3 s.h.
131:228 Readings: History of Feminisms (Ph.D. candidates enroll for 3 s.h.)	arr.

QUALIFYING PAPER

Students complete a qualifying paper demonstrating their theoretical and methodological strengths and their intellectual development in feminist studies. They write the paper during the fall semester of their second year and submit it at the beginning of the spring semester.

COMPREHENSIVE EXAMS

Once students have successfully completed their qualifying papers, they are eligible to begin the three comprehensive exams that show competence in their chosen specializations, as recommended by their advisory committee and approved by the faculty members who oversee the Ph.D. program.

The exams may be submitted any time following completion of the qualifying paper, but generally, they are expected after the third year. When they are completed satisfactorily, the student is admitted to candidacy and can begin work toward the dissertation.

Admission

All applicants must have a bachelor's degree with a g.p.a. of at least 3.00. Applicants must demonstrate a commitment to feminist scholarship. A writing sample, a statement of purpose in pursuing the Ph.D., transcripts from

all undergraduate and graduate work undertaken, GRE General Test scores, and three letters of recommendation from faculty members familiar with the applicant's academic work must be submitted before an application can be considered.

International applicants must submit a current TOEFL score.

The statement of purpose should describe how the applicant sees her- or himself in the world and why he or she wants to pursue graduate study in general and women's studies in particular. The department uses the statement of purpose and the sample of academic writing to evaluate applicants' ability to present their views forcefully and gracefully, as well as their ability to analyze, critique, and interpret.

The department does not offer a master's degree.

Financial Support

The department strives to offer financial support to its graduate students. Research assistantships and teaching assistantships also are available through other departments. Students who hold assistantships of one-quarter-time or more pay in-state tuition rates.

Courses

Core Courses

131:010 Introduction to Women's Studies	3 s.h.
Introduction to feminist interdisciplinary study of women's lives, with emphasis on race, class, sexual orientation; work, family, culture, political and social change. GE: cultural diversity.	
131:029 First-Year Seminar	1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.	
131:049 Topics in Women's Studies	3 s.h.
131:055 Gender, Race, and Class in the U.S.	3 s.h.
How the intersection of gender, race, class affects individual experience, national ideology, social institutions; interdisciplinary perspective. GE: cultural diversity.	
131:105 Women's Studies Practicum	1-2 s.h.
Experience in volunteer work for organizations that provide services for women. Prerequisites: 131:010 and consent of instructor.	
131:135 Women, Medicine, and Society	3 s.h.
Ideas about women's biological and social roles, their impact on women as patients and health care providers; differences in class, ethnicity, and sexuality in the healing process; interdisciplinary approach. Offered through Guided Independent Study.	
131:149 International Feminism/Transnational Feminism	3 s.h.
Evolution and impact of women's movements in different regions of the Third World.	

131:150 Topics in Women's Studies 3 s.h.

Representative topics: American Indian/First Nations Women; population and the environment; feminism and the family; women, health, and healing; women of color. Prerequisite: 131:010.

131:151 Feminist Theory 3 s.h.

Historical and contemporary feminist analyses of women's position in culture and society; variety of theoretical approaches, political perspectives; contemporary issues, controversies. Prerequisite: 131:010.

131:153 Feminist Cultural Studies 3 s.h.

Intellectual/political project of feminist cultural studies; everyday practices and popular discourses critical for the formation of gender and sexuality in the United States. Prerequisite: 131:010 or graduate standing or consent of instructor.

131:163 U.S. Minority Women Writers 3 s.h.

Literature that reflects the experiences of U.S. minority women and women of color; gender, race, ethnicity, religion, sexuality. Prerequisite: 131:010.

131:179 Independent Readings and Research in Women's Studies 1-3 s.h.

Topic not covered in regular curriculum. Prerequisites: 131:010 and consent of instructor.

131:198 Honors Senior Thesis arr.

Supervised research, writing. Prerequisites: honors standing, completion of course work for minor in women's studies, and consent of instructor.

131:199 Senior Research Seminar 2-3 s.h.

Individual research projects designed around a shared theme, such as violence against women, or women and the law. Prerequisites: 131:010 or equivalent, and two other women's studies courses; or consent of instructor.

131:200 Foundations for Feminist Inquiry I 3 s.h.

Theory, critique, methodology, practice. Prerequisite: consent of instructor.

131:203 Proseminar 1 s.h.

Presentations by faculty and advanced graduate students on their current research; introduction to a range of feminist scholarship. Prerequisite: graduate standing in women's studies.

131:205 Graduate Practicum 1 s.h.

Practicum experiences in a theoretical context. Repeatable. Prerequisite: consent of instructor.

131:207 French Theory and the Politics of Gender 3 s.h.

Structuralist, poststructuralist, and deconstructionist theory regarding the influence of French thought after World War II on the development of feminist and gender theory.

131:210 Feminist Pedagogy 3 s.h.

Scholarship on teaching and learning, with practical applications for the classroom. Prerequisite: consent of instructor.

131:231 Politics and the Body 3 s.h.

Public sphere theory and other conceptions of the political through examination of the category of the body; logics of abstraction in conceptions of the political that allow for the privileging of some bodies and the marginalization of others.

131:250 Topics in Women's Studies 3 s.h.

Special topics in women's studies.

131:279 Independent Study arr.

Prerequisite: consent of instructor.

131:425 Ph.D. Thesis arr.

Repeatable. Prerequisite: consent of instructor.

Cross-Referenced Courses

131:018 Gender and Society 3-4 s.h.

Women's roles and status; sex differences, gender role socialization, theories about origin and maintenance of sexual inequalities, changes in women's social life cycles, implications for social institutions and processes; focus on contemporary United States. GE: cultural diversity. Same as 034:018.

131:041 Gender Roles and Communication 3 s.h.

Analysis of research and theory on gender roles and communication processes, including function of communication in sex role development. Same as 036:041.

131:067 Survey of U.S. Women's History 3 s.h.

Same as 16A:067.

131:078 Women, Sport and Culture 3 s.h.

Feminist analysis of girls' and women's sports experiences, including reproduction of gender through sport, recent changes in women's intercollegiate athletics, media representations of women's sport, feminist critiques, alternatives to sport. Same as 028:078.

131:107 Gendering India 3 s.h.

Same as 113:107.

131:109 Women in Antiquity 3 s.h.

Same as 20E:109.

131:111 Religion and Women 3 s.h.

Sexism and its disavowal in biblical narrative, law, wisdom texts, Gospels, epistles; contemporary impact. GE: humanities. Same as 032:111.

131:124 Gender and the Environment 3 s.h.

Relationships between gendered human activities and environmental problems in developed and less-developed regional contexts; role of women's activism in environmental movements; analysis of ecofeminist perspective. Prerequisite: 044:019 or introductory women's studies course. Same as 044:124.

131:133 The Anthropology of Women's Health 3 s.h.

Same as 113:133, 172:133.

131:134 Gender and Indian Diaspora 3 s.h.

Same as 113:134.

131:141 History of Feminist Anthropology 3 s.h.

Development and evolution of feminist critiques in cultural anthropology; readings from studies by women ethnographers, classic writings that sought to give women cross-cultural visibility, recent experimental texts. Prerequisite: 113:003 or 131:010. Same as 113:141.

131:142 Motherhood and Reproduction 3 s.h.

Women's reproductive specialization and roles as mothers as determinants of status; treatment of motherhood and reproduction in feminist theory and scholarship. Same as 113:105.

131:143 Women, Health, and Healing 3 s.h.

Women's experience as recipients and providers of health care; intersection of race, class, cultural variation, and women's health; reproductive and nonreproductive health concerns. Same as 113:182.

131:152 Gender and Sexuality in the Ancient World 3 s.h.

GE: foreign civilization and culture. Same as 20E:150, 154:121.

131:155 Feminism and Philosophy 3 s.h.

Classical and contemporary Western philosophies concerning questions about the nature of justice, knowledge, value, truth, personal identity; feminist philosophers who develop them. Prerequisite: 131:010. Same as 160:165.

131:156 Sexuality and Culture 3 s.h.

Same as 113:156.

- 131:157 Gender on Stage** 3 s.h.
How gendered bodies and roles are displayed on stage; popular, elite, experimental, traditional, mass-media theater, dance, music; topics include performing gender in everyday life, theorizing spectatorship, politics of drag, feminist theater. Same as 045:157.
- 131:158 Sexuality in the United States** 3 s.h.
Same as 16A:154.
- 131:159 Native American Women and Religious Change** 3 s.h.
Same as 032:158, 149:158.
- 131:160 Work and Family Institutions** 3 s.h.
Contemporary problems in the integration of work and family life; origins of work/family conflict in process of industrialization; effects of job/family conflicts on mothers, fathers, children; cross-cultural differences in dealing with work/family conflict. Prerequisite: 034:001 or 034:002 or 131:010 or consent of instructor. Same as 034:162.
- 131:161 Women in Literature** 2-3 s.h.
Women as portrayed in literature and as writers and/or readers of literature; genres, periods, authors; feminist perspectives on study of literature. Same as 008:052.
- 131:162 Latin American Women Writers** 3 s.h.
Same as 035:144.
- 131:164 American Indian/First Nations Women** 3 s.h.
Same as 149:164.
- 131:165 Women Writing Culture** 3 s.h.
Feminist ethnography and other kinds of feminist narratives that "write culture" while pushing the boundaries of how anthropologists define ethnography. Prerequisite: 113:003 or 131:010. Same as 113:180.
- 131:166 The Invisible Woman** 3 s.h.
Same as 041:166.
- 131:167 Gender and Sexuality in French Cinema** 3 s.h.
Cultural, historical, semiotic approach to studying construction of gender identity and sexual codes in French cinema from 1920s to present. Prerequisite: 009:111 or 048:001 or 048:002 or 131:010 or consent of instructor. Same as 009:148, 048:167.
- 131:169 Changing Concepts of Women in Literature** 3 s.h.
Textual, cultural changes in concepts of women presented in and between periods of literary history; changes in novel's conventions for portraying women from 18th through 19th centuries, or changes in dramatic presentation of women from Middle Ages through the Renaissance. Same as 008:169.
- 131:170 Philosophy of the Body** 3 s.h.
Philosophical treatment of the body; perspectives from classical, modern, and contemporary texts from Western philosophy, and texts from feminist theory, critical race theory, cultural studies, and disability studies. Prerequisite: 131:010. Same as 160:170.
- 131:171 U.S. Women's History to 1870** 3 s.h.
American history through women's eyes; emphasis on interaction of biology, economics, politics, ideology; how traditional historical generalizations change when women's experience is considered; legal history, women's education. Same as 16A:171.
- 131:172 Women in America: 1870-Present** 3 s.h.
From passage of Fourteenth Amendment to present; emphasis on suffrage movement, economic roles, educational patterns. Same as 16A:172.
- 131:174 Gender and Society in the U.S. 1940-Present** 3 s.h.
Same as 16A:174.
- 131:181 Society and Gender in Europe, 1200-1789** 3 s.h.
How ideas about community were influenced by gender ideologies inscribed in patterns of authority—household, church, state; ranges of human endeavor—intellectual, psychological, biological; community organization—social, economic, legal, sexual. GE: foreign civilization and culture. Same as 16E:125.
- 131:182 Society and Gender in Europe, 1750-Present** 3 s.h.
Social structures, gender roles in modern Europe; changes in politics, social organization, social relationship of sexes (education, sexuality, occupation); forms of social protest (feminism, socialism). Same as 16E:148.
- 131:188 Prose by Women Writers** 3 s.h.
Nonfiction, largely contemporary; style and content, redefinition of form and tradition of essay; Woolf, Didion, Dillard, Walker. Same as 008:188.
- 131:194 Introduction to Feminist Criticism** 3 s.h.
Feminist literary criticism of the past 20 years; emphasis on intersection of race, colonialism, sexuality, gender issues. Prerequisite: 131:010 or equivalent for undergraduates. Same as 008:194, 048:194.
- 131:197 Gender in Chinese Literature and Culture** 3 s.h.
Changing image of woman in modern Chinese history through analysis of literary texts, films by women authors of different periods. Same as 039:197.
- 131:201 Foundations for Feminist Inquiry II** 3 s.h.
Continuation of 131:200. Prerequisite: consent of instructor. Same as 010:201, 036:316.
- 131:204 Feminist Research Seminar** arr.
Feminist research methodologies; how to conduct original research, write a research proposal and research paper, and read and criticize others' work. Repeatable. Same as 016:277.
- 131:206 Gender and Race in Nineteenth Century U.S.** arr.
Same as 016:205, 129:205.
- 131:220 Seminar: Feminist Anthropology** 3 s.h.
Contemporary, traditional anthropological issues from a feminist perspective. Background in feminist theory, anthropology required. Same as 113:220.
- 131:223 Feminist Medical Anthropology** 3 s.h.
Directions feminists have taken in medical anthropological scholarship; focus on ethnographies that have become classics of the genre and on influential theoretical and applied work. Prerequisite: consent of instructor. Same as 113:223.
- 131:224 Seminar: Feminist and Gender Archaeology** 3 s.h.
Same as 113:224.
- 131:225 Readings: History of Sexuality** arr.
History of sexuality within the family, its move into the marketplace; social customs and taboos, methods of birth control and abortion, religion, medical and psychological writings, state policies. Same as 016:225.
- 131:228 Readings: History of Feminisms** arr.
Same as 016:228.
- 131:233 Readings: Women, Men, and Gender in Modern Europe** arr.
Same as 016:233.
- 131:243 Feminist Cultural Studies** 3 s.h.
Same as 008:243, 010:243, 036:222.
- 131:245 Seminar: Feminist Ethnography** 3 s.h.
Feminist critiques of traditional ethnographies; analysis of ethnographies informed by contemporary feminism. Prerequisite: consent of instructor. Same as 113:221.

131:246 Women Writers of Latin America 3 s.h.

Same as 035:246.

131:254 History of Women in Sports 3 s.h.

Women's sport involvement from ancient times to present; focus on social class, attitudes, religion, race, ethnicity, medical opinion, economic considerations, political events, educational philosophies that have influenced women's participation. Same as 028:278.

131:255 Feminist Ethics in the Contemporary World 3 s.h.

The branch of philosophy known as ethics; theory and application, including classical, contemporary, and feminist approaches and responses to ethical theory. Same as 160:265.

131:256 Gender Stratification Seminar 3 s.h.

Occupational gender segregation, gender gap in pay, role of family caregiving in women's lower pay, devaluation of caregiving work and comparable work. Same as 034:256.

131:258 Feminist Critical Theory 3 s.h.

Questions of difference, the body, agency, identity politics, gender performativity, power as both productive and oppressive; perspectives from texts in poststructuralist and feminist philosophy. Same as 160:258.

131:264 Postcolonial Feminist Theory 3 s.h.

Role of colonial histories and postcolonial legacies on past and contemporary relations of power in varied geographical contexts, through interdisciplinary feminist perspective; processes of gender and racialization relative to uneven global flows of media, capital, people. Prerequisite: 131:151 or cultural studies course. Same as 010:264, 160:280.

131:266 Gender Inequalities 3 s.h.

Same as 034:266.

131:270 Readings in the History of Women and Gender in the U.S.A. arr.

Older literature as well as work of last decade; focus on use of gender as an analytical device, changing social relations of the sexes over long periods of time, concept of separate spheres, sex segregation in the workplace, gender and deviance, feminism and politics, women's history as intellectual history. Same as 016:270.

131:274 Postcolonial Women's Writing 3 s.h.

Same as 008:274.

131:283 Feminist Theory: Historians' Perspectives arr.

Same as 016:283.

131:284 Seminar: History of American Women arr.

Same as 016:284.

131:287 Readings: African American Women's History arr.

Same as 016:287, 129:287.

131:290 Feminist Perspectives on Biology and Culture 3 s.h.

Physical anthropology and prehistoric archaeology from feminist perspective; emphasis on gender investigation methods of the past; role of women investigators, and criticism of male-centered theories for human evolution and prehistoric events, such as the domestication of plants. Prerequisite: consent of instructor. Same as 113:290.

Majors Offered with Other Colleges

The College of Liberal Arts and Sciences works with the Tippie College of Business, the College of Education, and the Carver College of Medicine to offer several undergraduate majors.

Faculty members from the Department of Economics in the Tippie College of Business provide advising and teach courses students need to earn a B.A. or B.S. in economics. Faculty members from the Departments of Biochemistry and Microbiology in the Carver College of Medicine provide courses and advising for students in the undergraduate programs in biochemistry and microbiology.

Faculty members from the College of Education provide major course work and advising for the B.S. in Science Education. They also support the B.A. and B.S. in elementary education. The undergraduate elementary education program is designed to prepare students to teach kindergarten through sixth grade. Elementary education students complete the College of Liberal Arts and Sciences General Education Program. They also complete course work in education foundations and methods and in one of the following areas of specialization: art, early childhood, English language arts, history, mathematics, music, reading, science, social science, or special education.

Students interested in pursuing a degree in elementary education must first be admitted to the College of Liberal Arts and Sciences. Admission to the College of Education's elementary education program is not guaranteed. In order to be considered for admission to the elementary education program, undergraduates must complete a minimum of 30 s.h. of course work with a cumulative g.p.a. of at least 2.70. All students must submit Praxis I test scores with their application to the Teacher Education Program (TEP).

Students who begin their study in the College of Liberal Arts and Sciences also can earn undergraduate degrees in Clinical Laboratory Sciences, Nuclear Medicine Technology, and Radiation Sciences from the Carver College of Medicine.

Biochemistry

Head: John E. Donelson

Professors: John E. Donelson, Alice B. Fulton, Pamela Geyer, Rama Mallampalli, Bryce V. Plapp, David H. Price, Peter Rubenstein, Madeline A. Shea, Arthur A. Spector, Daniel L. Weeks, Marc S. Wold

Professors emeriti: Arthur Arnone, Thomas W. Conway, Rex Montgomery, Earle Stellwagen, Charles A. Swenson

Adjunct professors: Theresa Gioannini, Nancy C. Stellwagen, Joseph Walder

Associate professors: Ramaswamy Subramanian, Lori Wallrath

Adjunct associate professor: Kenneth P. Murphy

Assistant professors: Kris DeMali, Adrian Elcock, Ernesto Fuentes, Shahram Khademi, M. Todd Washington

Undergraduate degrees: B.A., B.S. in Biochemistry

Graduate degrees: M.S., Ph.D. in Biochemistry

Web site: <http://www.biochem.uiowa.edu/>

Biochemistry is the study of the basic chemical processes that occur in all living systems. One of the most active sciences, it provides a foundation for other biosciences.

Biochemists generally work in laboratories and/or classrooms. Those with a bachelor's degree are often employed as research assistants in industry, government, education, and health service, or in secondary school teaching, for which licensure is required.

Biochemists with advanced degrees—usually a doctorate—pursue teaching, research, and/or administrative careers in universities, medical schools, hospitals, private research agencies, government laboratories, biotechnology companies, and in food, drug, cosmetics, chemical, petroleum, and allied industries.

Undergraduate Programs

The College of Liberal Arts and Sciences administers undergraduate programs and grants undergraduate degrees in biochemistry. The Department of Biochemistry offers programs of study leading to the Bachelor of Science and the Bachelor of Arts. Requirements are outlined below.

Students choose advanced science electives to supplement biochemical studies or to satisfy requirements of a minor or a double major. In

order to count science electives numbered below 100 toward the degree, students must have their advisor's approval.

Transfer credit for biochemistry courses requires the approval of an undergraduate advisor in biochemistry.

Bachelor of Science

The B.S. program in biochemistry prepares students to work in positions that require a mastery of general biochemistry. It is also excellent preparation for graduate study in biochemistry and related sciences or for study toward a professional degree in the health sciences.

The B.S. in biochemistry requires 73 s.h. in the major in addition to completion of the College of Liberal Arts and Sciences General Education Program. Courses required for the B.S. are as follows.

All of these:	
002:010-002:011 Principles of Biology I-II	8 s.h.
004:011-004:012 Principles of Chemistry I-II	8 s.h.
22M:025-22M:026 Calculus I-II	8 s.h.
029:081-029:082 Introductory Physics I-II	8 s.h.
099:001 Orientation and Introduction to the Field of Biochemistry	0 s.h.
099:101 Technical Communication in Biochemistry	1 s.h.
099:120 Biochemistry and Molecular Biology I	3 s.h.
099:130 Biochemistry and Molecular Biology II	3 s.h.
099:140 Experimental Biochemistry	4 s.h.
*099:155 Research, Independent Study (required of all B.S. students and all honors students)	6 s.h.
Advanced science electives, chosen in consultation with advisor	9 s.h.
One of these sequences:	
004:121-004:122 Organic Chemistry I-II	6 s.h.
004:123-004:124 Organic Chemistry for Majors I-II (preferred)	6 s.h.
Two of these:	
004:131 Physical Chemistry I	3 s.h.
004:132 Physical Chemistry II	3 s.h.

099:241 Biophysical Chemistry I 3 s.h.
 099:242 Biophysical Chemistry II 3 s.h.

One of these:

004:141 Organic Chemistry Laboratory 3 s.h.
 004:142 Organic Chemistry Laboratory
 for Majors (preferred) 3 s.h.

*Students may register for 099:155 only if they have earned an average grade of B or better in 099:120, 099:130, and 099:140 and a grade of B-minus or better in each of 099:120, 099:130, and 099:140; or have consent of advisor and instructor. Students may register for 099:115 any time.

Students are encouraged to begin research by taking 099:115 Undergraduate Independent Study (may be taken for a total of 6 s.h.). There are no prerequisites. Students may arrange independently to take this course, or they may request assistance from an undergraduate advisor.

Bachelor of Arts

The B.A. in biochemistry requires 58 s.h. in the major in addition to completion of the College of Liberal Arts and Sciences General Education Program. The required courses are as follows.

All of these:

002:010-002:011 Principles of
 Biology I-II 8 s.h.
 004:011-004:012 Principles of
 Chemistry I-II 8 s.h.
 22M:025-22M:026 Calculus I-II 8 s.h.
 029:011-029:012 College Physics 8 s.h.
 099:001 Orientation and Introduction to
 the Field of Biochemistry 0 s.h.
 099:101 Technical Communication in
 Biochemistry 1 s.h.
 099:120 Biochemistry and Molecular
 Biology I 3 s.h.
 099:130 Biochemistry and Molecular
 Biology II 3 s.h.
 099:140 Experimental Biochemistry
 Advanced science electives, chosen in
 consultation with advisor 6 s.h.

One of these sequences:

004:121-004:122 Organic Chemistry I-II 6 s.h.
 004:123-004:124 Organic Chemistry for
 Majors I-II (preferred) 6 s.h.

One of these:

004:131 Physical Chemistry I 3 s.h.
 004:132 Physical Chemistry II 3 s.h.
 099:241 Biophysical Chemistry I 3 s.h.
 099:242 Biophysical Chemistry II 3 s.h.

In addition, B.A. students intending to go on to advanced degrees in the biological or health

sciences are advised to include 4 s.h. or more of 099:115 Undergraduate Independent Study or 099:155 Research, Independent Study (senior research) in their programs.

Teacher Licensure

Biochemistry majors, especially those in the B.A. program, may qualify for teacher licensure by taking additional courses in teacher education. Consult the College of Education for details.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Science

Before the third semester begins: 004:011 and 004:012, 22M:025, 099:001, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:010 and 002:011; 004:121, 004:122, and 004:141; 22M:026; and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 029:081 and 029:082, 099:120, 099:130, and 099:140, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 004:131 or 004:132 or 099:241 or 099:242, a science elective, and at least 3 s.h. of 099:155

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Arts

Before the third semester begins: 004:011 and 004:012; math through 22M:026 or higher; 099:001; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:010 and 002:011, 004:121 and 004:122, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 029:011 and 029:012, 099:120, 099:130, and 099:140, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 004:131 or 004:132 or 099:241 or 099:242, and a science elective

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Qualified students may earn an honors degree in biochemistry. They must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students in biochemistry must complete 099:155 Research, Independent Study. They must present their research results in a report written in the form of a journal article and in an oral report presented at a special open departmental seminar.

Combined Programs

Students, especially those in the B.A. program, may include courses from other disciplines, such as business, pre-law, psychology, or journalism. This prepares them for one of the many vocations on which biochemistry has an impact.

Graduate Program

The Carver College of Medicine and the Graduate College coordinate the graduate program in biochemistry and other biosciences; graduate degrees are granted through the Graduate College. See Carver College of Medicine and Graduate College in the Catalog for general information about study in medicine and graduate study at the University.

The Department of Biochemistry offers a program of study leading to the M.S. and Ph.D. The Master of Science in biochemistry requires a minimum of 30 s.h. of graduate credit. The Doctor of Philosophy requires a minimum of 72 s.h. of graduate credit.

Students admitted to the graduate program in biochemistry usually pursue the Ph.D. Qualified students may pursue a combined program

leading to the M.D./Ph.D. (Medical Scientist Training Program).

The focus of the graduate program is on the individual student. Students choose from three curricula to satisfy requirements for the degree: standard, biophysical emphasis, or molecular emphasis.

In the first year, students engage in formal course work and tutorial laboratory experiences that serve as the basis for selecting a topic for thesis research. They spend half their time in courses and the other half working in four different faculty laboratories (099:261 Research Techniques), when they learn research techniques in the context of ongoing research.

All biochemistry graduate students take the following courses.

099:282 Seminar	0-1 s.h.
156:201 Principles in Molecular and Cell Biology	4 s.h.

Graduate students in the standard curriculum also must take the following.

099:241-099:242 Biophysical Chemistry I-II	6 s.h.
142:215 Molecular Biology of Gene Expression	3 s.h.
Electives	6 s.h.

Graduate students in the biophysical emphasis also must take the following.

099:241-099:242 Biophysical Chemistry I-II	6 s.h.
Electives	9 s.h.

Graduate students in the molecular emphasis also must take the following.

099:241 Biophysical Chemistry I	3 s.h.
or	
099:242 Biophysical Chemistry II	3 s.h.
142:215 Molecular Biology of Gene Expression	3 s.h.
Electives	9 s.h.

Once students are promoted to a second year of study, they choose research laboratories for Ph.D. thesis research and begin their thesis projects. They take courses that supplement their interests and preparation, including the following required courses.

099:237 Topics in Molecular and Cell Biology	2 s.h.
099:238 Topics in Biophysical Chemistry	1-2 s.h.
099:282 Seminar	0-1 s.h.
650:270 Responsible Conduct in Research	1 s.h.

Research Biochemistry (099:292) and elective science courses numbered 100 or above in other departments satisfy the remaining course requirements.

Students take the comprehensive examination before the end of June in their second year, after which they are admitted formally to degree candidacy and begin to concentrate on thesis research. The program culminates in successful defense of completed thesis work before an examining committee.

In addition to meeting these requirements and those of the Graduate College, students are expected, as part of their training, to assist in teaching biochemistry for two or three semesters.

Throughout the program, students are associated with faculty-directed research groups and receive close personal attention from the biochemistry faculty members who serve as research advisors.

Admission

The graduate program in biochemistry is flexible enough to accommodate students with bachelor's degrees in any of the biological, biochemical, or physical sciences. Appropriate preparation includes one-year, college-level courses in organic and physical chemistry, biology, physics, and mathematics through calculus. Students are expected to have had one or more introductory courses in biochemistry.

Applicants must have an undergraduate g.p.a. of at least 3.00 and must submit acceptable verbal, quantitative, and analytical scores on the Graduate Record Examination (GRE) General Test. Applicants are encouraged to submit their score on the GRE Subject Test in Chemistry; Biology; or Biochemistry, Cell, and Molecular Biology.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

Students admitted to the Ph.D. program in biochemistry routinely receive a stipend and tuition support.

Research

The department's current research interests include protein structure and function, protein

folding, DNA bending, complex carbohydrate structure and function, regulation of gene expression, mechanisms of transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, and membrane determinants of cell shape and motility. Visit the Department of Biochemistry web site for details.

Facilities

Many of the Department of Biochemistry's research and teaching facilities are located on a single floor in the Bowen Science Building, where the Departments of Anatomy and Cell Biology, Microbiology, Pharmacology, and Physiology and Biophysics also are located. Several of the department's research groups are located in the adjacent Medical Education and Research Facility.

The University of Iowa maintains a number of central research support facilities and equipment that promote campuswide interactions between research groups. These include the facilities for electron microscopy, fermentation, image analysis, high field NMR, high resolution mass spectrometry, and academic computing (through Information Technology Services). Carver College of Medicine research facilities are available to biochemistry researchers for nuclear magnetic resonance, flow cytometry, DNA synthesis, tissue culture hybridoma, gene transfer, X-ray analysis, and transgenic and gene targeting.

Individual faculty research laboratories are well-equipped for modern research, and there are many common-use laboratories, including instrument rooms, a reading room, cold rooms, tissue culture areas, preparation rooms, and a stockroom. Research is supported by staff in instrument shops, animal quarters, photography and illustration service, and by office staff, stockroom supervisors, and a purchasing agent.

Together, the department and the central support facilities provide virtually all of the equipment required for modern biochemical research. Examples of such equipment include analytical and preparative ultracentrifuges; fluorescence, optical rotatory dispersion, high-field NMR, ultraviolet-visible, and rapid kinetic instruments; amino acid analyzers and protein sequencers, gas chromatographs, preparative high performance liquid chromatographs, liquid scintillation counters, electrophoresis equipment, instrumentation for protein X-ray crystallography and microcalorimetry, and automated DNA sequencers.

The department maintains a reading room stocked with primary books and journals used by biochemists. The Hardin Library for the Health Sciences is a large, complete library located on the Health Sciences Campus. Excellent resources also are provided by branches of the University of Iowa Libraries and by computer access to bibliographic retrieval services.

Courses

099:001 Orientation and Introduction to the Field of Biochemistry 0 s.h.

Biochemistry and its application to other areas of basic sciences; biochemical studies, research, careers.

099:101 Technical Communication in Biochemistry 1 s.h.

Practical aspects of writing formal scientific papers and making oral presentations on technical topics. Prerequisites: 099:120 or 099:130 or 099:140 or consent of instructor; and junior or senior standing.

099:110 Biochemistry 3 s.h.

Basic concepts in modern biochemistry and molecular biology; understanding of life processes in molecular terms. Prerequisites: one year each of college-level biology and chemistry. Recommended: one semester of organic chemistry.

099:115 Undergraduate Independent Study arr.

Experience in an active biochemistry research lab, learning and performing experiments relevant to the current projects in that lab; exploration of scientific literature on topic of interest or research experience in preparation for meeting the requirements for 099:155; arranged in advance by student and faculty member. Prerequisite: first-year, sophomore, or junior standing.

099:120 Biochemistry and Molecular Biology I 3 s.h.

Physical and chemical foundations of biochemistry, structure of biological molecules, catalysis, transport, and oxidative reactions in biology; first course of two-semester sequence that concludes with 099:130. Prerequisites: two semesters of general chemistry and one of organic chemistry. Recommended: 002:010, 002:011, and an additional organic chemistry course.

099:130 Biochemistry and Molecular Biology II 3 s.h.

Metabolism of lipids and nitrogen-containing compounds; regulation and integration of metabolism; information transfer in prokaryotes and eukaryotes; recombinant DNA techniques; chemistry and enzymology of replication, transcription, translation, cell transformation, and regulation of gene expression. Prerequisite: 099:120.

099:140 Experimental Biochemistry 4 s.h.

Quantitative and qualitative experiments on identification, fractionation, and characterization of constituents of biochemical systems; use of modern instruments and techniques for spectrophotometry, chromatography, electrophoresis, centrifugation, radioisotope studies; emphasis on experimental design and interpretation. Prerequisites: 004:016 or 004:020, and 099:120.

099:155 Research, Independent Study 2-6 s.h.

Independent study and research in areas of interest to the student; arranged in advance by student and biochemistry faculty member. Prerequisites: B- average in 099:120, 099:130, and 099:140; and biochemistry major.

099:161 Biochemistry for Dental Students 4 s.h.

Concepts of biochemistry and their application to understanding of clinical problems. Prerequisites: 004:121 or consent of instructor, and D.D.S. enrollment or consent of instructor. Recommended: 004:122.

099:162 Biochemistry for Pharmacy Students 4 s.h.

Concepts of biochemistry and their application to understanding of clinical problems. Prerequisites: 004:121 and Pharm.D. enrollment, or consent of instructor. Recommended: 004:122.

099:163 Medical Biochemistry 4 s.h.

Concepts of biochemistry; their application to understanding clinical problems. Prerequisite: M.D. enrollment.

099:164 Biochemistry for Physician Assistant Students 3 s.h.

Aspects of general biochemistry necessary for understanding the biochemical basis of human disease; analysis of appropriate clinical cases. Prerequisite: 099:110 or equivalent biochemistry survey.

099:226 Enzyme Kinetics and Bioorganic Mechanisms 1-2 s.h.

Principles and applications of steady-state and transient enzyme kinetics; mechanisms of catalysis of biochemical reactions. Prerequisite: 099:120 or consent of instructor.

099:237 Topics in Molecular and Cell Biology 1-2 s.h.

Current topics in transcriptional regulation, chromatin structure and function, cell signaling pathways, regulation of development, molecular mechanisms of disease. Repeatable. Prerequisite: 156:201 or consent of instructor.

099:238 Topics in Biophysical Chemistry 1-2 s.h.

Current topics in structure and function of membranes or proteins; DNA-protein interactions; computational biochemistry; applications of NMR, X-ray diffraction, calorimetry, or spectroscopy. Repeatable. Prerequisite: 099:241 or 099:242 or consent of instructor.

099:241 Biophysical Chemistry I 3 s.h.

Experimental and theoretical techniques used to study structure and function of biological macromolecules; UV/vis absorbance, circular dichroism, and fluorescence spectroscopies; X-ray crystallography of proteins, ultracentrifugation; application of thermodynamics to understand protein folding and protein-ligand binding. Prerequisites: one year of biochemistry and consent of instructor. Recommended: physical chemistry course.

099:242 Biophysical Chemistry II 3 s.h.

Equilibrium and kinetic measurements of proteins obtained using absorbance, fluorescence and dichroic spectrometry, electrophoresis, mass spectrometry, ultracentrifugation, and chromatography; enzyme kinetics and mechanisms, macromolecular interactions and dynamics.

099:261 Research Techniques 1-5 s.h.

Laboratory rotation for first-year graduate students in biochemistry.

099:275 Perspectives in Biocatalysis 1-3 s.h.

Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Repeatable. Same as 004:275, 046:275, 052:275, 053:275, 061:275.

099:282 Seminar 0-1 s.h.

How to evaluate reports of scientific investigations critically; techniques for presenting scientific information.

099:283 Thesis Seminar 1 s.h.

Preparation and oral presentation of thesis proposal. Prerequisite: second-year graduate standing in biochemistry or consent of instructor.

099:292 Research Biochemistry arr.

Thesis research.

Economics

Chair: Raymond G. Riezman

Professors: William P. Albrecht, Gary C. Fethke (Leonard A. Hadley Professor of Leadership), John W. Fuller, John F. Geweke (Harlan E. McGregor Professor of Economic Theory), Srihari Govindan, Marlynnne Beth Ingram, Forrest D. Nelson, George R. Neumann (George Daly Professor of Economics), Harry J. Paarsch, B. Ravikumar (Henry B. Tippie Research Professor of Economics), Raymond G. Riezman (Henry B. Tippie Research Professor of Economics), N.E. Savin (George Daly Professor of Economics), Charles H. Whiteman (C. Woody Thompson Professor of Economics)

Professors emeriti: Carol C. Fethke, Hyman Joseph, Gerald L. Nordquist, Thomas F. Pogue, Larry Sgontz, Calvin D. Siebert, S.Y. Wu

Associate professors: Matthew F. Mitchell, John L. Solow, Gustavo J. Ventura

Associate professor emeritus: Michael S. Balch

Assistant professors: Marina Azzimonti, April M. Franco, Ayca Kaya, Fernando Leiva, Elena Pastorino, Galina Vereshchagina, Yuzhe Zhang

Undergraduate degrees: B.A., B.S., B.B.A. in Economics

Undergraduate nondegree program: Minor in Economics

Graduate degrees: M.A., Ph.D. in Economics

Web site: <http://www.biz.uiowa.edu/economics>

Economics is the study of how societies allocate limited resources to achieve competing ends. Using both empirical and deductive methods, economics analyzes incentives, constraints, organizational forms, and market forces to understand patterns of production, exchange, and consumption of goods and services. It treats diverse issues such as wealth and poverty, government expenditures and taxation, prosperity and depression, inflation and unemployment, relations between management and labor, economic growth, environmental protection, health care delivery, the war on drug abuse, free trade versus protectionism, U.S. competitiveness in international markets, and the quality of American education.

The Department of Economics offers degree programs for undergraduates and graduate students.

Undergraduate Programs

The department offers three undergraduate degrees in economics: the Bachelor of Arts (B.A.) and Bachelor of Science (B.S.) awarded by the College of Liberal Arts and Sciences and the Bachelor of Business Administration (B.B.A.) awarded by the Henry B. Tippie College of Business.

Each baccalaureate program provides an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economics also provides excellent preparation for the study of law and for graduate study in fields such as business management, public administration, hospital and health administration, urban and regional planning, transportation, journalism, political science, and statistics.

The B.A. is designed to achieve a balance between economic theory, mathematical tools, and field applications. The B.S. maintains a similar balance but emphasizes development of analytic tools; it prepares students for graduate work in economics or related business and technical fields. The B.B.A. emphasizes economic foundations of business fields: accounting, finance, marketing, business law, and management.

Bachelor of Arts

The Bachelor of Arts in economics requires 32 s.h. in the major. Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others. The *Handbook for Economics Majors*, available from the department, offers help in developing a study plan.

The following courses are required.

All of these:

06E:071 Statistics for Strategy Problems	3 s.h.
22M:017 Calculus and Matrix Algebra for Business (students who have taken 22M:025 or 22M:031 may use that class)	4 s.h.
22S:008 Statistics for Business	4 s.h.

A total of 21 s.h. in 100-level economics theory and field courses, as follows.

All of these:

06E:104 Microeconomic Theory	3 s.h.
06E:105 Macroeconomics	3 s.h.
Two advanced field courses chosen from 06E:171 through 06E:189	6 s.h.
Three additional courses chosen from 06E:111 through 06E:189	9 s.h.

Unless otherwise approved by the director of undergraduate studies, no more than 6 of the 21 s.h. required in 100-level economics courses may be satisfied by transfer or correspondence credit. Students should take 06E:104 and 06E:105 at The University of Iowa.

PREREQUISITES

Prerequisites for most 100-level courses in economics: 06E:001 and 06E:002, or consent of instructor

Prerequisites for 06E:104: 06E:001 and 22M:017, or consent of instructor

Prerequisites for 06E:105: 06E:002, 06E:104, and 22M:017

Prerequisite for 06E:071: 22S:008

Prerequisites for courses numbered 06E:171 and above: 06E:104 and 06E:105

Bachelor of Science

The Bachelor of Science in economics requires a minimum of 33 s.h. in the major. Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others. The *Handbook for Economics Majors*, available from the department, offers help in developing a study plan.

The following courses are required.

This sequence:
22M:025-22M:026 Calculus I-II 8 s.h.

One of these:
22S:120 Probability and Statistics 4 s.h.
22S:130-22S:131 Introduction to Mathematical Statistics I-II 6 s.h.

A total of 21 s.h. in 100-level economics theory and field courses, as follows.

All of these:

06E:104 Microeconomic Theory	3 s.h.
06E:105 Macroeconomics	3 s.h.
06E:184 Introduction to Econometrics	3 s.h.

Two additional advanced field courses numbered from 06E:171 through 06E:189 6 s.h.

Two additional courses chosen from 06E:111 through 06E:189 6 s.h.

Unless otherwise approved by the director of undergraduate studies, no more than 6 of the 21 s.h. required in 100-level economics courses may be satisfied by transfer or correspondence credit. Students should take 06E:104 and 06E:105 at The University of Iowa.

For students planning to pursue a graduate degree in economics, 22S:130 and 22S:131 are recommended in place of 22S:120.

PREREQUISITES

Prerequisite for 22S:120 and 22S:130: 22M:026 or 22M:032

Prerequisites for most 100-level courses in economics: 06E:001 and 06E:002, or consent of instructor

Prerequisites for 06E:104: 06E:001 and 22M:017, or consent of instructor

Prerequisites for 06E:105: 06E:002, 06E:104, and 22M:017

Prerequisites for courses numbered 06E:171 and above: 06E:104 and 06E:105

Prerequisite for 06E:184: 22S:120 or 22S:131

Bachelor of Business Administration

The B.B.A. in economics requires 21 s.h. of economics course work, including the business core course 06E:071 Statistics for Strategy Problems (3 s.h.), and 18 s.h. in 100-level economics courses, including the following. Students should take 06E:104 and 06E:105 at The University of Iowa. Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others. The *Handbook for Economics Majors*, available from the department, offers help in developing a study plan.

All of these:

06E:104 Microeconomic Theory	3 s.h.
06E:105 Macroeconomics	3 s.h.

Two field courses numbered from 06E:171 through 06E:189 6 s.h.
 Two additional courses numbered from 06E:111 through 06E:189 6 s.h.

PREREQUISITES

Prerequisites for most 100-level courses in economics: 06E:001 and 06E:002, or consent of instructor

Prerequisites for 06E:104: 06E:001 and 22M:017, or consent of instructor

Prerequisites for 06E:105: 06E:002, 06E:104, and 22M:017

Prerequisite for 06E:071: 22S:008

Prerequisites for courses numbered 06E:171 and above: 06E:104 and 06E:105

Four-Year Graduation Plan

B.A. and B.S. Students

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

These checkpoints apply to both the Bachelor of Arts and the Bachelor of Science.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least one-half of the semester hours required for graduation, 06E:001 and 06E:002, and the math component of quantitative courses required for major

Before the seventh semester begins: three-quarters of the semester hours required for graduation, 06E:104 and 06E:105, and one 100-level economics course

Before the eighth semester begins: three 100-level economics courses, including one advanced course (numbered 06E:171 through 06E:189), and the statistics component of the quantitative course requirement

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.B.A. Students

The following checkpoints are designed for students who enter the University as first-year pre-business students. In order to stay on the plan, students must maintain the grade-point average required for guaranteed admission to the Tippie College of Business and must apply for admission to the college by the established deadline.

Students must take 06B:100 Foundations of Business during their first semester after admission to the Tippie College of Business.

Before the third semester begins: 06E:001 or 06E:002, 22M:017, and 22S:008, or equivalents; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 06A:001, 06A:002, and 06E:001 or 06E:002 (whichever has not already been taken), or equivalents; all General Education requirements; and at least half of the semester hours required for graduation

Before the seventh semester begins: business core requirements, approximately half of the course work in the major (varies by major), and three-quarters of the semester hours required for graduation

Before the eighth semester begins: approximately three-quarters of course work in the major

During the eighth semester: all remaining course work in the major, and a sufficient number of semester hours to graduate

Honors

B.A. and B.S. Students

Students in the College of Liberal Arts and Sciences working toward a B.A. or B.S. in economics are encouraged to take part in the honors program in economics, which provides opportunities for high-achieving students to pursue special research interests. Honors students in economics must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

To enter the honors program in economics, students must complete 06E:104 Microeconomic Theory and 06E:105 Macroeconomics before the senior year. Honors students typically register for 06E:194 Honors Seminar in the fall of the senior year. Then they define and complete a research

project under the guidance of a supervising faculty member, earning up to 6 s.h. in 06E:195 Senior Thesis in Economics. The thesis is presented orally to a committee of three faculty members, typically the undergraduate honors advisor, the student's research supervisor, and a third faculty member agreed upon by the student and the honors advisor.

Interested students should consult the honors advisor by the second semester of their junior year.

B.B.A. Students

The Tippie College of Business offers qualified B.B.A. students the opportunity to pursue honors study. For more information, contact the Undergraduate Program Office or see "B.B.A. with Honors" in the Tippie College of Business section of the Catalog.

Minor

The minor in economics requires at least 15 s.h. in economics with a g.p.a. of at least 2.00; 12 of the 15 s.h. must be taken at The University of Iowa in courses numbered above 06E:100.

Course Work for Nonmajors

Students in the College of Liberal Arts and Sciences may wish to use economics courses as part of other majors or the General Education Program. The introductory courses 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics are approved for General Education in social sciences; they introduce the field of economics and the specialized topics of upper-division courses. The intermediate theory courses 06E:104 Microeconomics Theory and 06E:105 Macroeconomics provide a deeper foundation in the core theories and methods of the discipline. They serve as preparation for upper-division field courses or as terminal courses in an economics study plan.

Course work in economics can be related to majors in many other fields. For example, history majors might take 06E:178 American Economic History; political science majors could elect 06E:119 Economics of the Government Sector and 06E:125 International Economics; global studies majors, 06E:133 Environmental and Natural Resource Economics; pre-law students, 06E:171 Antitrust: Legal and Economic Analysis and 06E:172 Law and Economics; mathematics and engineering majors, 06E:104 Microeconomic

Theory and 06E:187 Introduction to Mathematical Economics; and statistics majors, 06E:184 Introduction to Econometrics. The *Handbook for Economics Majors* lists economics courses that complement studies in other fields.

Some students combine related interests by pursuing double majors in economics and another field, such as computer science, geography, global studies, history, mathematics, political science, sociology, or statistics.

Undergraduate Economics Forum

Students are invited to join the Undergraduate Economics Forum. The group sponsors programs to help students plan for careers or graduate study and holds social events, special lectures, and round-table discussions. It provides opportunities for students to meet other economics majors and department faculty members.

Graduate Programs

The department offers a Master of Arts and a Doctor of Philosophy in economics. It also offers a joint Doctor of Philosophy/Juris Doctor with the College of Law; see "Joint Ph.D./J.D. Program" later in this section.

Master of Arts

The Master of Arts is offered only to students working toward a Ph.D. in economics.

Doctor of Philosophy

The Doctor of Philosophy in economics provides rigorous training in economic theory, econometrics, and applied economics. The program has six components: a coordinated sequence of core courses, a qualifying examination, a research paper, a set of major field courses, a dissertation proposal and comprehensive examination, and a dissertation.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Application deadline for admission and financial support is February 1 for fall semester entry.

CORE SEQUENCE

First Semester

06E:200 Economic Analysis I	3 s.h.
06E:203 Microeconomics I	3 s.h.
06E:204 Macroeconomics I	3 s.h.

Second Semester

06E:201 Economic Analysis II	3 s.h.
06E:205 Microeconomics II	3 s.h.
06E:206 Macroeconomics II	3 s.h.

Third Semester

06E:221 Econometrics	3 s.h.
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Fourth Semester

06E:222 Applied Econometrics	3 s.h.
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QUALIFYING EXAMINATION

The qualifying examination is normally taken the summer after the first year.

RESEARCH PAPER

The research paper is normally completed the summer after the second year.

MAJOR FIELD COURSES

Each student chooses a major study area in addition to the core courses. The requirement for the major area is a minimum of 24 s.h. of intensive study in a field and in courses that enable students to understand the relationship between their specialty and related fields.

DISSERTATION PROPOSAL AND COMPREHENSIVE EXAMINATION

Students must defend a dissertation proposal in a comprehensive examination within one year of completing the research paper requirement.

DISSERTATION

Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Joint Ph.D./J.D. Program

The Department of Economics and the College of Law offer a joint Ph.D./J.D. program; see Juris Doctor in the College of Law section of the Catalog.

Special Seminar

Each year the department offers a seminar program that brings eminent economists from

other universities and from government agencies to The University of Iowa campus. Presentations by Department of Economics faculty members and students also are featured.

Courses

Primarily for Undergraduates

Note: 06E:001 and 06E:002 may be taken in either order or simultaneously. They are approved for General Education in social sciences for B.A. and B.S. students.

06E:001 Principles of Microeconomics 3-4 s.h.
Organization, workings of modern economic systems; role of markets, prices, competition in efficient allocation of resources and promotion of economic welfare; alternative systems; international trade. GE: social sciences (except for B.B.A. students).

06E:002 Principles of Macroeconomics 3-4 s.h.
National income and output, employment and inflation; money, credit; government finance; monetary, fiscal policy; economic growth, development; international finance. GE: social sciences (except for B.B.A. students).

06E:071 Statistics for Strategy Problems 3 s.h.
Continuation of 22S:008; working knowledge of statistical techniques, scientific data-based approach to problem formulation and solution, statistical techniques in the context of real data analysis, assessment of defects in statistical analyses, using data for making business decisions, choosing appropriate statistical procedures, developing skill in communicating statistical results to audiences without knowledge of statistics. Prerequisites: 22M:017 and 22S:008.

06E:104 Microeconomic Theory 3 s.h.
Economic theory of consumer behavior, producer behavior, role of markets in coordinating economic decisions; conditions for efficient resource allocation by market mechanisms; market imperfections, strategic behavior. Prerequisites: 06E:001 and 22M:017, or consent of instructor.

06E:105 Macroeconomics 3 s.h.
Measurement of national product, unemployment, inflation; determination of national income, price level; role of stabilization policies; economic growth, dynamics of inflation. Prerequisites: 06E:002, 06E:104, and 22M:017; or consent of instructor.

06E:111 Labor Economics 3 s.h.
Microeconomic analysis of labor markets, related institutions; labor supply decisions made by workers, labor demand decisions made by firms, market equilibrium; economic analysis of unions; returns to education; family decisions. Closed to students who have taken or are taking 06E:175. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:113 Health Economics 3 s.h.
Structure of America's health care industry, economic analysis applied to its problems of production, pricing, distribution; cost-effectiveness, financing of medical costs, role of government. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:117 Money, Banking, and Financial Markets 3 s.h.
Role of money, institutions in determination of income, employment, prices in domestic and world economy. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:119 Economics of the Government Sector 3 s.h.
Economic functions of government in modern economies; economic decision making; budgetary processes; effects of

government expenditures, taxation on allocation of resources, distribution of income, economic growth, stability. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:125 International Economics 3 s.h.

Modern theories of international trade and investment; role of tariffs and other restrictions of international trade; foreign exchange markets, international monetary arrangements, international economic policy. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:129 Economic Growth and Development 3 s.h.

Determinants of rising living standards; accumulation of physical and human capital; predictions of economic growth models compared to observed changes in living standards. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:133 Environmental and Natural Resource Economics 3 s.h.

Environmental and resource use problems; efficient mechanisms and other policies for environmental protection, management of common property resources. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:135 Regional and Urban Economics 3 s.h.

Theory of location and regional development; central place theory; why cities exist and trade with one another; models of land use patterns, rents; empirical tests of models; policy applications. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:141 Economics of American Industries 3 s.h.

Structural evolution; imperfect competition, resource allocation; development of public policy on monopoly; selected industries. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:145 Introduction to the Economics of Transportation 3 s.h.

Transportation markets—intercity, rural, urban; transportation modes—rail, highway, air, water, pipeline; issues in environmental and economic regulation, finance, policy, planning, management, physical distribution. Same as 044:133, 102:133.

06E:160 Economics of Families and Households 3 s.h.

Micro- and macroeconomic theory applied to economic decisions of families, households; practical and theoretical issues in income generation, spending and saving decisions, risk management and asset allocation, investments, and intergenerational wealth transfers. Prerequisites: 6 s.h. of 100-level economics courses and junior or senior standing, or consent of instructor.

06E:164 Economies in Transition 3 s.h.

Emerging markets and newly industrialized nations in Asia, Latin America, the former Soviet Union; developments in these regions over past decades—financial crises, industrialization, economic reform, privatization, impact of globalization, development of human capital, income distribution; role of institutions in the transition from poor to rich nation. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:169 Introductory Topics in Economics arr.

Topics vary.

06E:171 Antitrust: Legal and Economic Analysis 3 s.h.

Topics in federal antitrust policy; merger policy, monopolization, predatory pricing, collusion, vertical restrictions, resale price maintenance, enforcement; case law, economics literature. Prerequisite: 06E:104 or 091:208 or consent of instructor.

06E:172 Law and Economics 2-3 s.h.

Law examined through analytic tools of microeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic well-being. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:173 Advanced International Economics 3 s.h.

Neoclassical model of international trade, imperfect competition and international trade and investment, role of trade barriers;

regional trade agreements and the World Trade Organization. Prerequisites: 06E:104 and 06E:105, or graduate standing.

06E:174 Monetary Economics 3 s.h.

Demand for and supply of money; money's role in economy; empirical studies of money's impact; problems with monetary control. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:175 Economic Analysis of Labor Markets 3 s.h.

Labor supply and demand; investments in human capital, compensating wage differentials, discrimination, long-term contracts, occupational choice, family decisions, unions, immigration. Prerequisites: 06E:104, 06E:105, elementary calculus and statistics.

06E:176 Public Sector Economics 3 s.h.

Economic functions of government; budgetary processes; effects of government expenditures, taxation on resource allocation, income distribution, economic growth and stability. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:177 Industrial Organization 3 s.h.

Market structure; effects of business practices, informational problems on market structure; appraisal of antitrust policies, government regulation of business. Prerequisites: 06E:104 and 06E:105.

06E:178 American Economic History 3 s.h.

Emphasis on role of population, technology. Prerequisites: 06E:104 and 06E:105 for economics majors; 06E:001 and 16A:061 for non-economics majors. Same as 16A:144.

06E:179 History of Economic Thought 2-3 s.h.

Evolution of economics as a social science; ideas of Smith, Ricardo, Malthus, Marx, Marshall, Keynes, and their major critics. Prerequisites: 06E:104 and 06E:105.

06E:183 Natural Resource Economics 3 s.h.

Environmental and natural resource economics. Prerequisites: 06E:104 and 06E:105.

06E:184 Introduction to Econometrics 3 s.h.

Single equation linear statistical models, estimation and hypothesis testing; serial correlation, heteroscedasticity, generalized least squares estimation; specification analysis; errors in variables; emphasis on interpretation, application of econometric models, methods, use of computers. Prerequisite: 22S:120 or equivalent.

06E:187 Introduction to Mathematical Economics 3 s.h.

Mathematical structure of economic principles, problems, systems; may include constrained optimization, choice under uncertainty, general equilibrium and welfare economics, dynamical systems and control theory, game theory. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:189 Advanced Topics in Economics arr.

Varied content. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

For Advanced Undergraduates

06E:194 Honors Seminar 3 s.h.

Preparation for writing senior honors thesis. Prerequisite: consent of instructor.

06E:195 Senior Thesis in Economics arr.

Independent research leading to senior honors thesis. Prerequisite: consent of instructor.

06E:196 Readings and Independent Study in Economics arr.

06E:199 Internship arr.
Participation in approved internship programs (e.g., Washington Center Internships). Prerequisite: consent of instructor.

Primarily for Graduate Students

With consent of the department chair, qualified undergraduates may enroll in courses listed for graduate students.

06E:200 Economic Analysis I 3 s.h.
Theory of the competitive firm, theory of the consumer, noncompetitive models of the firm; optimization, constrained optimization, comparative statics, introduction to game theory.

06E:201 Economic Analysis II 3 s.h.
Behavior under uncertainty, macroeconomic models; dynamic programming, asset pricing, saving, consumption.

06E:203 Microeconomics I 3 s.h.
Price theory; emphasis on problem formulation and solving, economic intuition; producer and consumer behavior, competitive and noncompetitive markets, welfare economics. Offered fall semesters. Prerequisite: 06E:200 or consent of instructor.

06E:204 Macroeconomics I 3 s.h.
Economic growth, business cycles, money and inflation. Offered fall semesters. Prerequisite: 06E:201 or consent of instructor.

06E:205 Microeconomics II 3 s.h.
Behavior under uncertainty, general equilibrium and welfare analysis, models with asymmetric information. Offered spring semesters. Prerequisite: 06E:203 or consent of instructor.

06E:206 Macroeconomics II 3 s.h.
Dynamic macroeconomic models; stochastic macroeconomics; time consistency equilibrium business cycle theory. Offered spring semesters. Prerequisite: 06E:204 or consent of instructor.

06E:211 Mathematical Economics I 3 s.h.
Convex analysis in economic theory; ordinal and cardinal preference relations; quasiconcave, concave numerical representations; separation principle for convex sets—linear programming, concave programming; Brouwer fixed point theorem; existence of competitive equilibrium. Prerequisite: 06E:205 or consent of instructor.

06E:212 Mathematical Economics II 3 s.h.
Theories of n-person games, noncooperative or cooperative; applications to general economic equilibrium analysis. Prerequisite: 06E:211.

06E:221 Econometrics 3 s.h.
Statistical inference in single and multiple equation stochastic models, models with nonindependent or nonidentically distributed error structure, dynamic models; OLS, GLS, IV, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests. Prerequisite: 22S:154 or equivalent.

06E:222 Applied Econometrics 3 s.h.
Empirical problems; multiple linear regression, nonlinear regression, maximum likelihood, hazard functions, univariate and multivariate time series, flexible functional forms. Prerequisite: 06E:221.

06E:223 Econometric Theory I 3 s.h.
Statistical theory underlying econometric inference; emphasis on estimation, hypothesis testing in linear models. Prerequisite: 06E:221.

06E:234 International Business—M.B.A. 3 s.h.
Problems in international business; how to export, how to deal with import competition, international joint ventures; country studies. Prerequisite: consent of instructor.

06E:235 International Trade Theory 3 s.h.
The theory of international trade, including basic models of international trade; capital and labor mobility and trade; protection of international trade; the political economy of international trade; empirical applications of international trade. Prerequisite: consent of instructor.

06E:241 Macroeconomics III 2-6 s.h.
Current research in macroeconomics; development of research topics with emphasis on theoretical and empirical analysis. Prerequisites: 06E:205 and 06E:221.

06E:245 Monetary Theory 2-3 s.h.
Research at the frontier of monetary theory and policy; overlapping generations models, search models of money, representative agent monetary models, intermediation and banking theory, and financial contracts.

06E:250 Labor Economics 3 s.h.
Problems and models, including intertemporal models of labor markets; uncertainty and labor market activity; retirement decisions, economic theories of fertility; economics of discrimination; job search models; economic models of unions; bargaining and strikes, public sector labor markets; determinants of income distribution; emphasis on empirical verification of theory. Prerequisites: 06E:205, and 06E:184 or 06E:221.

06E:271 Industrial Organization 2-4 s.h.
The firm, monopolistic competition, oligopoly and workable competition; industrial organization, nature of equilibrium under uncertainty. Prerequisites: 06E:205 and 06E:211.

06E:272 Economics of Organization 2-4 s.h.
Theoretical design of mechanisms for achieving efficient allocations within organizations, and development of empirical frameworks to implement such mechanisms; applications to problems in industrial organization and labor economics. Prerequisite: 06E:205.

06E:299 Contemporary Topics in Economics 3 s.h.
Topics not offered in other courses. Repeatable. Prerequisite: consent of instructor.

06E:300 Readings in Economics arr.
Prerequisite: consent of instructor.

06E:301 Thesis in Economics arr.
Prerequisite: consent of instructor.

Advanced Graduate Seminars

06E:310 Seminar in Economic Theory arr.
Prerequisite: consent of instructor.

06E:311 Seminar in Economic Theory II arr.

06E:321 Workshop in Microeconomics 1 s.h.
Prerequisite: consent of instructor.

06E:322 Workshop in Macro and Monetary Economics 1 s.h.
Prerequisite: consent of instructor.

Microbiology

Head: Michael A. Apicella

Professors: Michael A. Apicella, Robert F. Ashman (Internal Medicine), Gail A. Bishop (Internal Medicine), John E. Butler, Steven Clegg, Charles D. Cox, Michael G. Feiss, John T. Harty, William Johnson, David M. Lubaroff (Urology), William Nauseef (Internal Medicine), Stanley Perlman (Pediatrics), Timothy L. Ratliff (Urology), Paul Rothman (Internal Medicine), George V. Stauffer, Mark F. Stinski, C. Martin Stoltzfus, Jerrold P. Weiss (Internal Medicine), Mary E. Wilson (Internal Medicine)

Professors emeriti: John Cazin Jr., David T. Gibson, Louis G. Hoffmann, Erich W. Six, Donald P. Stahly

Associate professors: Lee-Ann Allen (Internal Medicine), Morris O. Dailey (Pathology), Bradley D. Jones, Al J. Klingelutz, Wendy J. Maury, Linda L. McCarter, Matthew R. Parsek, Richard J. Roller, David S. Weiss, Timothy L. Yahr

Associate professor emeritus: Jose E. Rodriguez

Adjunct associate professor: Mary J. Gilchrist

Assistant professors: Alex Horswill, Jon Houtman, Brian K. Martin, Steven M. Varga

Adjunct assistant professor: Marcia L. Cordts

Adjunct lecturer: Linda M. Knudtson

Undergraduate degree: B.S. in Microbiology

Undergraduate nondegree program: Minor in Microbiology

Graduate degrees: M.S., Ph.D. in Microbiology

Web site: <http://www.medicine.uiowa.edu/microbiology>

Study in the Department of Microbiology is dedicated to the branch of biological sciences that deals with the smallest living things: bacteria, archaea, fungi, algae, protozoa, and viruses. It is coupled with immunology, the study of the response of higher organisms to foreign substances.

Microbiology and immunology are at the forefront of the modern biological revolution. Microbes are often the experimental subjects of choice for examining basic genetic and biological phenomena because of their small size, rapid growth rate, and relative simplicity. A significant portion of contemporary biochemical research employs microbiological and immunological methods.

Current research is making theoretical and practical advances concerning microbial species and viruses that infect animals, including man, plants, and other microbes; the use of comparative genomics, gene expression profiling, and recombinant DNA methods to analyze basic biological processes and generate valuable

products; the nature and occurrence of microbial life in extreme or unusual environments; microbial synthesis and modification of antibiotics and other natural products; the role of microbes in stabilization of the biosphere by recycling and detoxifying waste products; the genetics and regulation of metabolic processes; and the genetics and regulation of the immune response, including characterization of mechanisms used by bacteria to signal one another and characterization of interactions between different types of immune cells and their targets.

Microbiology is an excellent major for undergraduate students who want a good general education with emphasis on an important and interesting branch of biological sciences. Graduates find employment opportunities in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies). Those who pursue advanced degrees have more advanced career opportunities in these same areas as well as in college and university teaching.

Undergraduate Program

The College of Liberal Arts and Sciences administers undergraduate programs and grants undergraduate degrees in microbiology. The department offers a Bachelor of Science in microbiology and a minor in microbiology.

Bachelor of Science

The Bachelor of Science in microbiology requires a minimum of 64 s.h. in the major. Students must complete at least 21 s.h. in microbiology course work, including at least 12 s.h. taken at The University of Iowa. All University of Iowa microbiology courses must be chosen from those numbered 061:147 and above, except 061:164. No more than 2 s.h. of 061:161 (061:171 for honors students) and no more than 2 s.h. of 061:163 may be counted toward the required 21 s.h. of microbiology courses. Students may count 061:218, but not 061:220, toward the requirement.

Students may take microbiology courses more advanced than 061:157 General Microbiology only if they receive a grade of C or higher in 061:157 and have the instructor's consent for the courses. Mathematics and science courses required by the department for the B.S. may not be taken pass/nonpass.

Microbiology Seminar (061:163) should be taken for credit only once during the senior year. Students are encouraged to take the course for 0 s.h. during other semesters after they have taken 061:157.

All students must complete the College of Liberal Arts and Sciences General Education Program.

Students must take the following in addition to required microbiology courses.

002:010-002:011 Principles of Biology I-II	8 s.h.
004:011-004:012 Principles of Chemistry I-II	8 s.h.
004:121-004:122 Organic Chemistry I-II	6 s.h.
004:141 Organic Chemistry Laboratory	3 s.h.
029:011-029:012 College Physics	8 s.h.
099:120 Biochemistry and Molecular Biology I	3 s.h.
099:130 Biochemistry and Molecular Biology II	3 s.h.
One of these:	
22M:016 Calculus for the Biological Sciences	4 s.h.
22M:025 Calculus I	4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus	4 s.h.

In addition, the following courses may be recommended for some students.

08N:080 Nonfiction Writing	3 s.h.
*171:161 Introduction to Biostatistics	3 s.h.

*Some medical schools require a biostatistics course for admission.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the third semester begins: 002:010; 004:011, and 004:012; an approved calculus class; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 002:011; 004:121, 004:122, and 004:141; 061:157; and at least one-half of the semester hours required for graduation

Before the seventh semester begins: five more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: another 10-12 s.h. of course work

During the eighth semester: enrollment in all remaining course work in the major, all remaining required General Education courses, and a sufficient number of semester hours to graduate

Honors

Microbiology majors who are members of the University Honors Program may enroll in the honors program in microbiology. Membership in the University Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33. Microbiology honors students must also maintain a g.p.a. of at least 3.33 in microbiology courses. The program requires 25 s.h. of course work in microbiology, including 6 s.h. in 061:171 Honors Undergraduate Research in Microbiology, which constitutes an introduction to experimental research. At the end of the research, students present written and oral reports. Students who successfully complete these requirements receive the B.S. with honors.

Minor

An undergraduate minor in microbiology requires at least 15 s.h. of credit in microbiology courses with a g.p.a. of at least 2.00. Students must take at least 12 of the 15 s.h. at The University of Iowa. All courses must be chosen from those numbered 061:147 and above, except 061:164.

No more than 2 s.h. of 061:161 or 061:171 and 2 s.h. of 061:163 may be counted toward the 15 s.h. requirement. Students may count 061:218, but not 061:220, toward the minor.

Graduate Programs

The Carver College of Medicine administers graduate programs in microbiology; graduate degrees are granted through the Graduate College. See Carver College of Medicine and

Graduate College in the Catalog for general information about study in medicine and graduate study at the University.

The department offers a Master of Science in microbiology and a Doctor of Philosophy in microbiology. Generally, students admitted to the graduate program pursue the Ph.D.

The objectives of the graduate programs in microbiology are to help students become highly qualified in microbiology research and teaching.

The program offers study in six subdisciplines: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, animal virology, and bioinformatics. Several areas involve interdisciplinary training both within and outside the department, so students receive broad experience during their course of study. Students also may pursue interdisciplinary Ph.D. programs in genetics, immunology, and molecular biology.

During their first year, students rotate in three laboratories of their choice and are advised by the Graduate Student Advisory Committee. At the end of the first year, they choose a research supervisor who chairs their advisory committee. The committee provides intellectual and research guidance for the student's training.

The Department of Microbiology cooperates with other University of Iowa departments to give students ample access to diverse course offerings, seminars, and research programs. For example, microbiology students may participate in courses and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, biocatalysis/biotechnology, and electron microscopy.

All students admitted to advanced degree programs are expected to assist in departmental teaching.

Master of Science

The Master of Science in microbiology requires a minimum of 30 s.h. of graduate credit. M.S. students are required to earn a minimum of 12 s.h. in microbiology courses chosen from three of the department's six subdisciplines. They may substitute a course already taken (at The University of Iowa or elsewhere) for a course requirement, with the M.S. advisory committee's approval. Additional course requirements depend on students' interests and the advice of the examining committee. Students must write a thesis based on their own research and defend it satisfactorily in an oral examination. No more than 9 s.h. of credit for thesis research may be

counted toward the 30 s.h. required for the Master of Science.

Doctor of Philosophy

The Doctor of Philosophy in microbiology requires a minimum of 72 s.h. of graduate credit. Ph.D. students are required to earn a minimum of 15 s.h. of credit in graduate-level microbiology courses. Students may substitute a course already taken (at The University of Iowa or elsewhere) for a course requirement, with the Ph.D. advisory committee's approval. They also must pass a comprehensive examination before their sixth semester in the program and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They should have a cumulative g.p.a. of at least 3.00 and must have completed courses in biological sciences, chemistry (inorganic and organic), mathematics including calculus, and physics. Those admitted with deficiencies must complete the relevant course work during their first year of graduate study. Admission is determined through a review and formal vote by the faculty. Preference is given to students applying for the Ph.D. program.

Facilities

The department shares the Bowen Science Building with the Departments of Anatomy and Cell Biology, Biochemistry, Pharmacology, and Physiology and Biophysics. Laboratory space and modern equipment are available for teaching and research.

Courses

061:005 Microbes and Our World 2 s.h.
Bacteria, viruses, and parasites and their role in shaping human health, industry, current affairs, history.

061:103 Principles of Infectious Diseases 5 s.h.
Principles and methods essential to study of microorganisms, their isolation and identification; microorganisms in infectious diseases; current immunology concepts. Prerequisite: M.D. enrollment.

061:104 Principles Infectious Diseases—Physician Assistant 4 s.h.
Principles and methods essential to study of microorganisms, their isolation and identification; microorganisms in infectious diseases; current immunology concepts. Prerequisite: Physician Assistant Program enrollment.

- 061:112 Pharmacy Microbiology** 3 s.h.
 Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: pre-pharmacy standing.
- 061:113 Dental Microbiology** 3 s.h.
 Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: D.D.S. enrollment.
- 061:147 Survey of Immunology** 4 s.h.
 Major features of the evolutionary, ontogenic, and comparative development of innate and adaptive immune systems and their functions at the cellular and molecular levels. Prerequisite: strong background in biology, including physiology. Pre- or corequisite: biochemistry.
- 061:157 General Microbiology** 5 s.h.
 Principles of microbial diversity, microbial genetics, physiology and metabolism, pathogenic microbiology, virology, immunology, industrial and environmental microbiology; laboratory emphasis on basic techniques. Prerequisites: 002:010 and 002:011. Corequisite: 004:121.
- 061:159 Pathogenic Bacteriology** 5 s.h.
 Pathogenic bacteria, with emphasis on mechanisms of pathogenicity, laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria. Prerequisites: grade of C or higher in 061:157 and consent of instructor.
- 061:160 Microbial Physiology** 3 s.h.
 Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:180. Prerequisite: grade of C or higher in 061:157.
- 061:161 Undergraduate Research in Microbiology** arr.
 Experimental research under faculty supervision. Prerequisites: grade of C or higher in 061:157 and consent of instructor.
- 061:163 Seminar: Microbiology** 2 s.h.
 Current topics in microbiology, immunology. Prerequisite: grade of C or higher in 061:157.
- 061:164 Health Sciences Microbiology** 4 s.h.
 Overview of bacteria, viruses, and eukaryotic microorganisms that cause human disease; microbial structure, growth control and reproduction; immunology in the context of host defense mechanisms. Prerequisite: pre-pharmacy or pre-nursing student standing or consent of instructor. Pre- or corequisite: 002:002 or 002:010 or 002:021.
- 061:168 Introduction to Animal Viruses** 3, 5 s.h.
 Basic physical, chemical, biological properties of animal viruses, their association with human disease; optional laboratory with emphasis on methods in basic, clinical, and molecular virology. Prerequisites: grade of C or higher in 061:157 and consent of instructor.
- 061:170 Microbial Genetics** 3 s.h.
 Genetics of bacteria, bacteriophages; laboratory supplement in 061:175. Prerequisite: grade of C or higher in 061:157 or consent of instructor.
- 061:171 Honors Undergraduate Research in Microbiology** arr.
 Experimental research under faculty supervision. Prerequisites: junior or senior standing and g.p.a. of at least 3.33.
- 061:175 Microbial Genetics Laboratory** 3 s.h.
 Basic principles of genetic analysis of bacteria and bacteriophage. Prerequisite: consent of instructor. Pre- or corequisite: 061:170.
- 061:180 Microbial Physiology Laboratory** 2 s.h.
 Isolation and growth of bacteria, bacterial function products, nutrient transport, metabolic pathways, enzymes. Prerequisite: consent of instructor. Corequisite: 061:160.
- 061:188 Microbial Biotechnology** 3 s.h.
 Industrially relevant microbiology; molecular biology, fermentation, cell culture, downstream processing; overview of industrial organisms; processes to make enzymes, bulk chemicals, antibiotics; safety, economic, regulatory aspects. Prerequisite: grade of C or higher in 061:157.
- 061:190 Web-Based Nursing Microbiology** 4 s.h.
 Nursing microbiology, principles of immunology; web-based instruction. Prerequisite: pre-nursing standing or consent of instructor. Pre- or corequisite: 002:002 or 002:010 or 002:021.
- 061:201 Graduate Immunology I** 3 s.h.
 Prerequisites: courses in college biology, genetics, general chemistry, and introductory immunology. Recommended: biochemistry course. Same as 148:201.
- 061:202 Graduate Immunology II** 3 s.h.
 Intercellular adhesion in the immune system, regulation of inflammation and lymphocyte traffic, immunological tolerance, autoimmune diseases, immune responses to viruses and parasites; problem-oriented experimental approaches, relevant journal articles. Same as 148:202.
- 061:207 Advanced Topics in Immunology** 3 s.h.
 Literature; skill in scientific presentation. Prerequisites: 061:201 and 061:202, or 148:201 and 148:202, or equivalents; and consent of instructor. Same as 148:221.
- 061:210 Advance Prokaryotic Molecular Biology** 3 s.h.
 Mechanism and regulation of DNA, RNA, and protein synthesis in bacteria. Prerequisites: 002:128, and 099:130 or equivalent. Same as 142:210.
- 061:217 Integrated Topics in Infectious Diseases** 1 s.h.
 Clinical cases used to raise questions in host-parasite interactions; case/scientific exposés followed by related journal club discussions at next class session. Prerequisite: consent of instructor. Same as 148:217.
- 061:218 Microscopy for Biomedical Research** arr.
 Methods of tissue preparation for transmission, scanning electron microscopy; fixation, embedding, ultra-thin sectioning and staining; theory, use, maintenance of electron microscopes; associated photographic techniques; advanced techniques such as immuno EM, freeze-fracture. Prerequisites: biological science course and consent of instructor. Same as 002:218, 060:218.
- 061:220 Advanced Microscopy Biomedical Research** arr.
 Individually designed projects, library searches, seminar and workshop participation. Prerequisites: introductory EM course and consent of instructor. Same as 002:220, 060:220.
- 061:226 Advanced Topics in Microbial Development** 2 s.h.
 Lectures and journal club discussions on molecular and cellular mechanisms of bacterial and viral adaptation and survival in animate and inanimate environments. Prerequisite: consent of instructor. Pre- or corequisites: 142:220, 061:160 or 061:260, and 061:170 or 061:270.
- 061:259 Graduate Pathogenic Bacteriology** 5 s.h.
 Pathogenic bacteria, with emphasis on mechanisms of pathogenicity, laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria; research literature. Prerequisite: consent of instructor.
- 061:260 Graduate Microbial Physiology** 3 s.h.
 Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:280.
- 061:261 Graduate Research in Microbiology** arr.
 Prerequisites: microbiology graduate standing and consent of instructor.

061:263 Graduate Student Research Seminar 1 s.h.
Presentation of thesis work in progress. Prerequisite: microbiology graduate standing or consent of instructor.

061:264 Directed Study in Microbiology arr.
Prerequisites: microbiology graduate standing and consent of instructor.

061:265 Topics in Virology Literature 1 s.h.
Papers of current interest in primary virology literature.
Prerequisite: consent of instructor.

061:267 Graduate Introduction to Animal Viruses 3, 5 s.h.
Basic physical, chemical, biological properties of animal viruses, their association with human diseases; optional laboratory with emphasis on methods in basic, clinical, and molecular virology; discussion topics in the primary literature. Prerequisite: consent of instructor.

061:268 Biology and Pathogenesis of Viruses 2 s.h.
Molecular biology of animal DNA and RNA viruses, interaction of these viruses with eucaryotic cells; mechanisms of viral latency, persistence, cellular transformation, oncogenesis; virology literature. Prerequisites: 061:168 or 061:267 or equivalent, and biological sciences major.

061:270 Graduate Microbial Genetics 3 s.h.
Genetics of bacteria, bacteriophages; supplementary laboratory work in 061:271.

061:271 Graduate Microbial Genetics Laboratory 3 s.h.
Basic principles of genetic analysis in bacteria. Prerequisite: consent of instructor. Pre- or corequisite: 061:270.

061:275 Perspectives in Biocatalysis 1-3 s.h.
Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Same as 004:275, 046:275, 052:275, 053:275, 099:275.

061:279 Bacterial Diversity 4 s.h.
Isolation, cultivation of bacteria from various habitats; physiological genetic characteristics of bacterial groups.
Prerequisites: grade of C or higher in 061:157; 061:160 or 061:170 or equivalent; and consent of instructor.

061:280 Graduate Microbial Physiology Laboratory 2 s.h.
Isolation and growth of bacteria, bacterial function products, nutrient transport, metabolic pathways, enzymes. Prerequisite: consent of instructor.

061:288 Graduate Microbial Biotechnology 3 s.h.
Industrially relevant microbiology; molecular biology, fermentation, cell culture, downstream processing; overview of industrial organisms; processes to make enzymes, bulk chemicals, antibiotics; safety, economic, regulatory aspects. Prerequisite: microbiology major or consent of instructor.

061:299 Mechanisms of Parasitism Journal Club 1 s.h.
Same as 142:299.

Science Education

Coordinator: Brian Hand

Professors: Brian Hand, Edward L. Pizzini

Professor emeritus: Robert E. Yager

Associate professors emeriti: George W. Cossman, Darrell G. Phillips, Daniel S. Sheldon, John T. Wilson

Lecturer: John Dunkhase

Undergraduate degree: B.S. in Science Education

Graduate degrees: M.A.T.; M.S.; Ph.D. in Science Education

Web site: <http://www.education.uiowa.edu/scied/>

The Science Education Program provides preparation in more than one discipline of science; a consideration of science from a philosophical, historical, and sociological perspective; an introduction to applied science (technology); and an education sequence.

Program planning in science education requires the cooperation and involvement of a variety of University departments and colleges. Most of the program's requirements are drawn from courses offered by these varied academic units.

Undergraduate Program

The undergraduate program in science education is a transdisciplinary major in science for students interested in education.

The science education major is not intended to prepare students for advanced study in one area of science. When graduates of the Science Education Program elect to pursue graduate studies in a single area of science, they often must complete additional courses in that discipline after they are admitted to the Graduate College.

All of the emphasis areas in science education have the following characteristics in common.

- Depth in a general area of science equivalent to three years or six semesters of sequential study
- Preparation in a second area of science equivalent to two years or four semesters of sequential study
- Introduction to two other fields of science
- A specified proficiency in mathematics as a tool of science (with more mathematics study

required for the physical science emphases than for the biological ones)

- A view of science from a historical/philosophical/cultural perspective
- Experience with the application of scientific knowledge

Bachelor of Science

The B.S. in science education requires 58-67 s.h. in the major, earned in selected courses offered by College of Liberal Arts and Sciences science departments, science applications courses, and courses in the history, philosophy, and sociology of science. Students may choose from four emphasis areas within the science education major: biological sciences, earth science, chemistry, and physics. Students who wish to be certified to teach science must complete the professional education requirements, a 42 s.h. sequence.

Students who wish to earn a B.S. in science education choose one of the following three options.

Option I (59-64 s.h.): Complete two emphasis areas and the broad science field block

Option II (minimum of 58 s.h.): Complete one emphasis area, 15 s.h. in a second emphasis area, the broad science field block, and at least 6 s.h. of additional course work in other emphasis area(s)

Option III (64-67 s.h.): Complete one emphasis area, 12 s.h. in each of the other emphasis areas, and complete 097:128 Meaning of Science and 097:130 Science in Historical Perspective

BIOLOGY EMPHASIS AREA

Total of 28 s.h.

All of these:

002:010-002:011 Principles of Biology I-II	8 s.h.
002:081 Human Genetics in the Twenty-First Century	3 s.h.
002:100 Plant Diversity and Evolution	4 s.h.
002:123 Plant Biochemistry	3 s.h.
097:103 Societal and Educational Applications of Biological Sciences	3 s.h.

One of these:
 002:110 Plant Physiology 3 s.h.
 002:124 Animal Physiology 3 s.h.

One of these:
 002:134 Ecology 4 s.h.
 002:148 Field Ecology 4 s.h.

CHEMISTRY EMPHASIS AREA

Total of 25 s.h.

All of these:
 004:011-004:012 Principles of Chemistry I-II 8 s.h.
 004:111 Analytical Chemistry I (fall) 3 s.h.
 004:121 Organic Chemistry I 3 s.h.
 004:125 Inorganic Chemistry (spring) 2 s.h.
 004:141 Organic Chemistry Lab 3 s.h.
 097:106 Societal and Educational Applications of Chemical Concepts 3 s.h.

One of these:
 004:122 Organic Chemistry II 3 s.h.
 004:131 Physical Chemistry 3 s.h.
 099:110 Biochemistry (spring) 3 s.h.

EARTH SCIENCE EMPHASIS AREA

Total of 27 s.h.

All of these:
 012:004 Evolution and History of Life 4 s.h.
 012:005 Introduction to Geology 4 s.h.
 012:008 Introduction to Environmental Science 4 s.h.
 012:041 Mineralogy 4 s.h.
 012:108 Introduction to Oceanography 2 s.h.
 012:114 Energy and the Environment 3 s.h.
 097:102 Societal and Educational Applications of Earth Science and Environmental Science 3 s.h.

One of these:
 012:102 Earth Surface Processes 3 s.h.
 012:104 Climatology 3 s.h.
 012:121 Principles of Paleontology 3 s.h.
 012:136 Soil Genesis and Geomorphology 3 s.h.

PHYSICS EMPHASIS AREA

Total of 24-26 s.h.

One of these sequences:
 029:011-029:012 College Physics I-II 8 s.h.
 029:081-029:082 Introductory Physics I-II 8 s.h.

One of these:
 029:029 Physics III 4 s.h.
 029:083 Modern Physics 3 s.h.

One of these:
 029:050 Stars, Galaxies, and the Universe 4 s.h.
 029:061 General Astronomy I 4 s.h.

One of these:
 029:128 Electronics 4 s.h.
 029:131 General Laboratory (Saturday & Evening Classes) 3 s.h.

All of these:
 029:115 Intermediate Mechanics 3 s.h.
 097:105 Societal and Educational Applications of Physical Sciences 3 s.h.

BROAD FIELD SCIENCE BLOCK

097:102 Societal and Educational Applications of Earth Science and Environmental Science 3 s.h.
 097:103 Societal and Educational Applications of Biological Sciences 3 s.h.
 097:105 Societal and Educational Applications of Physical Sciences 3 s.h.
 097:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
 097:128 Meaning of Science 2 s.h.
 097:130 Science in Historical Perspective 2 s.h.

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available to students majoring in science education.

Teacher Licensure

Candidates for a bachelor's degree in science education may, but are not required to, be admitted to the Teacher Education Program (TEP) in the College of Education. In order to be considered for admission to the TEP, students must have completed a minimum of 40 s.h. of science course work with a cumulative g.p.a. of at least 2.70. A limited number of applicants are accepted to the TEP, so having the required grade-point average does not ensure admission. Admission decisions are based on grade-point averages in science courses and other criteria relevant to teaching.

For procedures and deadlines for TEP applications, see Teaching and Learning (College of Education) in the Catalog. Interested students must apply to the College of Education for admission to the Teacher Education Program.

TEP students must complete the College of Liberal Arts and Sciences General Education Program, the requirements for a science education major, and the following professional education courses, which total 42 s.h.

07B:180 Human Relations for the Classroom Teacher	3 s.h.
07P:075 Educational Psychology and Measurement	3 s.h.
07S:100 Foundations of Education	3 s.h.
07S:102/07E:102 Technology in the Classroom	2 s.h.
07S:151 Science Teaching and Practicum with Early Learners	3 s.h.
07S:152 Methods of Teaching Science	3 s.h.
07S:153 Instructional Issues in Teaching Science (taken with 07S:179)	3 s.h.
07S:179 Secondary School Science Practicum (taken with 07S:153)	2 s.h.
07S:190 Orientation to Secondary Education	1 s.h.
07S:195 Teaching Reading in Secondary Content Areas	1 s.h.
07U:100 Foundations of Special Education	3 s.h.

These three taken concurrently:

07S:187 Seminar: Curriculum and Student Teaching (section 91)	3 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School	6 s.h.
07S:192 Observation and Laboratory Practice in the Secondary School	6 s.h.

One college-level math course (excluding 22M:001, 22M:002, and 22M:003) also is required.

Minors in Science Teaching

Four science teaching minors are available for persons with teaching majors in other academic areas: biology, chemistry, earth science, and physics. Students must complete a major emphasis area and a science methods course, approved by the Science Education Program.

Special Rules

Since the Science Education Program may involve many faculty advisors and several colleges and departments, some special rules and regulations apply to science education students. They include the following.

- At least 10 s.h. of graded credit in science must be earned at The University of Iowa.
- No credit from the CLEP Natural Science General Examination may be used toward the major in science education.
- Courses used for the major may not be taken pass/nonpass; grades from all courses used for the science education major are used in

computing a student's grade-point average in the major, both at The University of Iowa and overall.

- Since mathematics forms an integral part of so many aspects of modern science, all science education students are urged to complete appropriate advanced courses in both pure and applied mathematics (including statistics and computer science) so that they may be qualified to do graduate work and quantitative research later.

Honors

To graduate with honors, students must maintain a University of Iowa g.p.a. of at least 3.33, in addition to other science education requirements. Contact the University Honors Program for more information.

Graduate Programs

The Science Education Program offers graduate studies leading to the Master of Arts in Teaching, Master of Science, and Doctor of Philosophy. For information about science education graduate programs, see Teaching and Learning (College of Education) in the Catalog. The M.A.T., M.S., and Ph.D. are described under "Secondary Education."

Research

Each faculty member in science education is responsible for one or more areas of research. Major interests include studies of effective teaching and learning, science through writing, philosophy and sociology of science, individualized learning, social issues in science and technology, curriculum planning and development, professional development, intellectual development related to teaching and learning science, studies of effective use of hands-on activities, and evaluation and assessment of science instruction and programs.

Special Programs

A wide range of funded programs provides ample opportunity for students to be involved in innovative development and research in science education. Of special importance is the Science Education Center's commitment to improvement of science programs, toward which it works with teachers from Iowa and throughout the country. Special in-service programs guide teachers in adapting innovative instructional methods, including problem-solving methods, STS, and

laboratory-centered instruction. Other programs promote development and revision of science curricula K-12, science literacy, and programs for gifted and talented students.

International Programs

Science education faculty members have collaborated on a number of international research and development projects in countries including Brazil, China, Italy, Spain, Portugal, Israel, Nigeria, Malaysia, Indonesia, Korea, Australia, Taiwan, South Africa, Mexico, Venezuela, Estonia, Turkey, and India. Activities have included faculty exchanges and numerous cross-national studies.

International students enrich the opportunities for graduate studies at the Science Education Center. Many have enrolled from Indonesia, Korea, Malaysia, Nigeria, Taiwan, and other nations around the world. Relationships are maintained, and new collaborative efforts are under way each year.

Courses

- 097:102 Societal and Educational Applications of Earth Science and Environmental Science** arr.
- Major ideas and principles of earth and environmental sciences; emphasis on common applications in today's world.
- 097:103 Societal and Educational Applications of Biological Sciences** arr.
- Basic conceptual themes of biology, how they have been derived; emphasis on a current social issue related to biology.
- 097:105 Societal and Educational Applications of Physical Sciences** arr.
- Major ideas of physics and how they have been derived; emphasis on how such ideas affect modern society.
- 097:106 Societal and Educational Applications of Chemical Concepts** arr.
- Principles of chemistry as applied in industry, communication, daily living.
- 097:107 Textile Science** 3 s.h.
- Same as 049:142.
- 097:115 Introduction to Museology** 3 s.h.
- GE: humanities. Same as 07S:112, 024:102, 113:103, 169:102.
- 097:119 Directed Study** arr.
- 097:128 Meaning of Science** 2-3 s.h.
- Scientific enterprise from social, ethical, cultural, epistemological viewpoints.
- 097:130 Science in Historical Perspective** 2-3 s.h.
- Science and its related contemporary social issues from historical development perspective.
- 097:140 Problems in Integrating the Teaching of Environmental Science** 2-3 s.h.
- Environmental education resources in the community—human, governmental, natural; environmental education in K-12 teaching.

Certificates and Other Programs

Students in the College of Liberal Arts and Sciences have many opportunities for interdisciplinary study. In addition to majors offered by the college's departments and interdisciplinary programs, students may earn certificates and sometimes minors from programs in the college's Division of Interdisciplinary Programs. The Aging Studies Program and the American Indian and Native Studies Program offer certificates and minors to undergraduates. The Medieval Studies and Sexuality Studies Programs offer certificates.

The college and the University's International Programs office cosponsors certificates and minors in the Global Health Studies and Latin American Studies Programs. The College of Public Health offers the Certificate in Public Health, which students in the College of Liberal Arts and Sciences can earn.

Students can earn the Certificate in International Business, cosponsored by the College of Liberal Arts and Sciences and the Tippie College of Business; the Certificate in American Sign Language and Deaf Studies from the American Sign Language Program; and the Certificate in Philosophies and Ethics of Politics, Law, and Economics, sponsored by the PEOPLE program. Undergraduates also can take courses in book arts from the Center for the Book, a Graduate College program that offers a graduate certificate.

American Sign Language

Chair: Richard Hurtig

Professor: Richard Hurtig

Associate professor: Douglas Baynton

Adjunct instructors: Kelly Neppi, Tim Sheets

Lecturers: Freeman Harper, AmyRuth McGraw, Shannon Marsh, Kimela Nelson

Language coordinator: Kimela Nelson

Undergraduate nondegree program: Certificate in American Sign Language and Deaf Studies

Web site: <http://www.uiowa.edu/~asliowa>

The American Sign Language Program offers a four-semester course sequence in American Sign Language (ASL), an undergraduate Certificate in American Sign Language and Deaf Studies, and courses for teacher licensure. Classroom instruction is supplemented by video materials and interactive software in the Language Media Center.

Students may use the American Sign Language sequence 158:011, 158:012, 158:013, and 158:014 to complete the foreign language component of the College of Liberal Arts and Sciences General Education Program.

Certificate

The Certificate in American Sign Language and Deaf Studies is an interdisciplinary program in which students learn about the history, culture, and language of the American deaf community. Through the study of American Sign Language, students come into contact with a language that is semantically and grammatically very different from their own and that operates in a different sensory channel as well. Students who undertake the program encounter a rich and complex culture, including a rapidly growing literature recorded on film and videotape since the early 20th century.

The certificate program permits students to link study in three or more disciplines into an organized investigation of a language and culture. A Certificate in American Sign Language and Deaf Studies serves as a valuable confirmation for employers and graduate schools of a student's specialized knowledge in the field.

Any undergraduate student pursuing a degree from The University of Iowa may earn the certificate. Holders of University of Iowa baccalaureate degrees who are not enrolled in

graduate or professional programs may return to complete the certificate requirements.

Certificate courses also may be used to satisfy major or minor requirements, but they may not be used to satisfy more than one certificate requirement. Courses used to satisfy certificate requirements may not be taken pass/nonpass.

Up to 6 s.h. of transfer work may be accepted towards certificate requirements, with the approval of the American Sign Language and deaf studies advisor.

REQUIRED COURSES

The Certificate in American Sign Language and Deaf Studies requires completion of the sequence 158:011, 158:012, 158:013, and 158:014, or demonstration of equivalent proficiency, and a minimum of 18 s.h. of approved courses from at least three different departments. At least 6 s.h. must be chosen from the following core courses.

158:100/16A:104 History of the American Deaf Community	3-4 s.h.
158:101 Topics in Deaf Studies	3 s.h.
158:102 American Deaf Culture	3 s.h.
158:103 American Sign Language Literature	3 s.h.
158:104 Issues in ASL and Deaf Studies	3 s.h.
158:106 Introduction to ASL Interpreting	3 s.h.
158:110/07U:110 Teaching Deaf and Hard of Hearing Students	3 s.h.
158:111 American Sign Language Conversation	3 s.h.

Certificate students also complete at least four courses (12 s.h.) from two or more of the following departments. They may petition to have courses that are not listed below approved for certificate requirements.

Anthropology

113:014 Language, Culture, and Communication	3 s.h.
113:173/103:150 Language and Gender	3 s.h.
113:179 Language and Identity	3 s.h.

Education

07U:100 Foundations of Special Education (requires admission to the Teacher Education Program)	3 s.h.
07U:110/158:110 Teaching Deaf and Hard of Hearing Students	3 s.h.

07U:133 The Culturally Different in Diverse Settings 3 s.h.

History

16A:104/158:100 History of the American Deaf Community 3-4 s.h.
 16A:106 Disability in American History 3 s.h.

Linguistics

103:011 Language and Society 3 s.h.
 103:045 Language Rights 3 s.h.
 103:100 Introduction to Linguistics 3 s.h.
 103:150/113:173 Language and Gender 3 s.h.

Speech Pathology and Audiology

003:117 Psychology of Language 3 s.h.
 003:185 Hearing Loss and Audiometry 3 s.h.
 003:244 Rehabilitative Audiology 3 s.h.

Teacher Licensure for Hearing Impaired Endorsement

The American Sign Language Program offers courses that fulfill requirements for the Hearing Impaired Endorsement offered by the College of Education. The University of Iowa currently is the only institution in Iowa that offers this endorsement program. Holders of this endorsement are authorized to serve deaf and hard-of-hearing students from birth to age 21. Applicants to the program must hold or be in the process of completing requirements for an elementary or secondary teaching license.

Courses

158:011 American Sign Language I 4 s.h.
 Conversational skills, basic grammar of ASL; introduction to the ASL cultural community through readings, videos. Taught in American Sign Language. First in a four-semester sequence. GE: foreign language.

158:012 American Sign Language II 4 s.h.
 Continuation of 158:011; emphasis on ASL grammar and syntax; focus on culture through readings, videos. Taught in American Sign Language. GE: foreign language. Prerequisite: 158:011 or consent of instructor.

158:013 American Sign Language III 4 s.h.
 Continuation of 158:012; emphasis on ASL grammar and syntax; focus on culture through readings, videos. Taught in American Sign Language. GE: foreign language. Prerequisite: 158:012 or consent of instructor.

158:014 American Sign Language IV 4 s.h.
 Continuation of 158:013. Taught in American Sign Language. GE: foreign language. Prerequisite: 158:013 or consent of instructor.

158:100 History of the American Deaf Community 3-4 s.h.
 Creation of a distinct language and culture of deaf people in America during the 19th and 20th centuries. Same as 16A:104.

158:101 Topics in Deaf Studies 3 s.h.
 Current topics in deaf studies; skill development in communicative fluency in ASL. Taught in American Sign Language. Pre- or corequisite: 158:014 or consent of instructor.

158:102 American Deaf Culture 3 s.h.
 Cultural practices, beliefs, values of the American deaf community. Taught in American Sign Language. Pre- or corequisite: 158:014 or consent of instructor.

158:103 American Sign Language Literature 3 s.h.
 Introduction to the world of ASL literature, as recorded on videotape or film and in live performance; traditional folklore, story telling, poetry, drama, oratory, jokes, and nonfiction narrative; analysis of genres in their social and cultural contexts as expressions of deaf experience; how historical and current issues in deaf culture are represented in literary form. Taught in American Sign Language. Pre- or corequisite: 158:014 or consent of instructor.

158:104 Issues in ASL and Deaf Studies 3 s.h.
 Current issues in American Sign Language and the American deaf community, such as linguistics, culture, literacy. Pre- or corequisite: 158:014 or consent of instructor.

158:105 Fingerspelling and Numbers I 1 s.h.
 Development of expressive and receptive American Sign Language fingerspelling, loan sign, and number skills based on word, phrase, and number recognition. Eight weeks. Prerequisite: 158:011.

158:106 Introduction to ASL Interpreting 3 s.h.
 Introduction to sign language interpreting; history and current nature of the field, available opportunities, certification, training, ethics. Prerequisite: 158:013.

158:107 Fingerspelling and Numbers II 1 s.h.
 Development of expressive and receptive American Sign Language fingerspelling, loan sign, and number skills based on word, phrase, and number recognition. Eight weeks. Prerequisite: 158:105.

158:110 Teaching Deaf and Hard of Hearing Students 3 s.h.
 Recognition and response to variability in the deaf population—how the deaf best learn and are best taught; how to teach varied subject matter addressing the diversity in large and small groups of deaf students; issues in testing, use of technology, ethnic and cultural diversity, classroom management, educational program options. Prerequisite: consent of instructor. Same as 07U:110.

158:111 American Sign Language Conversation 3 s.h.
 Improvement of receptive and expressive conversational ASL skills through small group discussion, class presentations. Taught in American Sign Language. Pre- or corequisite: 158:013 or consent of instructor.

Global Health Studies

Director: Paul Greenough

Undergraduate nondegree programs: Minor, Certificate in Global Health Studies

Graduate nondegree program: Certificate in Global Health Studies

Web site: <http://intl-programs.uiowa.edu/academic/ghsp/index.htm>

The Global Health Studies Program offers a certificate and a minor focusing on the themes, processes, and institutions that influence health and disease. Among these are technology, culture, politics, religion, legal structure, history, and economy.

As a field, global health studies assumes that health is subject everywhere to dynamic processes of change. Thus, health issues and health care in the United States and other developed countries are part of the field of global health studies.

The Global Health Studies Program emphasizes career and vocational aspects of global health work. It provides an understanding of related phenomena, such as infections and chronic diseases, fitness and longevity, climate change and natural disasters, environmental hazards, use of illicit and proprietary drugs, interventions against violence, war and injuries, new biomedical technologies, reproductive health and family planning, links between health and human rights, health care services and insurance programs, and non-Western health cultures and alternative therapies.

It also promotes an institutional focus that enables students and faculty members from different departments, colleges, and disciplines University-wide to meet on the common ground of their shared interests in global health issues.

The program attracts students from a wide range of disciplines: public health, health and pre-health sciences, health economics, nursing, social sciences, environmental engineering, anthropology, history, law, business, journalism, social work, and education.

Certificate

The Certificate in Global Health Studies requires 25 s.h. and is available to both undergraduate and graduate students. It requires core courses, electives, and health or environmental

health-related research, usually in a foreign country. Course work may be chosen from courses offered by the Global Health Studies Program (see “Courses”) and by other departments and programs (see “Approved Electives”). Students may be granted credit toward the certificate retroactively for course work they completed up to two years before beginning the program.

Students must maintain a g.p.a. of 3.00 or higher in the 25 s.h. of work for the certificate.

To enter the program, students must already be enrolled at The University of Iowa. To apply, they must complete the certificate program application form, available from the Global Health Studies Program office.

Certificate requirements are as follows.

CORE COURSES

Students complete the following.

152:111/173:111/175:111 International Health	3 s.h.
152:150 Global Health Seminar (may be repeated for elective credit)	3 s.h.
152:151 Proseminar in Global Health	1 s.h.
152:152 Global Health Conference (may be repeated for elective credit)	1 s.h.

ELECTIVES

Students complete 17 s.h. of approved electives, including at least 9 s.h. in residence at The University of Iowa. Students may petition to take courses not on the approved list (see “Courses” and “Approved Electives”), providing that these courses can be shown to include substantial material related to global health. Contact the Global Health Studies Program for details.

FOREIGN STUDY OR RESEARCH

Students must complete a study or research project of six to eight weeks duration, typically in a foreign setting but under some circumstances in the United States. They may develop and conduct a research project, participate in a health-related study abroad program, assist a faculty member with research, or complete an internship on a global/environmental health issue.

Projects require approval by the Global Health Studies Program steering committee and must be

supervised by a faculty member. Students may apply up to 8 s.h. of academic credit for research or internship experiences to the elective requirement.

Financial support may be available for some projects. Contact the Global Health Studies Program.

Foreign Language Study

Students should complete four semesters of modern language study or course work that fulfills or is equivalent to the College of Liberal Arts and Sciences General Education Program foreign language component. This certificate requirement can be waived for students whose first language is not English.

The Global Health Studies Program steering committee may require students to take additional language study in preparation for a research or internship program. Students interested in learning an infrequently taught language to facilitate their participation in a foreign experience should investigate the Autonomous Language Learning Network (ALLNET) of International Programs.

Unless foreign language course work is integral to a study abroad program, it may not count toward the 25 s.h. required for the certificate.

Public Presentation

During the semester following the foreign experience, students present their foreign research project results to a special session of 152:150 Global Health Seminar or to an equivalent public forum, such as a departmental seminar. Students also must submit a two- to three-page project report summarizing their research, study abroad, or internship experiences.

Approved Electives

In addition to courses offered by the Global Health Studies Program (see “Courses”), students may use the following courses to complete requirements for the certificate or minor.

Aging Studies

153:108 Basic Aspects of Aging 3 s.h.

Anthropology

113:133 Anthropology of Women’s Health 3 s.h.

113:136 Applied Anthropology (when topic is environmental and community health) 3 s.h.

113:157 Alcohol and Culture 3 s.h.

Community and Behavioral Health

172:130 Social Determinants of Health 3 s.h.
172:150 Health Behavior and Health Education 3 s.h.

Economics

06E:113 Health Economics 3 s.h.

Education

07B:195 Research in Cross-Cultural Settings 3 s.h.

History

16W:140 Disease, Politics, and Health in South Asia 3 s.h.

Literature, Science, and the Arts

033:153 Hard Cases: Science Policy and Values (when topic is health related) 3 s.h.

Nursing

096:175 Issues in International Nursing and Health Care 3 s.h.

Public Health

170:101 Introduction to Public Health 3 s.h.
170:171 Problems in Public Health (when topic is tobacco control and prevention) arr.

Minor

The interdisciplinary minor in global health studies is designed for undergraduate students who wish to study health issues in a global context. It draws on a set of courses offered by the Global Health Studies Program and the Departments of Anthropology, Economics, Geography, History, Sociology, and Psychology; the Program in Literature, Science, and the Arts; and the Colleges of Engineering, Law, Nursing, and Public Health, and the Carver College of Medicine.

The minor in global health studies requires completion of at least 15 s.h. of core and/or elective courses. Courses may be chosen from those offered by the Global Health Studies Program (see “Courses”) or by other departments and programs (see “Approved Electives”). Because the program is interdisciplinary, students should choose course work from at least two different disciplines, and they are strongly encouraged to include a core course from those listed under requirements for the certificate. A period of study abroad focused on global health issues is highly recommended.

Each student's plan of study for the minor is developed according to the student's interests and in consultation with a program advisor.

Students must earn a g.p.a. of 2.00 or higher in all work for the minor and must complete at least 12 s.h. for the minor at The University of Iowa.

Special Opportunities

The Global Health Studies Program organizes both on-campus and international activities and research opportunities for students and faculty members, enabling them to become acquainted with major global health issues. Several scholarships, academic fellowships, international fellowships, and research and study abroad programs supplement the global health studies certificate program. These are sponsored by the University and a variety of agencies. Contact the Global Health Studies Program for details.

Study Abroad Programs

The Global Health Studies Program participates in the following study-abroad programs.

Latin American Health, Nutrition, and Environmental Issues: study abroad in the Dominican Republic (summer and fall semesters)

Environmental studies in Slovenia: three-week intensive courses taught in summer and focusing on global environmental health policy development, atmospheric pollution sources and control, and environmental epidemiology

Health and environment studies in The Gambia

Reproductive health and sexuality: De LaSalle University, Manila, the Philippines

Health and environment studies: School of Environmental Management and Sustainable Development, Katmandu, Nepal

Center for Health Policy Studies, Mahidol University, Thailand

Institute of Health Studies, Hyderabad, India

International Fellowships, Internship

Stanley Fellowships for Graduate and Undergraduate Student Research Abroad: Graduate fellowships are primarily for M.A. and M.S. students proposing to conduct thesis research, but proposals also are welcome from Ph.D. or professional students who would benefit from a period of preliminary research abroad.

CIREH International Health Research Fellowships: The Center for International Rural and Environmental Health provides support to graduate students conducting research projects in health and environmental health that require international travel to developing countries and newly democratized countries in central and eastern Europe.

CIREH International Internship Program: The Center for International Rural and Environmental Health supports participation in a summer internship program designed to enable students who are midway through a graduate degree program to participate in a summer internship that provides them with international experiences related to public, environmental, and occupational health issues in central and eastern Europe.

Courses

152:111 International Health arr.
Same as 173:111, 175:111.

152:112 Global Environmental Health Policy 3 s.h.

152:120 Global Health and Human Rights 3 s.h.
Prerequisite: junior or senior standing or consent of instructor.

152:121 Health of Indigenous Peoples 3 s.h.
Same as 113:121, 149:121.

152:125 Topics in Global Health 3 s.h.

152:131 Geography of Health 1-3 s.h.
Same as 044:131.

152:136 History of Medicine in Western Society 3 s.h.
Same as 016:136.

152:137 History of Public Health 3 s.h.
Same as 16W:137.

152:138 History of International Health 3 s.h.
Same as 16W:138.

152:150 Global Health Seminar 2-3 s.h.
Local and global dimensions of health and disease. Offered fall and spring semesters.

152:151 Proseminar in Global Health 1 s.h.
Important health problems and issues of a global and interrelated nature that affect the developed and developing world.

152:152 Global Health Conference 1 s.h.
Spring research conference on major global health issues.
Prerequisite: conference registration.

152:155 U.S. Health Care System Global Perspective 3 s.h.
Exceptionalism of the American health care system from historical, institutional, economic, clinical, and ethical perspectives. Same as 16W:139.

152:158 Promoting Health Globally 2 s.h.
Major global health threats (e.g., infectious disease, violence, tobacco, and nutrition); the impact of culture, history, and economics on health disparities and remedies. Prerequisite: junior or senior standing, or certificate student standing. Same as 028:147.

152:162 Principles of Environmental Engineering 4 s.h.

Same as 053:055.

152:165 Water and Global Health 2-3 s.h.

Relationship between water quality and human health and welfare worldwide.

152:170 Health Care and Health Reforms in Russia 3 s.h.

Same as 041:104.

152:171 Global Health Informatics Workshop 2-3 s.h.

Assessment of digital communication resources in studying and responding to significant global health problems in Third World nations. Prerequisite: junior or senior standing, or certificate student standing.

152:175 Issues in International Nursing and Health Care 3 s.h.

Same as 096:175.

152:182 U.S. Health Experiences of Immigrants, Migrants, and Refugees 3 s.h.

Unique health challenges and health care experiences of recent immigrants, refugees, migrants.

152:184 Anthropology and International Health 3 s.h.

Same as 113:184, 172:131.

152:185 Medical Anthropology 3 s.h.

Same as 113:185.

152:190 Third World Research: Cases and Results 3 s.h.

Global health research in the Third World; case studies of health-related issues.

152:199 Special Projects in Global Health arr.

Prerequisite: consent of instructor.

152:200 Field Methods for International Research 3 s.h.

Field research in area studies or social science outside North America; research design, IRB review and field ethics, recording and preserving data, conduct of interviews, pros and cons of using research assistants, using archives, personal security; general principles, theoretical positions, case studies. Prerequisite: graduate standing or consent of instructor.

152:217 Health Insurance and Managed Care 3 s.h.

Same as 174:217.

152:250 Critical Development Seminar, Graduate 1 s.h.

Local and visiting speakers. Repeatable.

152:252 Environmental Health Policy 3 s.h.

Same as 053:204, 175:252.

152:257 Epidemiology of Infectious Diseases 3 s.h.

Same as 173:255.

Division of Interdisciplinary Programs

Director: Lauren Rabinovitz (American Studies/Communication Studies)

The College of Liberal Arts and Sciences has long recognized that research and learning cannot always be contained within one discipline and that interactions between experts in different disciplines benefit researchers and students alike. One locus of interdisciplinary activity in the college is the Division of Interdisciplinary Programs. The division provides a structure that facilitates teaching, research, and service that cut across established boundaries.

The division provides an administrative umbrella for several of the college's programs. The Program in Literature, Science, and the Arts and the Leisure Studies Program offer undergraduate majors. The Aging Studies, American Indian and Native Studies, Medieval Studies, and Sexuality Studies Programs offer certificates and, in some cases, minors.

Located in the Jefferson Building, the Division of Interdisciplinary Programs provides a home for its constituent programs and centralizes administrative activities. The division home facilitates access to academic advising for students and administrative support for faculty members.

Aging Studies

Director of Interdisciplinary Programs:

Lauren Rabinovitz

Aging studies coordinator: Richard MacNeil

Aging studies advisor: David Gould

Undergraduate nondegree programs: Certificate, Minor in Aging Studies

Graduate nondegree program: Certificate in Aging Studies

Web site: <http://www.uiowa.edu/~agingstp>

The Aging Studies Program is designed to provide undergraduate and graduate students with a multidisciplinary approach to gerontology. The program consists of courses that have been coordinated and sequenced to provide a broad background in aging for students from various disciplines. All students plan their course of study with their academic advisors in close cooperation with the Aging Studies Program advisor.

Certificate

The Certificate in Aging Studies is open to all interested graduate students, undergraduate students, and nondegree students whose career interests and needs are served by completing the program. The certificate requires 21 s.h. of approved aging-related courses numbered 100 and above. Aging-related course work is defined as University of Iowa courses that focus principally on older persons, the aging process, or interventive methods or techniques whose target is the older adult or aging. A g.p.a. of at least 2.00 is required in all course work applied toward the certificate.

Certificate requirements include a core curriculum of six courses and an additional 2-5 s.h. of elective course work from the list of approved aging-related courses.

With the approval of their major department, students may apply course work to their major or professional program of study. They must take 6 s.h. outside the major department. A minimum of 15 s.h. of course work in aging studies must be completed at The University of Iowa.

Transfer credit is determined individually. Students who wish to apply credit earned at other institutions to the aging studies certificate should consult the aging studies coordinator.

Students may take core courses before, or concurrently with, other courses in the program. The research project or the practicum course should not be taken until the core courses are completed.

Students in good standing may establish study plans with the Aging Studies program advisor, who works with them and their major advisors to shape a study plan that complements their academic program and career interests.

Students should contact the Aging Studies Program to develop an appropriate study plan. The Aging Studies Program schedules required courses, recommends the sequence in which course work should be taken, and keeps a record of each student's approved program and progress.

When a student completes an undergraduate degree and fulfills the requirements for the aging studies certificate, the program notifies the registrar, who records completion of the program on the student's transcript. Holders of Iowa baccalaureate degrees may return to complete the requirements for the certificate. Graduate students and other students who hold a baccalaureate degree are awarded the certificate when they have completed all certificate requirements.

Students are encouraged to advise the Aging Studies Program of their intent to pursue the certificate. In order to receive the certificate, they must contact the Aging Studies Program when they submit their Application for Degree, before graduation.

A student may not be awarded both a minor and a certificate in aging studies.

The following course work is required.

CORE COURSES

All certificate students must complete the following six core courses.

153:108/042:108/096:108/169:108 Basic Aspects of Aging	3 s.h.
153:135/042:135 Older Adulthood: Cultural Comparisons	3 s.h.
153:150/031:050 Psychology of Aging	3 s.h.
153:160 Biology of Aging	3 s.h.
153:190/042:190 Field Work in Gerontology	3-6 s.h.

- 153:130 Aging Studies Colloquium—Undergraduate 1 s.h.
 or
 153:230 Aging Studies Colloquium (graduate students) 1 s.h.

ELECTIVES

Students must complete an additional 2-5 s.h. of elective course work from the following lists of approved aging-related courses. Practicum and/or research courses offered by other academic departments may be accepted for elective credit if the content or focus is aging-specific. Students who wish to apply course work from other departments should consult the Aging Studies Program coordinator.

Psychological Aspects of Aging

- 025:139 Music Therapy Techniques: Adult Clients 3 s.h.
 113:147 Special Topics in Anthropology (cross- cultural perspectives on death, dying, bereavement) 2-3 s.h.
 153:030/096:030 Human Development and Behavior 3 s.h.
 153:150/031:050 Psychology of Aging 3 s.h.
 153:193/032:117 Death, Dying, and Tradition 2-3 s.h.

Biological/Health Aspects of Aging

- 003:530 Seminar: Communication Disorders and Aging 2 s.h.
 028:036 Physical Activity Through the Life Span 3 s.h.
 153:133/028:133 Nutrition Through the Life Span 3 s.h.
 153:145/112:145 Introduction to Geriatric Dentistry 2 s.h.
 153:146/096:146/169:146 Health Promotion for Older Adults 3 s.h.
 153:160 Biology of Aging 3 s.h.
 153:165/003:165 Communication Disorders and Aging 2 s.h.
 153:166/028:166 Exercise for Special Populations 1 s.h.
 153:410/096:410 Nursing Research of Biological Phenomena and Interventions for the Elderly 3 s.h.
 153:420/096:420 Geriatric Mental Health Research 3 s.h.
 153:430/096:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.

Social and Cultural Aspects of Aging

- 034:269 Seminar: Selected Topics in Family Sociology 3 s.h.

- 042:199 Selected Aspects of Social Work and Social Welfare arr.
 153:153/042:153 Programs and Services for Aging Adults 3 s.h.
 153:168/169:168 Aging and Leisure 3 s.h.
 153:185/042:185 Social Policy and the Elderly 3 s.h.
 153:211/042:211 Individual and Family Development: Life Span 3 s.h.
 153:219/042:219 Aging and the Family 2-3 s.h.

Minor

Undergraduate students in the Colleges of Liberal Arts and Sciences, Education, Engineering, Nursing, or the Tippie College of Business may complete a minor in aging studies. The minor must be approved by the student’s college or major department.

The minor in aging studies requires 15 s.h., with at least 12 s.h. in advanced courses (numbered 100 and above) taken at The University of Iowa. The required introductory core course 153:108 Basic Aspects of Aging must be included in the 12 s.h. of advanced course work. Courses must be approved by the Aging Studies Program. Students must maintain a g.p.a. of at least 2.00 in all aging studies work.

Interdepartmental Studies B.A. Option

Students in the College of Liberal Arts and Sciences who would like to design an individualized program in aging studies leading to a Bachelor of Arts must apply and be accepted to the Interdepartmental Studies Program. Entry to the program requires approval of a plan of study that includes 36 s.h. of upper-level course work. Students enrolled in the program also may meet the requirements for a certificate or minor in aging studies.

Courses

- 153:030 Human Development and Behavior 3 s.h.**
 Developmental stages of the human organism from conception through senescence; physiological, intellectual, emotional, social factors. Prerequisite: 031:001. Same as 096:030.
- 153:108 Basic Aspects of Aging 3 s.h.**
 Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. Same as 042:108, 096:108, 169:108.
- 153:110 Growing Old in a New Age 3 s.h.**
 Process of aging, including physiological, psychological, social aspects; myths of aging; impact of elderly on global demographics; ethical dilemmas of an aging society.

- 153:112 Gerontology: Multidisciplinary Perspectives** 3 s.h.
Major theoretical approaches and current research in biology, health, psychology, sociology, and social policy as applied to study of aging.
- 153:119 Writing for Interdisciplinary Audiences** 3 s.h.
Same as 08N:119, 024:119, 154:119.
- 153:124 Independent Study in Gerontology** arr.
Individual projects and/or research. Prerequisite: consent of instructor.
- 153:130 Aging Studies Colloquium—Undergraduate** 1 s.h.
Research topics and procedures in gerontology and geriatrics; ongoing faculty research. Prerequisite: Aging Studies enrollment.
- 153:133 Nutrition through the Life Span** 3 s.h.
How body processes and nutritional needs change with age and physiological state; effects of food-drug-medication interactions, anorexia, bulimia, and adolescent pregnancy; emphasis on food and health habits that minimize nutrition-related problems. Prerequisite: 028:038. Same as 028:133.
- 153:135 Older Adulthood: Cultural Comparisons** 3 s.h.
Social construction of older adulthood across cultures; social privilege, with emphasis on age privilege and ageism. Same as 042:135.
- 153:144 Medicare and Medicaid Policy** 3 s.h.
Health policies most pertinent to Americans over the age of 65. Same as 174:144.
- 153:145 Introduction to Geriatric Dentistry** 2 s.h.
Biological, psychological, social aspects of aging; normal aging, disease processes, pathological changes that affect treatment, patient management. Prerequisite: completion of dental hygiene program or D.D.S. enrollment. Same as 112:145.
- 153:146 Health Promotion for Older Adults** 3 s.h.
Problems, strategic efforts toward long-term goal of health promotion; disease prevention; slowing decline of chronic conditions to allow independent, rewarding lives. Same as 096:146, 169:146.
- 153:147 End of Life Care for Adults and Families** 2-4 s.h.
End-of-life issues in care of adults, older adults, and their families. Same as 046:146, 050:147, 096:147.
- 153:150 Psychology of Aging** 3 s.h.
The later years of human life viewed from perspectives of developmental psychology, biology, sociology. Prerequisite: 031:001 or equivalent. Same as 031:050.
- 153:153 Programs and Services for Aging Adults** 3 s.h.
Same as 042:153.
- 153:160 Biology of Aging** 3 s.h.
Biogerontology; definition of aging and senescence, biological theories of aging, demographics, model systems foraging, premature aging syndromes, aging of organ systems in humans.
- 153:165 Communication Disorders and Aging** 2 s.h.
Introduction to speech, language, and hearing processes and disorders among older adults; survey of characteristics of communication and communication breakdown, remediation, and strategies for improving communication with older adults with communication disorders; primarily for nonmajors and service providers other than speech-language pathologists and audiologists. Offered summer sessions of odd years. Same as 003:165.
- 153:166 Exercise for Special Populations** 1 s.h.
Development, implementation, instruction of exercise programs for special populations. Prerequisite: 028:138 or consent of instructor. Same as 028:166.
- 153:168 Aging and Leisure** 3 s.h.
Status of the well elderly in relation to issues of retirement, use of free time, and factors supporting leisure activity; leisure services in long-term care. Same as 169:168.
- 153:185 Social Policy and the Elderly** 3 s.h.
Public social policies, its effect on well-being of elderly, including women and minorities; U.S. and other nations' policies. Prerequisites: 042:143 and an introductory course on aging (042:108), or consent of instructor; and junior or higher standing. Same as 042:185.
- 153:186 Death and Dying: Issues Across the Life Span** 3 s.h.
Introduction to death and dying; historical, cultural, societal, and personal perspectives. Prerequisite: admission to social work or aging studies, or consent of instructor. Same as 042:186.
- 153:190 Field Work in Gerontology** arr.
Opportunities for students in various disciplines to relate their areas of study to elderly and aging; interdisciplinary relationships, approaches to meeting needs of elderly. Prerequisite: consent of instructor. Same as 042:190.
- 153:195 Introduction to Nursing Homes** 3 s.h.
Overview of nursing home roles in context of long-term care system, characteristics of nursing home residents. Same as 042:195.
- 153:211 Individual and Family Development: Life Span** 3 s.h.
Infancy through senescence; families from their beginnings through their later years; theoretical, methodological issues. Prerequisite: graduate standing. Same as 042:211.
- 153:219 Aging and the Family** 2-3 s.h.
Research related to aging and the family; intergenerational relations, marital status, diversity of older families; caregiving; elder abuse; policy issues. Same as 042:219.
- 153:230 Aging Studies Colloquium** 1 s.h.
Research topics in gerontology, geriatrics. Repeatable.
- 153:241 The Care of the Frail Elderly** 3 s.h.
Same as 096:241.
- 153:261 Epidemiology of Aging** 1-2 s.h.
Epidemiologic methods for assessing and interpreting the health status of older persons; applications for research studies and public health programs. Offered fall semesters. Prerequisite: 173:140. Same as 173:261.
- 153:410 Nursing Research of Biological Phenomena and Interventions for the Elderly** 3 s.h.
Analysis, evaluation of research on elderly health, aging process; emphasis on methodological issues, instrumentation appropriate for study of biological phenomena. Prerequisite: Ph.D. enrollment. Same as 096:410.
- 153:420 Geriatric Mental Health Research** 3 s.h.
Emphasis on program evaluation, geriatric mental health services research, methodological issues. Prerequisite: Ph.D. enrollment. Same as 096:420.
- 153:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly** 3 s.h.
Sociocultural issues for aging clients, corresponding nursing interventions; theoretical orientations to dynamics of aging, transitions and role changes, social/environmental issues. Prerequisite: Ph.D. enrollment. Same as 096:430.

American Indian and Native Studies

Director of Interdisciplinary Programs:

Lauren Rabinovitz

Associate professor: Phil Round (English/American Indian and Native Studies)

Assistant professors: Michelene Pesantubbee (Religious Studies/American Indian and Native Studies), Jacki T. Rand (History/American Indian and Native Studies)

Undergraduate nondegree programs: Certificate, Minor in American Indian and Native Studies

Graduate nondegree program: Certificate in American Indian and Native Studies

Web site: <http://www.uiowa.edu/~ainsp>

The American Indian and Native Studies Program (AINSP) is an interdisciplinary program that focuses on the histories, cultures, languages, literatures, and contemporary legal and political issues of Native Americans of the United States and other indigenous peoples of the Americas.

By taking AINSP courses, students begin to understand historical and contemporary social issues among indigenous peoples of the Americas. They acquire expertise for jobs involving cross-cultural work through experience with ethnic, social, and political diversity. They also gain a background for more specialized or advanced work in a variety of social science disciplines, including anthropology, psychology, geography, economics, education, history, and political science.

A certificate in AINSP provides preparation for professional training in museum work, health care, business, and law.

Undergraduate Programs

Undergraduate students may earn a certificate or a minor in American Indian and native studies. All students plan their programs in close cooperation with AINSP faculty advisors.

Certificate

Students pursuing the undergraduate Certificate in American Indian and Native Studies must earn at least 20 s.h. in courses chosen from the list of approved AINSP courses, with a g.p.a. of at least 2.00. This course work must include the following.

149:049 Introduction to American Indian and Native Studies	3 s.h.
149:101 American Indian and Native Studies Seminar (taken two semesters)	2 s.h.
149:102 Introduction to American Indian History and Policy	3 s.h.
Additional course work, including courses selected from the list of approved AINSP courses (see “Associated Courses”)	12 s.h.

Courses applied toward the AINSP certificate also may be used to complete the General Education Program or the requirements for a major or a minor. However, students may not use more than 6 s.h. of course work from their major to satisfy the AINSP undergraduate certificate. The certificate is awarded only upon completion of a bachelor’s degree. Holders of Iowa baccalaureate degrees may return to complete the requirements for a certificate. Students may not earn both a certificate and a minor in American Indian and native studies.

Students are encouraged to register their intent to pursue the AINSP certificate with the Division of Interdisciplinary Programs. In order to receive the certificate, students must contact the division’s office when they submit their Application for Degree, before graduation.

Minor

To earn a minor in American Indian and native studies, students must complete 15 s.h. in courses chosen from the list of approved AINSP courses, with a g.p.a. of at least 2.00. At least 12 s.h. must be chosen from University of Iowa upper-level courses. Course work must include the following.

149:049 Introduction to American Indian and Native Studies	3 s.h.
or	
149:102 Introduction to American Indian History and Policy	3 s.h.
149:101 American Indian and Native Studies Seminar	1 s.h.
Additional courses, including those selected from the list of approved AINSP courses (see “Associated Courses”)	11 s.h.

Students may not apply more than 6 s.h. of course work used to complete a major to complete the AINSP minor.

Cultural Experience

It is highly recommended that students have an in-depth American Indian cultural experience, usually through study or volunteer work, before they complete their undergraduate requirements. Consult AINSP faculty advisors about available options.

Graduate Program

Graduate students must apply to the academic coordinator to be admitted to the AINSP graduate certificate program. Students who earned an undergraduate certificate in the program may not receive a graduate certificate.

Students pursuing the graduate certificate must earn at least 20 s.h. in courses numbered 100 or above chosen from the list of approved AINSP courses. They also must maintain a g.p.a. of at least 3.00 in AINSP courses counted toward the certificate. The courses must include the following.

- 149:101 American Indian and Native Studies Seminar (taken two semesters) 2 s.h.
 - 149:102 Introduction to American Indian History and Policy 3 s.h.
 - 149:299 Independent Study Project 2 s.h.
- Additional courses chosen from the list of approved AINSP courses (see “Associated Courses”) 10 s.h.

Students may not use more than 6 s.h. of course work from their major field of study to satisfy the AINSP graduate certificate.

Associated Courses

In addition to those listed below, courses concerned in part with American Indians or with issues relevant to American Indians may be used as electives to satisfy requirements for the undergraduate certificate, the minor, and the graduate certificate, subject to AINSP faculty approval.

For course descriptions, see the appropriate department sections of the Catalog.

ANTHROPOLOGY

- 113:020 Introduction to Midwestern Prehistory 3 s.h.
- 113:117 The Maya 3 s.h.

- 113:163 Archaeology of Mesoamerica 3 s.h.
- 113:166 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.
- 113:167 North American Archaeology 3 s.h.

ART AND ART HISTORY

- 01H:002 Arts of Africa 3 s.h.
- 01H:104 American Indian Art 3 s.h.
- 01H:105 Art of Pre-Columbian America 3 s.h.
- 01H:199 Topics in Art History (when content is appropriate) 3 s.h.

EDUCATION

- 07B:123 History of Ethnic and Minority Education 3 s.h.

ENGLISH

- 008:153 Native American Literature 3 s.h.
- 008:185 Native American Autobiography 3 s.h.

HISTORY

- 16A:131 The Frontier in American History to 1840 3 s.h.

Courses

- 149:005 Literatures of Native American Peoples** 3 s.h.
Genres of Native American literature, including oral literature; focus on written literature (fiction, essays, poetry, drama); overview. GE: cultural diversity. Prerequisite: 08G:001. Same as 08G:005.
- 149:020 Introduction to Midwestern Prehistory** 3 s.h.
Same as 113:020.
- 149:049 Introduction to American Indian and Native Studies** 3 s.h.
Themes and methodologies in the study of American Indians and other indigenous peoples; approaches from anthropology, history, law, literature, other disciplines. Offered fall semesters. GE: cultural diversity.
- 149:060 Introduction to Native American Religions** 3 s.h.
GE: cultural diversity. Same as 032:060.
- 149:070 Indians and Allies** 3 s.h.
Contemporary social and cultural challenges facing American Indian individuals, families, and nations; addiction, mental illness, domestic violence, child abuse, incarceration, HIV/AIDS.
- 149:076 American Indian Environmentalism** 3 s.h.
Same as 032:076.
- 149:080 American Indian Activism** 3 s.h.
Socio-religio-political movements among indigenous people of North America, 18th century to present. Same as 032:082.
- 149:082 American Indian Women: Myth, Ritual, and Sacred Power** 3 s.h.
Participation of women and girls in Native Religious traditions; obstacles to knowing and understanding Native women’s religious roles and experiences. Same as 032:078.
- 149:090 Native American Religious Movements** 3 s.h.

<p>149:101 American Indian and Native Studies Seminar 1 s.h. Historical and contemporary issues.</p>	<p>149:250 CIC American Indian Studies Graduate Seminar 3 s.h. Topic varies. Taught four weekends per semester at The Newberry Library, Chicago. Prerequisites: graduate standing and CIC university enrollment.</p>
<p>149:102 Introduction to American Indian History and Policy 3 s.h. American Indian legal history, including history of federal Indian policy, reservations, treaties, sovereignty issues. Offered spring semesters.</p>	<p>149:299 Independent Study Project arr. Repeatable. Prerequisite: consent of instructor.</p>
<p>149:110 Indians of North America 3 s.h. Histories and cultures; emphasis on North America. GE: cultural diversity. Same as 113:110.</p>	
<p>149:113 Native American Literature 3 s.h. Same as 008:153.</p>	
<p>149:114 American Southwest: A Historical Perspective 3 s.h. Same as 16A:114.</p>	
<p>149:115 Native North America I: Precontact-1789 3 s.h. Same as 16A:115.</p>	
<p>149:116 Native North America II: 1789-Present 3 s.h. Same as 16A:116.</p>	
<p>149:121 Health of Indigenous Peoples 3 s.h. Same as 113:121, 152:121.</p>	
<p>149:130 Museum Literacy and Historical Memory 3 s.h. Same as 016:120.</p>	
<p>149:158 Native American Women and Religious Change 3 s.h. Same as 032:158, 131:159.</p>	
<p>149:159 Southwestern Archaeology 3 s.h. Same as 113:159.</p>	
<p>149:164 American Indian/First Nations Women 3 s.h. Same as 131:164.</p>	
<p>149:167 North American Archaeology 3 s.h. Same as 113:167.</p>	
<p>149:168 American Indians in Film 3 s.h. Creation and impacts of American Indian images in movies; role of native people in the creative process.</p>	
<p>149:178 Federal Indian Law 3 s.h. Same as 091:303.</p>	
<p>149:185 Native American Autobiography 3 s.h. Same as 008:185.</p>	
<p>149:195 Directed Cultural Experience arr. In-depth American Indian cultural experience, usually study or volunteer work, under supervision of an AINSP faculty member.</p>	
<p>149:197 Independent Study arr.</p>	
<p>149:199 Special Topics: American Indian and Native Studies arr. American Indians and other indigenous peoples; concepts, problems, issues. Prerequisite: consent of instructor.</p>	
<p>149:243 Readings in Social and Cultural History: North American Indians arr. Same as 016:243.</p>	

Medieval Studies

Director of Interdisciplinary Programs:

Lauren Rabinovitz

Coordinator: Glenn Ehrstine

Undergraduate nondegree program: Certificate in Medieval Studies

Web site: <http://www.uiowa.edu/~interdi/medieval/index.shtml>

Certificate

The Certificate in Medieval Studies gives undergraduate students a way to link study in three or more disciplines into an organized investigation of a rich, varied historical period. Students can pursue the certificate as an elective interest or combine it with focused study in one of a number of areas—for instance, art and art history; cinema and comparative literature; classics; English; French and Italian; German; history; literature, science, and the arts; music; philosophy; religious studies; Spanish and Portuguese; theatre arts; or women’s studies.

Courses applied toward the requirements of the certificate may be used to complete the College of Liberal Arts and Sciences General Education Program or requirements for a major or minor. However, students may not use more than 10 s.h. of course work used to complete a major, minor, or another certificate to satisfy requirements of the medieval studies certificate.

Holders of University of Iowa baccalaureate degrees may return to complete the requirements for a certificate. Up to 6 s.h. of transfer credit can be counted toward the certificate, with approval of the medieval studies advisory committee. Students should consult regularly with a medieval studies advisor in planning their course of study and while they work toward the certificate. Students are encouraged to declare the medieval studies certificate as the second field on their transcripts.

Requirements

Students must earn a minimum of 21 s.h. of credit in medieval studies course work from at least three departments and must demonstrate facility in a medieval language. All certificate students must take the following courses.

16E:110 Medieval Civilization (taken early in plan of study)	3 s.h.
008:101 Literature and Culture of the Middle Ages	3 s.h.
Course work in a medieval language (see “Language Requirement”)	
A history course (prefix 16E or 16W) from the list of approved courses	3 s.h.
A literary studies course from the list of approved courses	3 s.h.
A non-history, non-literary-studies course from the list of approved courses	3 s.h.

Students may need to take elective courses to meet the 21 s.h. requirement for the certificate, depending on how many semester hours they earn in satisfying the language requirement. Electives may be chosen from the list of associated courses.

LANGUAGE REQUIREMENT

Students must complete at least one course or course sequence in a medieval language. Those who intend to continue with graduate study in the Middle Ages are strongly encouraged to take the Latin sequence. Many language courses have prerequisites, some are offered irregularly, and some require special permission for undergraduate enrollment. Students should fulfill the language requirement early in their program of study. They may wish to consult with an advisor in the relevant language department for more information.

The following language courses are approved for the medieval studies certificate.

008:140 Elementary Old English	4 s.h.
20L:011-20L:012 Second-Year Latin I-II	6 s.h.
035:250 Medieval Spanish Literature	3 s.h.

Students may substitute course work in another medieval language with the approval of the certificate advisory committee.

Students are encouraged to register their intent to pursue the Certificate in Medieval Studies with the Division of Interdisciplinary Programs. In order to receive the certificate, students must contact the division office when they submit their Application for Degree, before graduation.

Associated Courses

The following courses are approved for the medieval studies certificate. Courses not on this list may be approved for satisfaction of certificate requirements. Students who wish to have a course approved should make a request to the Certificate in Medieval Studies coordinating committee. The coordinating committee revises the list of approved courses as necessary.

ART AND ART HISTORY

01H:040 Introduction to Medieval Art	3 s.h.
01H:136 Early Medieval Art	3 s.h.
01H:137 Romanesque and Gothic Art	3 s.h.
01H:199 Topics in Art History (when topic is medieval)	3 s.h.

CENTER FOR THE BOOK

108:181/008:130 Literature and the Book (when topic is medieval)	3 s.h.
108:182/16E:120 The Book in the Middle Ages	3 s.h.
108:183/16E:118/021:258 The Transition from Manuscript to Print	3 s.h.

CLASSICS

20L:011 Second-Year Latin I	3 s.h.
20L:012 Second-Year Latin II	3 s.h.

ENGLISH

008:060 Selected Works of the Middle Ages	3 s.h.
008:101 Literature and Culture of the Middle Ages	3 s.h.
008:140/103:132 Elementary Old English	4 s.h.
008:141 Old English: Beowulf	3 s.h.
008:142 Medieval Celtic Literature	3 s.h.
008:144/049:181 Medieval Drama	3 s.h.
008:146 Chaucer	3 s.h.

FRENCH

009:113 French Civilization	3 s.h.
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GERMAN

13E:017 Medieval German Literature: Heroic and Erotic	3 s.h.
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HISTORY

16E:051 Colloquium for History Majors (European) (when topic is medieval)	3 s.h.
16E:110 Medieval Civilization	3 s.h.
16E:111 Medieval Intellectual History 300-1150	3 s.h.
16E:112 Medieval Intellectual History 1150-1500	3 s.h.

16E:113 Economic and Social History of Medieval Europe	3 s.h.
16E:117 History of the Medieval Church	3 s.h.
16E:118/108:183/021:258 The Transition from Manuscript to Print	3 s.h.
16E:119 Women, Power, and Society in Medieval Europe	3 s.h.
16E:120/108:182 The Book in the Middle Ages	3 s.h.
16E:139 Ancient and Medieval Science	3 s.h.
16W:051 Colloquium for History Majors (World) (when topic is medieval)	3 s.h.

ITALIAN

018:119 Medieval Italian Literature	3 s.h.
018:120 Medieval and Renaissance Italian Literature	3 s.h.

MUSIC

025:144 History of Music I	3 s.h.
025:145 Counterpoint Before 1600	3 s.h.

PHILOSOPHY

026:112 Medieval Philosophy	3 s.h.
026:154 Augustine, Anselm, Abelard	3 s.h.
026:155 Aquinas, Scotus, Ockham	3 s.h.

RELIGIOUS STUDIES

032:025 Medieval Religion and Culture	3 s.h.
032:080 Spirituality and Mysticism	3 s.h.
032:119 Jewish Mysticism	3 s.h.
032:132 Medieval and Reformation Religious Thought	3 s.h.

SPANISH AND PORTUGUESE

035:160 Medieval Spanish Literature in Context	3 s.h.
035:181 Topics in Spanish Literature (when topic is medieval)	3 s.h.

THEATRE ARTS

049:181/008:144 Medieval Drama	3 s.h.
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Courses

162:110 Medieval Civilization Same as 16E:110.	3 s.h.
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Sexuality Studies

Director of Interdisciplinary Programs:

Lauren Rabinovitz

Coordinator: Robert Latham

Undergraduate nondegree program: Certificate in Sexuality Studies

Web site: <http://www.uiowa.edu/~interdi/sexuality>

The Sexuality Studies Program is an interdisciplinary program that focuses on the history and construction of human sexualities and gender identities. It encompasses many areas of investigation, including anthropology, art, health care, law, literature, popular culture, psychology, sociology, and theatre, and offers courses in a number of departments. The program is multicultural and international in scope.

Students who complete the certificate program gain a better understanding of human sexuality and acquire valuable background knowledge applicable to a wide variety of humanities and social science fields and to careers in education, counseling, law, medicine, nursing, and other health professions.

Certificate

Students may formally declare their intention to complete the certificate at the CLAS Academic Programs & Services office and are encouraged to register their intent at the Division of Interdisciplinary Programs office. In order to receive the certificate, students must contact the division office when they submit their Application for Degree, before graduation.

Undergraduate students may earn the Certificate in Sexuality Studies by completing the following requirements. They plan their programs in close cooperation with sexuality studies advisors.

Students must earn 21 s.h. with a g.p.a. of at least 2.00 in courses chosen from the list of required and elective courses approved for the certificate.

Course work must include the following.

Both of these:

154:110 Introduction to Sexuality Studies 3 s.h.

154:180 Seminar in Sexuality Studies 3 s.h.

At least two of these:

154:060 Sexuality and Popular Culture in the Postwar U.S. 3 s.h.

154:120 Lesbian, Gay, Bisexual, and Transgender Identities 3 s.h.

154:130 Diverse Sexual Communities 3 s.h.

154:135 Performing America Queerly 3 s.h.

154:185 Sexualities in Hispanic Cultures 3 s.h.

The remaining 9 s.h. are earned in courses chosen from those offered by the Sexuality Studies Program or from the list of approved associated courses, which varies from year to year. For information, contact the Division of Interdisciplinary Programs.

In keeping with the interdisciplinary nature of sexuality studies, students are encouraged to choose these electives from different disciplines.

Courses applied toward the sexuality studies certificate also may be used to complete the College of Liberal Arts and Sciences General Education Program or to satisfy requirements of a major or minor.

Of the 21 s.h. required for the certificate, at least 9 s.h. must be earned at The University of Iowa. Transfer work is evaluated by the program coordinator.

The certificate is awarded upon completion of a bachelor's degree. Holders of Iowa baccalaureate degrees may return to complete the requirements for a certificate. Holders of baccalaureate degrees from other institutions who are not enrolled in a graduate or professional program at The University of Iowa may apply for admission to the College of Liberal Arts and Sciences and are awarded the certificate upon completion of the requirements.

Associated Courses

Other courses may be approved for the certificate.

AMERICAN STUDIES

045:060/008:050/154:060 Sexuality and Popular Culture in the Postwar U.S. 3 s.h.

045:155/049:115/154:135 Performing America Queerly 3 s.h.

045:157 Gender on Stage 3 s.h.

ART AND ART HISTORY

- 01H:128 Greek Vase Painting 3 s.h.
 01H:199 Topics in Art History 3 s.h.

CINEMA AND COMPARATIVE LITERATURE

- 048:194/008:194/131:194 Introduction to Feminist Criticism 3 s.h.

CLASSICS

- 20E:150/131:152/154:121 Gender and Sexuality in the Ancient World 3 s.h.

COMMUNICATION STUDIES

- 036:075 Gender, Sexuality, and the Media 3 s.h.

EDUCATION

- 07C:112/042:112/096:112 Human Sexuality 3 s.h.

ENGLISH

- 08G:011 Literature and Sexualities 3 s.h.
 008:050/045:060/154:060 Sexuality and Popular Culture in the Postwar U.S. 3 s.h.
 008:095 Seminar in Interdisciplinary Studies 3 s.h.
 008:179 Literature and Society (when content is appropriate) 3 s.h.
 008:194 Introduction to Feminist Criticism 3 s.h.

FRENCH AND ITALIAN

- 009:148 Gender and Sexuality in French Cinema 3 s.h.

HEALTH AND SPORT STUDIES

- 028:078 Women, Sport, and Culture 3 s.h.

HISTORY

- 16A:154 Sexuality in the United States 3 s.h.
 16A:174 Gender and Society in the U.S. 1940-Present 3 s.h.

LITERATURE, SCIENCE, AND THE ARTS

- 033:075 Cultural Diversity and Identity 3 s.h.

NURSING

- 096:112/042:112/07C:112 Human Sexuality 3 s.h.

RELIGIOUS STUDIES

- 032:071 Sexual Ethics 3 s.h.

SOCIAL WORK

- 042:112/07C:112/096:112 Human Sexuality 3 s.h.
 042:199 Selected Aspects of Social Work and Social Welfare (when topic is social work practice with gays, lesbians, bisexuals) arr.

SOCIOLOGY

- 034:061 The American Family 3 s.h.
 034:135/154:145 Sociology of Sexuality 3 s.h.

SPANISH AND PORTUGUESE

- 035:193 Sexualities in Hispanic Cultures 3 s.h.

THEATRE ARTS

- 049:115/045:155/154:135 Performing America Queerly 3 s.h.
 049:118 American Women Playwrights: 19th and 20th Centuries 3 s.h.

Courses

154:029 First-Year Seminar 1-2 s.h.
 Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

154:060 Sexuality and Popular Culture in the Postwar U.S. 3 s.h.
 Introduction to the study of postwar American popular culture from a sexuality studies perspective. Same as 008:050, 045:060.

154:069 Topics in Sexuality Studies 1-3 s.h.
 Focus on a specific aspect of human sexuality; topics vary.

154:071 Sexual Ethics 3 s.h.
 Same as 032:071.

154:095 Seminar in Interdisciplinary Studies 3-4 s.h.
 Same as 008:095.

154:110 Introduction to Sexuality Studies 3 s.h.
 Theoretical perspectives on human sexualities drawn from medicine, law, social sciences, the humanities; cultural meanings of heterosexual, lesbian, gay, bisexual, transgender identities.

154:119 Writing for Interdisciplinary Audiences 3 s.h.
 Same as 08N:119, 024:119, 153:119.

154:120 Lesbian, Gay, Bisexual, and Transgender Identities 3 s.h.
 Historical and contemporary experiences of sexual minorities; identity, community, culture, art, politics, representation, diversity, assimilation.

154:121 Gender and Sexuality in the Ancient World 3 s.h.
 Approved for GE: foreign civilization and culture. Same as 20E:150, 131:152.

154:130 Diverse Sexual Communities 3 s.h.
 Intersections of sexual identities with race, class, gender, age, religion, other personal identities associated with experiences of oppression, resistance.

154:135 Performing America Queerly 3 s.h.

Queer sexualities' impact on live stage and social performance and related concepts of national identity in the United States, 19th-21st centuries. Same as 045:155, 049:115.

154:145 Sociology of Sexuality 3 s.h.

Same as 034:135.

154:180 Seminar in Sexuality Studies 3 s.h.

Skill development in developing, presenting, discussing research on current topics in the field. Prerequisites: 154:110 and two additional 154-prefix courses, or consent of instructor.

154:185 Sexualities in Hispanic Cultures 3 s.h.

Historical, social, and theoretical concepts of sexuality in Spanish, Spanish-American, and U.S. Latino/a cultures; construction of gender and sexual identity. Prerequisite: 154:110 or consent of instructor. Same as 035:193.

154:199 Independent Study 1-3 s.h.

Directed readings, artistic or creative endeavors, research projects. Prerequisite: 154:110.

International Business

Coordinators: Patricia Mason-Browne (Liberal Arts and Sciences), Shari Piekarski (Tippie College of Business)

Undergraduate nondegree program: Certificate in International Business

Web site: <http://www.biz.uiowa.edu/upo/ibc/>

The Henry B. Tippie College of Business and the College of Liberal Arts and Sciences offer the Certificate in International Business. The program includes study of international business and economics, international relations and institutions, a foreign language, and the contemporary art, literature, culture, and/or politics of the related geographical area.

Certificate in International Business

The Certificate in International Business requires 29 s.h. and satisfaction of the foreign language requirement. See “Requirements” below.

The program is designed not only for undergraduate students who intend to pursue careers in international business but for any undergraduate interested in gaining a better understanding of the global economy and a broader awareness of the political, historical, and social environment in which international business operates. The range of courses in the program permits students to tailor areas of specialization suited to their individual interests and to complement majors in both liberal arts and sciences and in business.

When students complete the certificate requirements and graduate, the notation “Certificate in International Business” is added to their transcript. Direct questions to the Tippie College of Business Undergraduate Program Office or the CLAS Academic Programs & Services office.

Application

Undergraduate students pursuing a degree from The University of Iowa are eligible to work toward the Certificate in International Business. Students who already have earned a baccalaureate degree from The University of Iowa may return to complete or earn a certificate in international business if they are not enrolled in a graduate or professional program. Holders of

baccalaureate degrees from other institutions who are not enrolled in a graduate or professional program may enroll at The University of Iowa to complete a Certificate in International Business. Contact the Office of Admissions.

Interested students must declare their intention to pursue the certificate with an international business certificate advisor and must submit a plan of study. Students admitted to the Tippie College of Business or advised at the college’s Undergraduate Program Office should consult the advising staff in that office. Students in the College of Liberal Arts and Sciences should consult an international business certificate advisor in the Academic Advising Center.

Requirements

The certificate requires 29 s.h. of course work plus satisfaction of the foreign language requirement (required credit varies according to language studied). Students must maintain a g.p.a. of at least 2.00 on all international business certificate course work. Courses used to satisfy the certificate may not be taken pass/nonpass. A course may not be used to satisfy more than one certificate requirement.

A minimum of 20 s.h. of certificate course work (other than language courses) must be completed at The University of Iowa or in approved study abroad programs. Students who want to use credit earned while studying abroad should consult an international business certificate advisor before leaving campus. University of Iowa Guided Independent Study (correspondence study) is accepted toward the certificate.

The certificate requires course work in international business, international relations and institutions, foreign language, and area studies, as follows.

INTERNATIONAL BUSINESS

These courses provide students with an essential understanding of economics, which is central to all business operation. They also help students develop knowledge of the functional areas of international business.

Both of these:

06E:001 Principles of Microeconomics	3-4 s.h.
06E:002 Principles of Macroeconomics	3-4 s.h.

Three of these (total of 9 s.h.):

06E:125 International Economics	3 s.h.
06E:129 Economic Growth and Development	3 s.h.
06E:164 Economies in Transition	3 s.h.
06E:173 Advanced International Economics	3 s.h.
06F:130 International Finance	3 s.h.
06J:146 International Business Environment	3 s.h.
06M:151 International Marketing	3 s.h.
091:282 International Business Transactions	3 s.h.
091:287 International Trade Law: Basic Norms and Regulation	3 s.h.

INTERNATIONAL RELATIONS AND INSTITUTIONS

These courses familiarize students with comparative politics, social geography, foreign policy, and issues related to world population and the environment—topics relevant to decision making in the international business world.

Two of these (total of 6 s.h.):

16A:152 United States in World Affairs	3 s.h.
16W:138/152:138 History of International Health	3 s.h.
019:156 Comparative Communication Systems	3 s.h.
030:040 Introduction to the Politics of Industrial Democracies	3 s.h.
030:041 Introduction to the Politics of Russia and Eurasia	3 s.h.
030:042 Introduction to the Politics of Developing Areas	3 s.h.
030:060 Introduction to International Relations	3 s.h.
030:061 Introduction to American Foreign Policy	3 s.h.
030:142 European Integration	3 s.h.
030:149 Problems in Comparative Politics	3 s.h.
030:150 Comparative Administrative Politics	3 s.h.
030:151 Political Leadership	3 s.h.
030:155 Social Movements and Collective Action	3 s.h.
030:156 Ethnic Conflict in the International Arena	3 s.h.
030:160 International Politics	3 s.h.
030:161 International Organization and World Order	3 s.h.
030:162 American Foreign Policies	3 s.h.
030:163 Chinese Foreign Policy	3 s.h.
030:164 International Systems: Continuity and Change	3 s.h.

030:165 International Conflict	3 s.h.
030:166 Global Political Communication	3 s.h.
030:167 Politics and the Multinational Enterprise	3 s.h.
030:168 Politics of Terrorism	3 s.h.
030:169 Problems of International Politics	3 s.h.
030:170 The Politics of International Economics	3 s.h.
030:173 Voluntary Organization and Politics in Comparative Perspective	3 s.h.
030:177 Globalization	3 s.h.
034:159 Families in Comparative Perspective	3 s.h.
036:042/042:042 Intercultural Communication	3 s.h.
044:010 The Contemporary Global System	4 s.h.
044:011 Population Geography	3 s.h.
044:015 Introduction to Political Geography	3 s.h.
044:030 The Global Economy	3 s.h.
044:035 World Cities	3 s.h.
044:094 International Development	3 s.h.
044:172 Development Planning and Policy	3 s.h.
044:176 Social Consequences of Global Change	3 s.h.
044:194 Geographic Perspectives on Development	3 s.h.
091:193 Human Rights in the World Community	3 s.h.
091:195 Introduction to Public International Law	3 s.h.
113:010 Anthropology and Contemporary World Problems	3 s.h.
113:134 Gender and Indian Diaspora	3 s.h.
113:137 Anthropology of Tourism	3 s.h.
113:143 Environment and Culture	3 s.h.
113:144 Culture and Consumption	3 s.h.
113:145 Economic Anthropology of the Third World	3 s.h.
113:151/034:151 Sociology of the Third World	3 s.h.
113:181 Race, Ethnicity, and International Relations	3 s.h.

FOREIGN LANGUAGE

This component enables students to develop an intermediate level of competence in a second language. Through language study, students not only gain insight into the culture of another region of the world, they also develop a deeper understanding of their own language and culture.

Students must complete an approved foreign language sequence. For questions about languages not listed below or about study abroad course work, see an international business certificate advisor.

Chinese

One of these sequences:
 039:008-039:009 First-Year Chinese:
 First and Second Semesters 10 s.h.
 039:100-039:101 Advanced First-Year
 Chinese: First and Second Semesters 10 s.h.

Both of these:
 039:105-039:106 Second-Year Chinese:
 First and Second Semesters 10 s.h.

French

One of these sequences:
 009:001-009:002 Elementary French I-II 8 s.h.
 009:010 First-Year French Review 5 s.h.

All of these:
 009:011-009:012 Intermediate
 French I-II 8 s.h.

A course for which 009:012 is
 prerequisite (may include Iowa Regents
 Program credit)

German

One of these:
 013:011-013:012 Elementary German
 I-II (both courses) 8 s.h.
 013:014 First-Year German Review 5 s.h.

Both of these:
 013:021 Intermediate German I 4 s.h.
 013:022 Intermediate German II 4 s.h.

A course for which 013:022 is prerequisite

Hindi

039:123 First Year Hindi: First Semester 5 s.h.
 039:124 First Year Hindi: Second
 Semester 5 s.h.
 039:126 Second Year Hindi: First
 Semester 4 s.h.
 039:127 Second Year Hindi: Second
 Semester 4 s.h.

Italian

One of these:
 018:001-018:002 Elementary Italian I-II
 (both courses) 8 s.h.
 018:103 Intensive Elementary Italian 6 s.h.

All of these:
 018:011-018:012 Intermediate Italian I-II 8 s.h.

A course for which 018:012 is
 prerequisite

Japanese

One of these sequences:
 39J:011-39J:012 Elementary Japanese:
 Review and First-Year Japanese: Second
 Semester 8 s.h.

39J:010 & 39J:012 First-Year Japanese:
 First and Second Semesters 10 s.h.

Both of these:
 39J:101-39J:102 Second-Year Japanese:
 First and Second Semesters 10 s.h.

Portuguese

One of these:
 038:100-038:101 Accelerated
 Elementary Portuguese and
 Accelerated Intermediate Portuguese
 (both courses) 0-10 s.h.
 038:102 Portuguese for Spanish Speakers 3 s.h.

A course for which 038:101 or 038:102 is
 prerequisite

Russian

All of these:
 041:001-041:002 First-Year Russian I-II 8 s.h.
 041:003-041:004 Second-Year
 Russian I-II 8 s.h.

A course for which 041:004 is
 prerequisite

Spanish

One of these:
 035:001-035:002 Elementary Spanish I-II
 (both courses) 8 s.h.
 035:005 Elementary Spanish Review 5 s.h.

One of these:
 035:011-035:012 Intermediate Spanish
 I-II (both courses) 8 s.h.
 035:013 Accelerated Intermediate
 Spanish 6 s.h.

A course for which 035:012 is prerequisite

Swahili

All of these:
 103:125-103:126 Elementary Swahili I-II 8 s.h.
 103:127-103:128 Intermediate
 Swahili I-II 8 s.h.

AREA STUDIES

These courses help students learn about the
 culture, contemporary history, art, literature, and
 politics of the geographic region in which their
 second language is spoken. They cover topics
 critical to understanding sociocultural influences
 on individuals with whom students share the
 world, and with whom they may conduct
 business.

Students complete 6 s.h. from one geographic
 area. The area should be appropriate to the
 language the student chooses for the language
 requirement.

Asia

Appropriate for these languages: Chinese, Hindi, or Japanese

- 01H:016/039:016 Asian Art and Culture 3 s.h.
- 016:005/039:055 Civilizations of Asia: China 3 s.h.
- 016:006/039:056 Civilizations of Asia: Japan 3 s.h.
- 16W:172/39J:172 Japan—Age of the Samurai 3 s.h.
- 16W:173/39J:173 Modern Japan 3 s.h.
- 16W:182/039:132 Vietnam War in Historical Perspective 3 s.h.
- 16W:194/039:134 Imperialism and Modern India 3 s.h.
- 16W:196/039:154 Modern China 1600s to 1920s 3 s.h.
- 16W:198/039:196 China Since 1927 3 s.h.
- 026:144/032:174 Indian Philosophy 3 s.h.
- 026:145/032:175 Buddhist Philosophy 3 s.h.
- 030:042 Introduction to the Politics of Developing Areas 3 s.h.
- 030:143/039:178 Government and Politics of the Far East 3 s.h.
- 030:148 Government and Politics of China 3 s.h.
- 030:163 Chinese Foreign Policy 3 s.h.
- 032:004/039:064 Living Religions of the East 3 s.h.
- 032:006/039:006 Introduction to Buddhism 3 s.h.
- 032:008/039:018 Asian Humanities: India 3 s.h.
- 032:009/039:019 Asian Humanities: China 3 s.h.
- 032:177/039:136 Indian Literature 3 s.h.
- 034:154 Society and Politics in East Asia 3 s.h.
- 039:015 Introduction to Chinese Culture 3 s.h.
- 039:020/032:007 Asian Humanities: Japan 3 s.h.
- 039:057/016:007 Civilizations of Asia: South Asia 3 s.h.
- 039:122/113:129 Language/Politics of Culture in South Asia 3 s.h.
- 039:145/008:127/048:106 Topics in Asian Cinema 3 s.h.
- 039:158/048:158 East-West Literary Relations 3 s.h.
- 039:180 Modern Chinese Writers 3 s.h.
- 039:192/048:192 East Meets West: A Cross-Cultural Course 3 s.h.
- 039:197/131:197 Gender in Chinese Literature and Culture 3 s.h.
- 039:199 Asian Studies arr.
- 39J:103 Language in Japanese Society 3 s.h.
- 39J:125/113:125 Japanese Society and Culture 3 s.h.

- 39J:126/113:126 Japanese Ethos: Narrative and Performance 3 s.h.
- 39J:141/048:143 Traditional Japanese Literature in Translation 3 s.h.
- 39J:142/048:142 Modern Japanese Fiction in Translation 3 s.h.
- 39J:144 Major Authors in Modern Japanese Literature 3 s.h.
- 39J:155 Contemporary Japanese Culture 3 s.h.
- 113:107/131:107 Gendering India 3 s.h.

Europe

Appropriate for these languages: French, German, Italian, Portuguese, or Spanish

- 01H:157/009:130/033:130 Paris and the Art of Urban Life 3 s.h.
- 008:124/048:127 Topics in British and Irish Film 3 s.h.
- 009:030 Cultural Misunderstandings: France and U.S.A. 3 s.h.
- 009:110 Introduction to French Literature: Twentieth Century 3 s.h.
- 009:114 French Civilization 3 s.h.
- 009:116 Cinema, Society, and Culture in 20th-Century France 3 s.h.
- 009:120 French-Speaking Cultures 3 s.h.
- 009:147/048:105 French Cinema 3 s.h.
- 009:168/048:168 Post-Colonial Literature in France 3 s.h.
- 013:101 Introduction to German Literature 3 s.h.
- 013:105 German Cultural History 3 s.h.
- 013:108 The German Media 3 s.h.
- 013:112 Twentieth-Century German Literature 3 s.h.
- 013:115 Contemporary German Civilization 3 s.h.
- 013:117 Current Issues 3 s.h.
- 13E:119 German Film 3 s.h.
- 13E:120 Germany in the World 3 s.h.
- 16E:135 Twentieth-Century Europe: The Nazi Era 3 s.h.
- 16E:136 Twentieth-Century Europe: The Cold War and After 3 s.h.
- 16E:144 Modern France, 1870-Present 3 s.h.
- 16E:146 France from 1815 to the Present 3 s.h.
- 16E:148/131:182 Society and Gender in Europe 1750-Present 3 s.h.
- 16E:152 Modern Britain 1867-Present 3 s.h.
- 16E:156 Germany Since 1914: Weimar, Hitler, and After 3 s.h.
- 16E:161 Politics and Culture in Twentieth-Century Europe 3 s.h.
- 018:105 Modern Italian Fiction 3 s.h.
- 018:106 Modern Italian Poetry and Drama 3 s.h.
- 018:132 Images of Modern Italy 3 s.h.

030:040 Introduction to the Politics of Industrial Democracies	3 s.h.
030:140 Government and Politics of Europe	3 s.h.
030:142 European Integration	3 s.h.
030:147 Comparative Parties and Elections	3 s.h.
030:176 French Politics and Society	3 s.h.
035:150 Spanish Civilization	3 s.h.
035:152 Modern Spanish Literature	3 s.h.
035:161 Masterpieces of Modern Spanish Literature	3 s.h.
038:107 Introduction to Portuguese Literature	3 s.h.
038:114 Culture and Civilization of the Portuguese-Speaking World	3 s.h.
048:021 European Film History	3 s.h.
048:104 Topics in European Film	3 s.h.

Latin America

Appropriate for these languages: Portuguese or Spanish

16W:110 Topics in Latin American History	3 s.h.
16W:112 Introduction to Modern Latin America	3 s.h.
16W:114 Latin America and the U.S.: Historical Perspective	3 s.h.
16W:115 Latin American Revolution	3 s.h.
030:042 Introduction to the Politics of Developing Areas	3 s.h.
030:144 Latin American Government	3 s.h.
030:145 Latin American Political Parties	3 s.h.
035:020 Contemporary Spanish American Narrative	3 s.h.
035:070/038:070/130:070/187:070 Introduction to Latin American Studies	3 s.h.
035:111 Readings in Spanish American Literature and Culture	3 s.h.
035:121 Introduction to Hispanic Linguistics	3 s.h.
035:123 Foundations in Sociolinguistics	3 s.h.
035:130 Spanish American Civilization	3 s.h.
035:131 Contemporary Spanish American Fiction	3 s.h.
035:132 Spanish American Poetry	3 s.h.
035:134 Spanish American Short Story	3 s.h.
035:135 Latinos in the United States	3 s.h.
035:136 Culture and Language in the Andes	3 s.h.
035:144/131:162 Latin American Women Writers	3 s.h.
035:145/048:145 Latin American Cinema	3 s.h.
035:175 Cultural Identity in Caribbean Literature	3 s.h.
035:176/038:176/048:153/113:132/130:176 Latin American Studies Seminar	3 s.h.

035:179 Survey of Twentieth-Century Puerto Rican Literature	3 s.h.
038:020 Contemporary Brazilian Narrative	3 s.h.
038:106 Brazilian Literature II	3 s.h.
038:112 Topics in Luso-Brazilian Literature	3 s.h.
038:114 Culture and Civilization of the Portuguese Speaking World	3 s.h.
113:131 Latin American Economy and Society	3 s.h.

Middle East/Africa

Appropriate for these languages: Swahili, or proficiency in another contemporary Middle Eastern or African language

01H:021 Introduction to the Art of West Africa	3 s.h.
01H:022 Introduction to the Art of Central Africa	3 s.h.
01H:111 Art and Independence in West Africa	3 s.h.
008:119/129:119 African Literature	3 s.h.
008:159/048:159/187:159 African Literature Today	3 s.h.
08G:014/129:008 Literatures of the African Peoples	3 s.h.
009:120 French-Speaking Cultures	3 s.h.
009:146 Francophone Cinema	3 s.h.
009:130/129:135 Francophone Literature of the African Diaspora	3 s.h.
16W:119/129:138 African and African American Interactions	3 s.h.
16W:121/129:164 African History Since 1880	3 s.h.
030:042 Introduction to the Politics of Developing Areas	3 s.h.
030:146/044:161 African Development	3 s.h.
030:150 Comparative Administrative Politics	3 s.h.
032:030 Introduction to Islam	3 s.h.
032:155 Human Rights and Islam	3 s.h.
032:157 Modern Islamic Thought and Political Movement	3 s.h.
032:159 Comparative Islamic Law	3 s.h.
032:167 Islamic Ethics and Philosophy	3 s.h.
032:168 Religion and Politics in the Muslim World	3 s.h.
044:164 The Middle East	3 s.h.
113:104 Inside/Outside the Middle East	3 s.h.
113:113 Africans in the New World	3 s.h.

Russia/Eastern Europe

Appropriate for these languages: Russian, or proficiency in a modern Slavic language

16E:178 Soviet Union 1917-1945	3 s.h.
16E:179 Soviet Union 1945-1991	3 s.h.

030:041 Introduction to the Politics of Russia and Eurasia	3 s.h.
030:141 Russian/Post-Soviet Politics	3 s.h.
030:142 European Integration	3 s.h.
030:159 Government and Politics of Eastern Europe	3 s.h.
041:098 Introduction to Russian Culture	3 s.h.
041:099 Russia Today	3 s.h.
041:100 Russian Literature in Film	3 s.h.
041:102/048:107 Russian Literature in Translation 1860-1917	3 s.h.
041:103 Russian Literature Since 1917	3 s.h.
041:104/152:170 Health Care and Health Reforms in Russia	3 s.h.
041:155/008:155 Tolstoy and Dostoevsky	3-4 s.h.
041:160 Women in Russian Society	3 s.h.
041:164/048:164 Topics in Russian/East European/Eurasian Studies	3 s.h.
041:168/048:154 20th-Century Czech Authors	3 s.h.
041:187 Russian Language and Civilization	3 s.h.
041:188 Topics in Russian Language and Civilization II	3 s.h.
187:099 Introduction to Russia, the Soviet Union, and Successor States	3 s.h.

Latin American Studies

Director: Daniel Balderston (Spanish and Portuguese)
Undergraduate nondegree programs: Certificate, Minor in Latin American Studies
Web site: <http://intl-programs.uiowa.edu/academic/lasp/>

The Latin American Studies Program (LASP) is interdisciplinary, focusing on the history, politics, social organization, economy, geography, music, religion, art, and literature of Central and South America, Mexico, and the Caribbean. Faculty members from across the College of Liberal Arts and Sciences participate in the Latin American Studies Program as affiliated faculty members. Other University of Iowa faculty members occasionally offer courses and participate in the program's research, study, and interdisciplinary activities.

The Latin American Studies Program prepares students for graduate study or for Latin America-related careers in business, communications, government, bilingual/bicultural education, secondary teaching, community organizing, and international work.

In addition to its instructional activity, LASP sponsors a wide variety of activities, brings scholars of Latin America to campus, and fosters institutional linkages.

Undergraduate Programs

Students may earn an undergraduate Certificate in Latin American Studies or a minor. The certificate or minor may be earned in conjunction with the major in international studies. Or it may be combined with study in a number of other programs, including majors in anthropology, history, political science, and Spanish and Portuguese; minors in any of these disciplines; or the Certificate in International Business. All students plan their programs in close cooperation with Latin American studies advisors.

Certificate

Students pursuing the Certificate in Latin American studies must earn at least 24 s.h. with a g.p.a. of at least 2.00 in courses chosen from

the list of LASP-approved courses (see "Approved LASP Courses"). These courses must include the following.

130:070 Introduction to Latin American Studies	3 s.h.
130:176 Latin American Studies Seminar	3 s.h.
At least 6 s.h. in each of two or more of the following departments: anthropology, history, political science, Spanish and Portuguese	
Four semesters (or equivalent) of Spanish or Portuguese language course work	12 s.h.

LASP-approved courses that apply toward the student's major also may be applied toward the LASP certificate.

Courses applied toward the LASP certificate may be used to complete the General Education Program or the requirements for a major or a minor. The certificate is awarded only upon completion of a bachelor's degree. Holders of Iowa baccalaureate degrees may return to complete the requirements for a certificate. A student may not be awarded both a minor and a certificate in Latin American studies.

Minor

To earn a minor in Latin American studies, students complete 15 s.h. in courses selected from the list of LASP-approved courses, with a g.p.a. of at least 2.00. To preserve the interdisciplinary character of the Latin American studies minor, students majoring in anthropology, history, political science, or Spanish and Portuguese may not count more than 6 s.h. from courses in their major department toward the minor. At least 12 of the 15 s.h. must be taken in advanced courses (100-level or above) at The University of Iowa. Students are strongly encouraged to take either or both of the following.

130:070 Introduction to Latin American Studies	3 s.h.
130:176 Latin American Studies Seminar	3 s.h.

Study Abroad

It is highly recommended, though not required, that students have an in-depth Latin American cultural experience, usually through study

abroad, before completing their undergraduate requirements.

In cooperation with the Office for Study Abroad, LASP faculty members facilitate student participation in programs in many different Latin American countries. Programs range from intensive language study to group programs with a special focus. University of Iowa-sponsored study abroad programs include summer programs with Universidad de Guanajuato in Mexico, Universidad de los Andes in Venezuela, and a health and nutrition program in Pontificia Universidad Católica Madre y Maestra in the Dominican Republic.

University of Iowa students may enroll in programs in Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Honduras, Mexico, and Uruguay. The University of Iowa cosponsors these programs through various consortiums.

Study abroad courses may be counted toward requirements for the certificate and the minor, subject to prior approval by the LASP director.

Course Work

In addition to the courses listed below, courses concerned in part with Latin America sometimes may be used as electives to satisfy the requirements for the certificate or the minor. Consult the LASP director.

Latin American Studies

- 130:070 Introduction to Latin American Studies (required for certificate students, recommended for minors) 3 s.h.
- 130:105 Independent Study arr.
- 130:176 Latin American Studies Seminar (required for certificate students, recommended for minors) 3 s.h.

Approved LASP Courses

Anthropology

- 113:118 Social Anthropology of the Caribbean 3 s.h.
- 113:131 Latin American Economy and Society 3 s.h.
- 113:151 Sociology of the Third World 3 s.h.
- 113:163 Archaeology of Mesoamerica 3 s.h.
- 113:166 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.

Art

- 01H:105 Art of Pre-Columbian America 3 s.h.

Communication Studies

- 036:152 Latin American Media 3 s.h.

History

- 16W:110 Topics in Latin American History 3 s.h.
- 16W:111 Colonial Latin America 3 s.h.
- 16W:112 Introduction to Modern Latin America 3 s.h.
- 16W:114 Latin America and the U.S.: The Historical Perspective 3 s.h.
- 16W:115 Latin American Revolution 3 s.h.

Music

- 025:104 Music of Latin America and the Caribbean 3 s.h.
- 025:163 Steel Band 1 s.h.

Political Science

- 030:144 Latin American Government 3 s.h.

Portuguese

- 038:105 Brazilian Literature I 3 s.h.
- 038:106 Brazilian Literature II 3 s.h.
- 038:112 Topics in Luso-Brazilian Literature (when topic is Latin American) 3 s.h.
- 038:114 Culture and Civilization of the Portuguese-Speaking World (when topic is Latin American) 3 s.h.
- 038:120 Topics in Luso-Brazilian Culture (when topic is Latin American) 3 s.h.

Spanish

- 035:111 Readings in Spanish American Literature and Culture 3 s.h.
- 035:113 Screening Latin America 3 s.h.
- 035:130 Spanish American Civilization 3 s.h.
- 035:131 Contemporary Spanish American Fiction 3 s.h.
- 035:132 Spanish American Poetry 3 s.h.
- 035:134 Spanish American Short Story 3 s.h.
- 035:136 Culture and Language in the Andes 3 s.h.
- 035:139 Spanish American Love Poetry 3 s.h.
- 035:145 Latin America Cinema 3 s.h.
- 035:149 Colonial Spanish American Culture 3 s.h.
- 035:173 Colonial Spanish American Literature 3 s.h.
- 035:175 Cultural Identity in Caribbean Literature 3 s.h.
- 035:187 Spanish Word Formation 3 s.h.
- 035:191/048:178 Topics in Latin American Cinema 3 s.h.

Other

008:098 Honors Proseminar (when topic is Latin American)	4 s.h.
16W:051 Colloquium for History Majors (when topic is Latin American)	3 s.h.
035:020 Contemporary Spanish American Narrative (counts toward minor but not certificate)	3 s.h.
035:148 Topics in Cinema, Literature, and Society (when topic is Latin American)	3 s.h.
035:185 Topics in Hispanic Linguistics (when topic is Latin American)	3 s.h.
035:192 Topics in Film Studies (when topic is Latin American)	3 s.h.
035:195 Senior Seminar (when topic is Latin American)	3 s.h.
036:042 Intercultural Communication (final paper must focus on Latin America)	3 s.h.
038:020 Contemporary Brazilian Narrative (counts toward minor but not certificate)	3 s.h.
113:109 Literature and Anthropology (when topic is Latin American)	3 s.h.

Courses

130:070 Introduction to Latin American Studies	3 s.h.
Cultures of Latin American countries with emphasis on cultural history and cultural production; interdisciplinary survey. Same as 035:070, 038:070, 187:070.	
130:105 Independent Study	arr.
130:115 Topics in Latin American Studies	arr.
130:176 Latin American Studies Seminar	3 s.h.
Interdisciplinary approach. Recommended: Spanish or Portuguese sufficient for background readings. Same as 035:176, 038:176, 048:153, 113:132.	

Financial Aid

Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Research/Fieldwork through University of Iowa International Programs. The scholarships are awarded to outstanding University of Iowa undergraduates who, in close consultation with a faculty member, propose well-conceived, small-scale research or fieldwork projects that require travel abroad. Students may conduct projects while participating in a study abroad program and may combine the scholarship with other awards and financial assistance. For information regarding other scholarships, contact LASP advisors, International Programs staff, and the LASP director.

Visitors, Activities

In addition to its instructional activity, LASP organizes a range of public programming activities each semester, including film series, photography and art exhibits, conferences, roundtable discussions, and lectures. Recent events have included an international conference on contemporary Cuba and speakers on cinema, indigenous movements, human rights, and art.

Philosophies and Ethics of Politics, Law, and Economics

Coordinator: Diane Jeske

Undergraduate nondegree program: Certificate in Philosophies and Ethics of Politics, Law, and Economics

Web site: <http://www.uiowa.edu/~people>

The College of Liberal Arts and Sciences offers an interdisciplinary program that leads to the Certificate in Philosophies and Ethics of Politics, Law, and Economics.

The Philosophies and Ethics of Politics, Law, and Economics (PEOPLE) Program is based on the assumption that societies institutionalize values; they guide conduct by regulating opportunities, prescribing behavior, and influencing beliefs and attitudes. The goal of the PEOPLE program is to help students understand and evaluate these complex relationships by examining them from a variety of perspectives.

The PEOPLE program may be especially attractive to students who are planning to attend law school after graduation. Students considering careers in planning, politics, or public administration also may find the PEOPLE program highly useful.

Undergraduates in economics, philosophy, political science, and sociology may discover that they will meet many of the PEOPLE program requirements in completing the requirements for their major or minor. However, a major or minor in one of these disciplines is not a requirement of the program.

Students who complete the PEOPLE program earn a certificate, and the notation “Certificate in the Philosophies and Ethics of Politics, Law, and Economics” appears on their transcripts. The certificate is awarded upon completion of a bachelor’s degree. Holders of Iowa baccalaureate degrees may return to complete the requirements for a certificate.

Certificate

Students must complete a 36 s.h. course of study with a g.p.a. of at least 2.00 to earn the PEOPLE certificate. The final 18 s.h. used to complete the certificate must be taken at The University of Iowa.

Because of the program’s multiple requirements, students are encouraged to begin the program as first-year students or sophomores; however, with careful planning, students who join the program as juniors can complete the requirements by their normal graduation date, especially if they already have taken several courses that satisfy PEOPLE requirements. Prospective certificate students should contact the PEOPLE program’s coordinator.

The certificate program consists of two parts: the foundation, made up of six courses (18 s.h.), and the fields, also made up of six courses (18 s.h.). The foundation is the common element in the program. The five fields—economics, law, philosophy, political science, and sociology—provide opportunities for specialization.

Foundation

Students must take the following six courses. The first two (026:036 or 026:103, and 026:001 or 026:102) are best taken during the first or sophomore year.

One of these:

026:036 Principles of Reasoning 3 s.h.
026:103 Introduction to Symbolic Logic 3 s.h.

One of these:

026:001 Problems of Moral Reasoning 3 s.h.
026:102 Introduction to Ethics 3 s.h.

One of these:

026:034 Philosophy and the Just Society 3 s.h.
026:132 Introduction to Political
Philosophy 3 s.h.
026:135 Philosophy of Law 3 s.h.

One of these:

030:020 Introduction to Politics 3 s.h.
030:030 Introduction to Political
Thought and Political Action 3 s.h.
030:050 Introduction to Political
Behavior 3 s.h.
030:070 Introduction to Political
Communication 3 s.h.

One of these:

- 06E:001 Principles of Microeconomics 3-4 s.h.
- 06E:002 Principles of Macroeconomics 3-4 s.h.

One of these:

- 026:149 Undergraduate Seminar in Philosophy (requires consent of PEOPLE program director) 3 s.h.
- 033:151 Individuals and Institutions 3 s.h.
- 033:153 Hard Cases: Science Policy and Values 3 s.h.
- 033:175/01H:182/024:161 Art, Law, and Ethics 3 s.h.

Fields

Students must choose two of the following fields and complete three courses in each.

ECONOMICS

One of these:

- 06E:104 Microeconomic Theory (if 06E:001 was taken for foundation requirement) 3 s.h.
- 06E:105 Macroeconomics (if 06E:002 was taken for foundation requirement) 3 s.h.

Two of these:

- 06E:119 Economics of the Government Sector 3 s.h.
- 06E:125 International Economics 3 s.h.
- 06E:172 Law and Economics (cannot be used to satisfy both economics and law field requirements) 3 s.h.
- 06E:176 Public Sector Economics 3 s.h.
- 06E:178/16A:144 American Economic History 3 s.h.
- 06E:179 History of Economic Thought 3 s.h.

PHILOSOPHY

Three of these:

- 026:102 Introduction to Ethics (if not taken for foundation requirement) 3 s.h.
- 026:104 Introduction to Philosophy of Science 3 s.h.
- 026:132 Introduction to Political Philosophy (if not taken for foundation requirement) 3 s.h.
- 026:133 Philosophy of History 3 s.h.
- 026:135 Philosophy of Law (if not taken for foundation requirement) 3 s.h.
- 026:180 Analytic Ethics 3 s.h.
- 026:182 History of Ethics I 3 s.h.
- 026:183 History of Ethics II 3 s.h.
- 026:185 Political Philosophy 3 s.h.
- 026:196 Philosophy of the Human Sciences 3 s.h.

POLITICAL SCIENCE

One of these:

- 030:116 American Constitutional Law and Politics 3 s.h.
- 030:118 American Political Development 3 s.h.
- 030:119 Problems in American Politics 3 s.h.

One of these:

- 030:132 Modern Political Theory 3 s.h.
- 030:133 Postmodern Political Theory 3 s.h.
- 030:138 Current Political Theory 3 s.h.

One of these:

- 030:126 American Public Policy 3 s.h.
- 030:136 Strategy in Politics 3 s.h.
- 030:152 The Legislative Process 3 s.h.
- 030:153 The Judicial Process 3 s.h.

LAW

One of these:

- 026:135 Philosophy of Law (if not taken for foundation or another field requirement) 3 s.h.
- 144:143/091:288 Jurisprudence 3 s.h.

Two of these:

- 06E:172 Law and Economics (if not taken for economics field requirement) 3 s.h.
- 16A:110/149:114 Law in American History I 3 s.h.
- 030:116 American Constitutional Law and Politics (if not taken for political science field requirement) 3 s.h.
- 091:193 Human Rights in the World Community 3 s.h.
- 091:195 Introduction to Public International Law 3 s.h.
- 091:264 Survey of British and Commonwealth Legal History 2-3 s.h.
- 144:142/091:224 Comparative Law 3 s.h.

Semester hours earned in PEOPLE courses taught by College of Law faculty members normally do not count toward requirements for a law degree.

SOCIOLOGY

One of these:

- 034:001 Introduction to Sociology: Principles 3 s.h.
- 034:009 Sociological Theory 3 s.h.

Two of these:

- 034:040 Criminology 3 s.h.
- 034:066 Social Inequality 3 s.h.
- 034:141 Juvenile Delinquency 3 s.h.
- 034:149 Sociology of Criminal Punishment 3 s.h.
- 034:150 Political Sociology 3 s.h.
- 034:182 Sociology of Law 3 s.h.

Courses

144:141 Law, Litigation, and Science arr.

144:142 Comparative Law 2-3 s.h.

Comparative study of the world's main legal systems; emphasis on origins, development, characteristic features of civil law tradition, which includes most modern legal systems. Same as 091:224.

144:143 Jurisprudence 2-3 s.h.

Selected legal philosophies, with emphasis on legal positivism and natural law; nature of jurisprudence, relationship between law and morality, authority, normativity, institutional nature of law, political obligation. Same as 091:288.

Tippie College of Business

Departments and Degree Programs

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Dean: William C. Hunter

Senior associate dean: Charles H. Whiteman

Associate dean, undergraduate program:

M. Beth Ingram

Associate dean, school of management:

Gary J. Gaeth

Degrees: B.B.A., M.Ac., M.B.A., Ph.D.

Web site: <http://www.biz.uiowa.edu>

The Henry B. Tippie College of Business is composed of six academic departments: accounting, economics, finance, management and organizations, management sciences, and marketing.

The college's undergraduate and graduate programs are accredited by AACSB International—the Association to Advance Collegiate Schools of Business.

Research, executive development, and education activities are supported by the centers and institutes of the college: Hawkinson Institute of Business Finance, Institute for Economic Research, John Pappajohn Entrepreneurial Center, RSM McGladrey Institute of Accounting Education and Research, Institute for International Business, Judith R. Frank Business Communications Center, Small Business Development Center, and Emmett J. Vaughan Institute for Risk Management and Insurance.

Undergraduate Program

The Tippie College of Business offers the Bachelor of Business Administration (B.B.A.) in all six departments. Most B.B.A. students complete background studies either in the College of Liberal Arts and Sciences at The University of Iowa or at another institution and enter the Tippie College of Business as juniors. First-year students who have an Admission Index Score of at least 148 are eligible for the Early Admission Program. For more information on early admission, contact the college's Undergraduate Program Office.

Undergraduate Advising

All business students are advised at the Undergraduate Program Office in the Tippie College of Business. Pre-business students are advised at the University's Academic Advising Center and at the college's Undergraduate Program Office. Assignment to the Undergraduate Program Office for advising

depends on a student's grade-point average, completion of certain courses, and/or the number of semester hours completed. Walk-in hours and scheduled appointments are available at both offices. For more information on advising, contact the college's Undergraduate Program Office or the UI Academic Advising Center.

Honor Code

Integrity and honesty are essential to success in all facets of life. The purpose of the Tippie College of Business Honor Code is to promote honorable and ethical behavior. For more information about the honor code, visit <http://www.biz.uiowa.edu/upo/advising/honorcode.html> or contact the Undergraduate Program Office.

Bachelor of Business Administration

The B.B.A. requires a minimum of 120 s.h. of credit, including at least 48 s.h. earned in business courses and at least 60 s.h. earned in nonbusiness courses.

Students must earn 30 s.h. in residence following admission to the Tippie College of Business. At least 24 s.h. in courses offered by the business college and at least two-thirds of the semester hours in the student's major must be earned at The University of Iowa. Nonresident instruction includes course work at colleges and universities other than The University of Iowa.

To graduate, B.B.A. students must have a cumulative g.p.a. of at least 2.00 in all college course work attempted, all college course work attempted in business, all college course work attempted in the major, all course work attempted at The University of Iowa, all business course work attempted at The University of Iowa, and all course work in the major attempted at The University of Iowa.

Common Requirements

B.B.A. candidates must satisfy the following minimum common requirements or approved equivalents. For approved equivalents, consult the college's Undergraduate Program Office.

GENERAL EDUCATION REQUIREMENTS

Students may not count courses taken to fulfill General Education requirements toward other requirements for the B.B.A.

Rhetoric (010:001-010:002, or 010:003)	4-8 s.h.
Natural sciences	3 s.h.
Historical perspectives	3 s.h.
Global and cultural studies	3 s.h.
Humanities (including 08G:001 Interpretation of Literature)	6 s.h.
Social sciences (excluding 06E:001 and 06E:002)	3 s.h.

PREREQUISITES FOR ADMISSION TO THE COLLEGE

06A:001 Introduction to Financial Accounting	3 s.h.
06A:002 Managerial Accounting	3 s.h.
06E:001 Principles of Microeconomics	4 s.h.
06E:002 Principles of Macroeconomics	4 s.h.
22M:017 Calculus and Matrix Algebra for Business	4 s.h.
22S:008 Statistics for Business	4 s.h.

BUSINESS CORE

06E:071 Statistics for Strategy Problems	3 s.h.
06F:100 Introductory Financial Management	3 s.h.
06J:047 Introduction to Law	3 s.h.
06J:048 Introduction to Management	3 s.h.
06B:100 Foundations of Business (taken first semester after admission to Tippie College of Business)	3 s.h.
06K:070 Computer Analysis	3 s.h.
06K:100 Operations Management	3 s.h.
06M:100 Introduction to Marketing Strategy	3 s.h.

MAJOR STUDY AREA

All B.B.A. students must complete a major area of study. The college offers majors in accounting, economics, finance, management, management information systems, and marketing. The requirements for each major are established by the college's individual departments; see the Catalog's Tippie College of Business department sections.

Students with Associate of Arts Degrees

Students who receive an Associate of Arts (A.A.) from community colleges participating in the Iowa Community College/Regents Articulation Agreement are considered to have met the General Education requirements in rhetoric, natural sciences, social sciences, historical perspectives, and humanities, but not the global and cultural studies requirements. The program of study for which the student was awarded the A.A. must have included:

a minimum of 60 s.h. (or 90 quarter hours) of credit acceptable toward graduation from The

University of Iowa (mathematics courses comparable to 22M:001 Basic Algebra I, 22M:002 Basic Algebra II, and 22M:003 Basic Geometry are not accepted toward graduation);

completion of the agreed-upon group of courses at the community college; and

a g.p.a. of at least 2.00.

Students who use the provisions of the articulation agreement are granted a maximum of 60 s.h. of transferable credit from two-year colleges toward the 120 s.h. required for a B.B.A. Credit earned for the A.A. beyond the 60 s.h. transferable maximum is used in computing the student's grade-point average, and it may be used to satisfy course requirements, but it does not count toward the B.B.A. Transfer credit for business courses taken during the first and second years is counted toward the B.B.A. only if such courses are usually offered as lower-division courses at The University of Iowa.

Transfer Courses

Students who have taken courses at another institution that are similar to those approved for the common business requirements at Iowa may request that these courses be evaluated for transfer credit. Students who transfer fewer than enough hours to meet a common business requirement may use only approved courses to complete the remainder of the requirement. Only junior- and senior-level courses taken at accredited four-year institutions may be used to satisfy common business course requirements numbered 100 and above. Students must complete a minimum of 24 s.h. and at least two-thirds of the course work in the major at The University of Iowa. Guided Independent Study may be counted toward all requirements for graduation, subject to approval by the student's major department.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Note: The following checkpoints are designed for students who enter the University as first-year pre-business students. In order to stay on the plan, students must maintain the grade-point average required for guaranteed admission to the Tippie College of Business and must apply for admission to the college by the established deadline. The Four-Year Graduation Plan is not

available to students who choose to pursue a double major (two majors in the college).

Students must take 06B:100 Foundations of Business during their first semester after admission to the Tippie College of Business.

Before the third semester begins: 06E:001 or 06E:002, 22M:017, and 22S:008, or equivalents; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 06A:001, 06A:002, and 06E:001 or 06E:002 (whichever has not already been taken), or equivalents; all General Education requirements; and at least half of the semester hours required for graduation

Before the seventh semester begins: business core requirements, approximately half of the course work in the major (varies by major), and three-quarters of the semester hours required for graduation

Before the eighth semester begins: approximately three-quarters of course work in the major (varies by major)

During the eighth semester: all remaining course work in the major, and a sufficient number of semester hours to graduate

B.B.A. with Honors

The Tippie College of Business Honors Program offers outstanding students the opportunity to undertake independent study and to work closely with faculty members and other honors students. Students choose one of three paths toward graduation with honors: complete the junior honors seminar, generally in the spring of the junior year, and complete the honors thesis, generally in fall semester of the following academic year; or complete the economic honors seminar, generally in fall of senior year, and complete the thesis, generally in the spring of the same academic year; or complete three Tippie College of Business courses designated by the student or by ISIS as honors courses (prerequisites do not count toward this requirement). Students are encouraged to choose upper-level business courses for honors designation; they must obtain permission from the codirectors of the college's honors program in order to designate a course as honors.

Students must have a g.p.a. of at least 3.50 to enter the Tippie Honors Program. To earn the B.B.A. with honors, students must successfully complete all college and honors program requirements with a g.p.a. of at least 3.50 in all courses taken at Iowa, all business courses taken

at Iowa, all courses taken (including transfer courses), and all business courses taken (including transfer courses).

Pre-business students interested in the honors program are encouraged to participate in the University Honors Program until they are admitted to the business college.

Double Majors in Business

Students may earn a double major by meeting the requirements of more than one major in the Tippie College of Business. They receive one B.B.A. with two or more majors. During early registration, students pursuing a double major in the college may register only for courses in their first major. The remedies of the Four-Year Graduation Plan are not available for a second major. Students may be required to obtain permission from the Undergraduate Program Office in order to pursue a double major.

Combined Degree Programs

Undergraduate students may pursue combined undergraduate degrees in the Tippie College of Business and the College of Liberal Arts and Sciences or the College of Engineering.

Business and Liberal Arts and Sciences

The Tippie College of Business and the College of Liberal Arts and Sciences offer a combined degree program in which students earn two University of Iowa bachelor's degrees: a Bachelor of Business Administration (B.B.A.) from the Tippie College of Business; and a Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), or Bachelor of Music (B.M.) from the College of Liberal Arts and Sciences.

The combined business/liberal arts and sciences degree program requires a total of 150 s.h.; at least 30 s.h. must be earned in Tippie College of Business courses, and at least 30 s.h. must be earned in College of Liberal Arts and Sciences courses.

Students in the program must complete all General Education Program components and all other requirements for both majors.

Students may not use the second-grade option for courses in the combined program.

To enter the combined degree program, students must have approval from the Tippie College of Business and must be admitted to both colleges. Interested students should schedule an

appointment with an advisor in the college's Undergraduate Program Office.

Business and Engineering

The Tippie College of Business and the College of Engineering offer a combined degree program in which students earn two University of Iowa bachelor's degrees: a Bachelor of Business Administration (B.B.A.) from the Tippie College of Business and a Bachelor of Science in Engineering (B.S.E.) from the College of Engineering.

The combined business/engineering degree program requires a total of 158 s.h.; at least 30 s.h. must be earned in Tippie College of Business courses, and at least 30 s.h. must be earned in College of Engineering courses. Both degrees must be granted at the end of the same academic session.

Students in the program must complete all General Education components and all other requirements for both majors. They must enroll in appropriate mathematics and engineering courses early in their course of study in order to complete the program in a timely way. Because courses in natural sciences, mathematics, humanities, and social sciences count toward the B.B.A. and the B.S.E., students may count a single course toward both degrees.

B.B.A./B.S.E. students usually meet the degree requirements of both colleges in about five years; time required depends on the student's choice of major study areas.

Students may not use the second-grade option for courses in the combined program.

Students are assigned two advisors, one in the Tippie College of Business Undergraduate Program Office, the other in their College of Engineering major department.

Contact the Tippie Undergraduate Program Office or the College of Engineering Student Development Center for specific degree requirements.

Minors

Nonbusiness Minors

Undergraduate students in the Tippie College of Business may earn a minor in another University of Iowa college. For example, students interested in international business might choose a foreign language as a minor. For the minor requirements, students should consult with an advisor in the

appropriate department. To have the minor recorded on their transcripts, students must complete the “minor” section on the B.B.A. Application for Degree before submitting the form to the Office of the Registrar early in their final semester, or when they apply for the degree using the ISIS system.

Business Minor

Students pursuing a major in another University of Iowa college may earn a minor in business administration. The courses listed below, or their equivalents, satisfy all requirements for the minor. At least 12 s.h. taken for the minor must be completed at the Tippie College of Business. An overall g.p.a. of at least 2.00 is required for all courses in the minor and for all courses in the minor taken at Iowa. Courses in the minor may not be taken pass/nonpass.

22M:017 Calculus and Matrix Algebra for Business (students may substitute 22M:016 or 22M:025)	4 s.h.
22S:008 Statistics for Business (students may substitute 07P:025, 07P:143, 22S:025, 22S:039, 22S:102, or 22S:120)	4 s.h.
06A:001 Introduction to Financial Accounting	3 s.h.
06A:002 Managerial Accounting	3 s.h.
06E:001 Principles of Microeconomics	4 s.h.
06E:002 Principles of Macroeconomics	4 s.h.
*06F:100 Introductory Financial Management (engineering students may substitute 056:054, actuarial science students may substitute 06F:117)	3 s.h.
06J:047 Introduction to Law	3 s.h.
06J:048 Introduction to Management	3 s.h.
06K:070 Computer Analysis (students may substitute 22C:016, 22C:021, 22C:109, 059:006, 059:017, or 07W:111)	3 s.h.
*06M:100 Introduction to Marketing Strategy	3 s.h.

*Must be taken in junior or senior year

Students who will have completed all requirements for the minor in business administration when they graduate should indicate a business minor on the Application for Degree before submitting the form to the registrar’s office early in their final semester, or when they apply for the degree using ISIS.

Certificate Programs

The Tippie College of Business offers the Certificate in Entrepreneurship for undergraduates. Together with the College of Engineering, it offers the Certificate in Technological Entrepreneurship. It also collaborates with the College of Liberal Arts and Sciences to offer a B.A. with a major in Performing Arts Entrepreneurship. See Entrepreneurship in the Catalog for details.

The Tippie College of Business and the College of Liberal Arts and Sciences offer the Certificate in International Business for undergraduates. See International Business in the Catalog.

The Department of Finance and the Emmett J. Vaughan Institute of Risk Management and Insurance also offer an undergraduate certificate. See Risk Management and Insurance in the Catalog.

Undergraduate Academic Rules and Procedures

Recognition for Academic Achievement

Dean’s List

Undergraduate students in the Tippie College of Business who have a g.p.a. of 3.50 or higher on 12 s.h. or more of graded work during a given semester (excluding summer sessions) and who have no semester hours of I (incomplete) or O (no grade reported) during the same semester are recognized by inclusion on the Dean’s List for that semester.

President’s List

Undergraduate students who have a g.p.a. of 4.00 on 12 s.h. or more of graded work for two consecutive semesters (excluding summer sessions) and who have no semester hours of I (incomplete) or O (no grade reported) during the same semester are recognized by inclusion on the President’s List.

Graduation Honors

High scholastic achievement is recognized upon graduation in two ways: graduation with distinction based on grades only, and graduation with honors in business administration based on

both grades and the completion of special work as outlined by the college.

To be eligible for either form of recognition, a student must complete 60 s.h. in residence as an undergraduate at The University of Iowa; 45 s.h. of that must be completed before the final registration.

Graduation with Distinction

The Office of the Registrar certifies to the Tippie College of Business dean the names of students eligible to graduate with distinction. The college awards degrees “with highest distinction” to students in the highest 2 percent of the graduating class, “with high distinction” to students in the next highest 3 percent, and “with distinction” to the next highest 5 percent. Ranking is based on students’ grade-point averages for all college-level study undertaken before their final registration.

Admission

Admission standards are set by the undergraduate program committee. The Tippie College of Business usually admits undergraduate students at the beginning of their junior year. To be eligible for admission to the college, students must complete 60 s.h., satisfy prerequisite requirements, and submit all application materials by the deadline (April 1 for summer or fall admission, November 1 for spring admission). Late applications are not accepted. Students who apply for fall admission must state whether they intend to enroll in summer course work that should be included in their admission review. Students who apply for summer admission may not request a review for fall after the last day of spring semester classes. Students who transfer to the college from another university or college are not held to the admission deadlines; they may apply at any time.

All applications must be submitted online at <http://www.biz.uiowa.edu/upo/admissions/admissions.html>. Transcripts showing course work that satisfies the Tippie College of Business admission requirements must be submitted to the Office of Admissions by the 10th day of classes.

Admission to the Tippie College of Business is guaranteed to students who have reached junior standing, who meet the course requirements for admission, and who have earned a g.p.a. of at least 2.75 on the six prerequisite courses, on all college course work, and on all course work at Iowa. In addition, students admitted to The University of Iowa fall 1998 or later must have

earned no grade lower than C on any prerequisite course. Admission to the major in accounting is guaranteed only to applicants who have a University of Iowa and cumulative g.p.a. of at least 3.00, a g.p.a. of at least 2.75 and no grade below C on all prerequisites, and a B-minus average in 06A:001 and 06A:002.

As part of the application, all students are required to complete supplemental information questions and submit a résumé. The supplemental information responses serve as writing samples and give students an opportunity to specify conditions (e.g., illness) or obligations (e.g., an ill family member) or address any instances of academic dishonesty. Letters of recommendation are not accepted.

Students who meet the grade-point average requirement may be denied admission upon evidence of postsecondary academic misconduct or other violations of the Tippie College of Business Honor Code. All incidents of academic misconduct must be detailed in the supplemental information area of the application. Students are required to meet with the associate dean, undergraduate program, to discuss any academic misconduct.

Admission is not guaranteed for students who have a g.p.a. below 2.75 for one or more of the categories (the six prerequisites, all college course work, and all course work at Iowa). Students still may apply to the college and their applications may be considered by the admissions committee.

In addition to grade-point averages in selected categories, a student’s pattern of grades over time and other academic factors relevant to predicting success in the college also may be considered for admission purposes. The committee focuses on recent semesters to determine whether a student’s record reflects an upward trend in challenging and relevant course work. For more information about application and admission, contact the Undergraduate Program Office.

Nondegree Admission

Students visiting from another institution who wish to enroll in undergraduate courses to earn credit that can be transferred to their home institution may be granted permission to enroll as undergraduate nondegree students. Nondegree students are not guaranteed access to specific courses; they must have the approval of the undergraduate program director in the Tippie College of Business and may earn no more than 9 s.h. on nondegree status.

Early Admission

Highly qualified first-year students may be admitted directly to the Tippie College of Business through the Tippie Early Admission Program (EAP).

Entering first-year students must have an Admission Index Score of 148 to qualify for the Tippie Early Admission Program. The Admission Index Score is calculated by doubling the ACT composite score and adding high school class percentile rank. Students whose high schools do not rank their students may qualify for the EAP if they have an ACT composite score of at least 29 (SAT of at least 1250) and a high school g.p.a. of at least 3.75.

Students who fall short of this standard or who have high school unit deficiencies may still be considered for the Early Admission Program if they show promise based on their course work, scores, and demonstrated leadership ability. They are evaluated individually.

To remain in the Early Admission Program, students must have a g.p.a. of at least 3.00 for their first semester and must maintain a University of Iowa g.p.a. of at least 3.33. Those who fall below that standard have one semester to raise their g.p.a. and return to good standing in the program. During this semester, they retain all privileges of EAP. Students who fail to return to good standing are dismissed from the program and lose all privileges associated with it. But they remain students in the Tippie College of Business.

For more information about the Early Admission Program, contact the Undergraduate Program Office.

Reentry

Students who have been absent from the University for 12 months or more and who left in good standing must apply to the University's Office of Admissions for reentry. Good standing is defined as not on probation or dismissed for any reason.

Students who have been absent for less than 12 months are not required to apply for reentry. They should contact the Tippie College of Business Undergraduate Program Office for advising before they register.

Students who have been enrolled in another college or university since leaving The University of Iowa are required to submit official transcripts along with their application for reentry.

Completed application materials must be received at least two weeks before classes open.

Students who have been dismissed from the Tippie College of Business due to unsatisfactory scholarship, academic misconduct either at The University of Iowa or at another institution, or a violation of the Tippie College of Business Honor Code must file a petition with the Tippie College of Business requesting reinstatement.

Credit and Grading

Credit by Examination

Students may earn up to 32 s.h. of credit by examination by taking selected tests from the College-Level Examination Program (CLEP) and the Advanced Placement (AP) program of the College Board. For information on the CLEP and AP examinations, contact the University's Evaluation and Examination Service. The Tippie College of Business Undergraduate Program Office has information on scores, credit, and course duplicates for all Advanced Placement and CLEP tests accepted by the college.

Maximum Schedule

During early registration, students admitted to the Tippie College of Business may register for a maximum of 16 s.h. Course schedules that exceed 16 s.h. require approval from the Undergraduate Program Office. After early registration, students may register for a maximum of 18 s.h. Course schedules of more than 18 s.h. for a fall or spring semester, 9 s.h. for the six- or eight-week summer session, or 3 s.h. for the three-week session require approval from the Undergraduate Program Office.

During early registration, students pursuing a double major (two majors in the college) may register only for courses in their first major.

Adding and Dropping Courses

Students may drop courses, except College of Law courses, any time before the deadline published in the University's academic deadline calendar. Deadlines are different for regular and off-cycle courses. See Academic Deadlines for The University of Iowa on the Office of the Registrar web site (<http://www.registrar.uiowa.edu>).

Students must obtain approval from the college that offers the course in order to request permission to add or drop a course after these deadlines.

Administrative Drops for Lack of Prerequisite(s)

Instructors or departments have the option to drop a student from a course if the student has not satisfied the required prerequisites correctly printed on ISIS. These administrative drops must take place during the first eight calendar days of the semester; the first two calendar days of the winter session, the three-week summer session, or any nonsession course; or the first four days of the six- or eight-week summer session. Administrative drops are made without assignment of a W (withdrawn). Students who are dropped from courses are notified. Students should not assume that they have been dropped from a course because they do not have the prerequisites.

Administrative Drops for Nonattendance

Instructors have the option to drop a student who has missed the first two class periods of a course, unless the student has offered an acceptable reason for beginning the course late. Administrative drops must be processed by the second day after the second time the student fails to attend the class. These administrative drops are made without assignment of a W (withdrawn). Students should not assume that they have been dropped from a course because they have not attended it.

Pass/Nonpass

Up to 16 s.h. required for a B.B.A. may be taken pass/nonpass with the consent of an advisor and the instructor. Students may not count more than 8 s.h. of pass/nonpass credit in the last 60 s.h. of course work. Students must be in good academic standing to be eligible for the pass/nonpass option. A maximum of two pass/nonpass courses may be taken in one semester.

Courses taken pass/nonpass may not be used to satisfy general education, core, or major business requirements. (Major business requirements include any course that fulfills a major course requirement or is offered by the major department.) Pass/nonpass registration must be completed during the first 10 days of a fall or spring semester or the first one-and-one-half weeks of a summer session, and it requires the approval of the advisor and the instructor. For courses taken pass/nonpass, an earned grade of C-minus or higher is recorded as a P; an earned grade of D-plus or lower is recorded as an N. Pass/nonpass credit is not included in g.p.a. calculations.

Satisfactory/Fail

Up to 16 s.h. required for the B.B.A. may be taken satisfactory/fail. Grades of F are calculated in the grade-point average.

Second-Grade-Only Option

The second-grade-only option is not available to junior and senior students in the Tippie College of Business, including those in combined degree programs. Students in the Early Admission Program are eligible to apply for the second-grade-only option before they reach junior standing; they must follow the second-grade-only grading rules established by the College of Liberal Arts and Sciences. See the CLAS Student Academic Handbook or visit the college's web site (<http://www.clas.uiowa.edu>).

Incomplete Grades

Instructors may report a mark of I (incomplete) only if the unfinished part of the student's work in a course other than research, thesis, or independent study is small; if the work is unfinished for reasons acceptable to the instructor; and if the student's standing in the course is satisfactory.

Courses may not be repeated to remove incomplete grades. Incomplete grades must be removed by completing the unfinished part of the work. The work must be completed and submitted to the course instructor four weeks before the close of the examination period of the next full semester, excluding summer and winter sessions. Faculty and students are encouraged to state clearly in a written agreement how the incomplete is to be completed. Both the faculty member and the student should keep a record of the written agreement.

Failure to remove the incomplete before the end of the next full semester, excluding summer and winter sessions, results in replacement of the I with a grade of F, regardless of whether the student is enrolled during that semester. A grade change may be submitted to convert a grade of F to another letter grade, with the instructor's approval.

Guided Independent Study

University of Iowa Guided Independent Study is counted as resident credit and may be applied to all requirements for graduation, subject to approval by the student's major department. Guided Independent Study courses are taken any semester, up to four courses at a time.

Pre-business students who have performed poorly in an on-campus course that also is offered through Guided Independent Study may retake the course through Guided Independent Study for the second-grade-only option. Likewise, pre-business students who have performed poorly in a Guided Independent Study course may retake the course on campus for the second-grade-only option.

Probation and Dismissal

Students are placed on academic probation when their grade-point average in any of the following categories falls below 2.00: all course work undertaken, all course work undertaken at The University of Iowa, all business course work undertaken, all business course work undertaken at The University of Iowa, all course work taken to satisfy requirements for the major, and all course work taken at The University of Iowa to satisfy requirements for the major. In probation decisions, a 3 s.h. minimum is used to calculate the grade-point average for all course work taken to satisfy requirements for the major, and all course work taken at The University of Iowa to satisfy requirements for the major.

When all of the above grade-point averages equal or surpass 2.00, students are removed from probation. Students usually are allowed only one session to return to good academic standing. They are required to meet with an academic advisor and sign an academic probation contract. Students on academic probation who withdraw registration after the deadline for dropping courses may be dismissed.

Students may be dismissed from the college at any time for unsatisfactory scholarship. While some probationary period usually precedes a dismissal, students in good academic standing who complete a term with extremely unsatisfactory grades may be placed on academic probation or dismissed immediately. Students dropped from the college for poor scholarship may petition for permission to reregister, but usually only after one year following the end of the term in which they were dismissed.

Reinstatement

Students dismissed for unsatisfactory scholarship for the first time ordinarily are not permitted to register again for one year. Students dismissed for the second time may or may not be granted a second reinstatement. Requests for reinstatement must be made in writing and should be addressed to the associate dean in the Undergraduate Program Office. Arrangements for

a reinstatement interview must be made with the Undergraduate Program Office. The interview must take place between March 1 and July 1 for reinstatement for fall semester, or between October 1 and December 1 for reinstatement for spring semester. Most reinstatements include a limit on the number of semester hours the student may take upon reinstatement. Late requests are deferred to the following semester.

Students who are permitted to register following dismissal are registered on academic probation and ordinarily are allowed two semesters to achieve good standing. Very poor academic work in the first semester of a reinstatement may result in dismissal at the close of that semester.

Returning for Baccalaureate Degrees

Returning for a Second Business Major

Graduates who have a B.B.A. from The University of Iowa and who are not enrolled in a graduate or professional program may complete the requirements for another business major except accounting (see "Reentry" earlier in this section). Those interested in pursuing a degree in accounting must be admitted to the Graduate College to earn the Master of Accountancy degree; see Accounting.

Students who return to The University of Iowa to complete another business major must meet the requirements for that major; they need not meet the residence requirement. It is their responsibility to notify the Office of the Registrar upon completion of the requirements for the second major so that a notation can be placed on their permanent record.

Students who hold a B.B.A. or equivalent degree from another college or university may not complete a second business major at The University of Iowa. They may apply for admission to complete an additional degree (see "Returning for an Additional Bachelor's Degree").

Returning for an Additional Bachelor's Degree

Persons who hold a bachelor's degree from another college at The University of Iowa and who are not enrolled in a graduate or professional program may return for an additional bachelor's degree from the Tippie College of Business. They must satisfy all requirements for undergraduate admission to the business college.

Once admitted, they must satisfy all requirements for the B.B.A. in their chosen major.

For information about pursuing an additional bachelor's degree in accounting, see "Accounting as a Second Degree" below.

Students with Baccalaureates From Other Institutions

Students with a bachelor's degree from another college or university may apply for admission to The University of Iowa to earn an additional undergraduate degree from the Tippie College of Business. The requirements are the same as those listed under "Returning for an Additional Bachelor's Degree" above.

For information about pursuing an additional bachelor's degree in accounting, see "Accounting as a Second Degree" below.

Accounting as a Second Degree

Graduates who have a non-business bachelor's degree, either from The University of Iowa or from another college or university, may in some cases be considered for admission to the Tippie College of Business to pursue a second undergraduate major in accounting. Individuals interested in earning a second degree with a major in accounting should contact the Department of Accounting to discuss the B.B.A. or Master of Accountancy (M.Ac.); see Accounting in the Catalog.

Students may not earn a second major in accounting if they already have a B.B.A. from The University of Iowa or any undergraduate business degree from another college or university.

Graduate Programs

The Tippie College of Business offers two interdepartmental graduate programs: Master of Business Administration (M.B.A.) and Doctor of Philosophy (Ph.D.) in business administration. M.B.A. candidates may pursue a second graduate degree in another college.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue an M.A.

Doctor of Philosophy

The Doctor of Philosophy in business administration is designed for students preparing for research positions in business and government or for research and teaching positions at academic institutions. The program is flexible, permitting students to choose an specialization area according to their interests. Course work and related experience enable students to achieve competence in economic theory, statistical methods, and behavioral science as well as expertise in a major and minor study area. Students also have opportunities to develop research and teaching skills.

The Ph.D. requires a minimum of 72 s.h., including accepted transfer credit. Ph.D. course work consists of prerequisites (as necessary), the Ph.D. core, major and minor study areas, and dissertation research, described in brief below. For more detailed information about Ph.D. requirements, contact the individual Tippie College of Business departments, visit their web sites, or visit <http://www.biz.uiowa.edu/phd>.

CORE COURSES

Core courses develop research competence and provide background for specialized study. Graduate course requirements include behavioral sciences (3 s.h.), economics (6 s.h.), and research methods/statistics/quantitative analysis (12 s.h.).

Doctoral students consult with their advisors to develop a study plan that reflects the background and interests of individual students and satisfies core requirements.

MAJOR STUDY AREA

At least 12 s.h. of approved doctoral-level courses must be completed in one of the following areas: accounting, finance, human resource management, management information systems, marketing, operations management, organizational behavior, or quantitative methods.

MINOR STUDY AREA

Students must complete a minimum of 9 s.h. of doctoral-level courses beyond the Ph.D. core course requirements in one of the major study areas listed above or in a concentration outside the Tippie College of Business.

COMPREHENSIVE EXAMINATIONS

Students must satisfactorily complete a comprehensive examination, consisting of written or oral parts or both, at the discretion of their major department.

DISSERTATION

Students must present a dissertation proposal at a forum attended by dissertation committee members and open to interested faculty members and graduate students, as established by the student's major department. Dissertation credit must total 15 s.h. Researching and writing the dissertation typically require two years of full-time effort.

FINAL EXAMINATION

Ph.D. candidates defend the dissertation in an oral examination attended by dissertation committee members and open to interested faculty members and graduate students.

Admission

Applicants to the Ph.D. program must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants must take the Graduate Record Examination (GRE) or the Graduate Management Admission Test (GMAT) General Test and have their scores sent to the University in order to be considered for admission. The Departments of Finance, Management and Organizations, Management Sciences, and Marketing accept test scores for either the GRE or GMAT. The Department of Accounting accepts only GMAT scores and the Department of Economics accepts only GRE scores. Required scores on these tests and their weight in admission decisions vary by department.

Applicants whose native language is not English must take the Test of English as a Foreign Language (TOEFL) and have their scores sent to the University.

Applicants must submit a completed Application for Graduate Admissions, official transcripts from all institutions attended, official test scores, and three letters of recommendation. Applications must be complete before admission decisions can be made.

APPLICATION DEADLINES

Admission is for fall entry. Applications should be submitted as early as possible but no later than the following deadlines.

Accounting: January 31
 Economics: January 15
 Finance: January 31
 Management and Organizations: February 1
 Management Sciences: February 15
 Marketing: January 15

Other Graduate Programs

The college offers the Master of Accountancy (M.Ac.) degree and a Ph.D. in economics; see Accounting and Economics in the Catalog.

Facilities

The Henry B. Tippie College of Business is located in the John Pappajohn Business Building, at the heart of the campus. The Pappajohn Business Building contains seminar and conference rooms, a computer laboratory, two auditoriums, three computer classrooms, a behavioral laboratory, a restaurant (Pat's Diner), the Marvin A. Pomerantz Business Library, and a variety of classroom facilities.

Extensive research materials for business and economics are maintained in the University's Main Library, and the facilities of Information Technology Services are available to all students. The computer laboratory in the John Pappajohn Business Building serves the instructional programs of the college, and the staff maintains a current library of computational programs, CD-ROMs, and data tapes to accommodate users' needs.

Centers and Institutes

Hawkinson Institute of Business Finance

The Hawkinson Institute of Business Finance facilitates career opportunities in the investment banking and financial services industries for Tippie College of Business students. It also links faculty, alumni, and students with the financial services sector.

The institute trains high-achieving undergraduates for positions in the financial services industry, works with top recruiters who do not typically recruit at Iowa, and supports finance research through faculty fellowships. It also presents instructional seminars and participates in outreach efforts to industry.

Institute for Economic Research

The Institute for Economic Research engages in and supports economic research and establishes a formal mechanism for providing interaction with and economic advice to industry and

government. The institute's main objectives are to provide economic information, forecasts, and advice to business and public agencies; to provide a state focal point for applied economic research; and to promote and enhance academic research and teaching in economics.

Institute for International Business

The Institute for International Business is dedicated to the development and advancement of knowledge related to international business. The institute coordinates and augments resources at the Henry B. Tippie College of Business to provide students at all levels with the education, experience, and skills they will need for success in the global marketplace. The institute seeks to strengthen links between academic research and Iowa corporations engaged in international activities. It also sponsors cultural events and seminars in the college.

Emmett Vaughan Risk Management and Insurance Institute

The Tippie College of Business, in partnership with the Iowa insurance industry, has established the Emmett J. Vaughan Institute of Risk Management and Insurance to provide innovative education and leadership in modern risk management and insurance.

The institute and the Department of Finance offer the Certificate in Risk Management and Insurance. The certificate program provides undergraduate students with a foundation for careers in corporate risk management, risk management consulting, employee benefits management, insurance brokerage, and underwriting. See Risk Management and Insurance in the Catalog.

RSM McGladrey Institute

The RSM McGladrey Institute of Accounting Education and Research fosters educational excellence in accounting at The University of Iowa and encourages high-quality research by Iowa accounting faculty members. The institute sponsors varied educational initiatives and activities, including an annual national speaker series. It helps faculty members initiate research projects and disseminate the findings to the academic, business, government, and professional accounting communities.

John Pappajohn Entrepreneurial Center

The John Pappajohn Entrepreneurial Center (JPEC) offers a comprehensive entrepreneurship education and outreach program. The center's undergraduate program was one of the first in the country to develop a campus-wide, interdisciplinary program of study.

Undergraduate students in several University of Iowa colleges may earn an entrepreneurship certificate in addition to their baccalaureate degrees; see Entrepreneurship in the Catalog. Advanced entrepreneurship courses are available to all graduate and professional students across campus, and M.B.A. students may pursue an entrepreneurship concentration; see Master of Business Administration Program in the Catalog.

The entrepreneurship curricula incorporate experiential learning opportunities that help students prepare to launch their own venture or become leaders in organizations. JPEC recently opened the Bedell Entrepreneurship Learning Laboratory, a facility dedicated to student entrepreneurs.

The center offers several programs for entrepreneurial businesses and individuals, including student field study projects, training, mentoring, seminars, and conferences. It provides training and a specialized curriculum to Iowa high school teachers in an effort to foster the development of innovative, creative, and entrepreneurial young Iowans. JPEC also partners with Iowa community colleges to deliver entrepreneurship training statewide.

Small Business Development Center

Since 1981, The University of Iowa Small Business Development Center has played an important role in helping enterprising Iowans manage or start their own businesses successfully. The center provides support for small business owners and entrepreneurs. Its personnel are trained to meet the various needs of small business management, including market, business, and financial planning, cash flow analysis, human resource planning, product commercialization, market research and analysis, strategic planning, international trade, and advertising and public relations.

Frank Business Communications Center

The Judith R. Frank Business Communications Center offers a comprehensive program of training in written and oral communication to undergraduates in the Tippie College of Business. The center's staff includes graduate students with expertise in writing and undergraduate peer tutors who have completed a peer tutor training course.

The center provides one-on-one tutoring on written papers, projects, and case studies. Its oral communications center offers consultations on oral presentations and interviewing skills.

The center's course-dedicated consulting program helps faculty and students in courses that require writing projects. The center's staff works closely with faculty members to study assignments, develop handouts, make targeted presentations, and respond individually to student writing.

The team and collaborative writing initiative focuses on team assignments, which are a critical part of the Tippie College of Business curriculum. The initiative trains students to become final project editors and share documents throughout the writing process.

The Business Communications Center also sponsors a series of credit courses for undergraduates, including 06B:110 Successful Business Presentations, 06B:115 Technical and Professional Editing, 06B:140 Business Writing, Corporate Communications (offered through 06B:101 Topics in Business), and the peer tutor training course, 06B:130 Business Communications Internship.

Pomerantz Career Center

Career development and on-campus recruiting services are provided by the Marvin A. and Rose Lee Pomerantz Career Center. The center's career advisors and online seminars provide University undergraduate students and alumni with help on résumés, cover letters, career choice, internship searches, employer research, interviewing skills, and negotiation of job offers. The center also presents fall and spring semester career fairs. Employer recruiting is facilitated through web-based software. Contact the Pomerantz Career Center for more information.

Alumni Relations

Relationships with alumni are maintained by staff in the Undergraduate Program Office and the Tippie School of Management Office and by the college's director of communication and external relations. The college circulates its magazine, *BI* (Business at Iowa), to individuals who support the college, and each semester it hosts alumni events ranging from individual visits to receptions on campus and in cities nationwide and worldwide. Members of the Business Student Ambassadors, an undergraduate student organization, serve as hosts and guides for alumni who visit the college. A Young Alumni Board works to strengthen ties between the college and younger alumni.

Courses

Interdepartmental Undergraduate Courses

- 06B:005 IDB Summer Business Institute** 0 s.h.
Advanced math, writing, speaking, and computer instruction; case studies, visits to area corporations. Prerequisite: admission to Iowa Diversity in Business Initiative.
- 06B:010 Early Admission Program Seminar** 2 s.h.
Business majors, research opportunities, and preprofessional academic enrichment activities. Prerequisite: Early Admission Program enrollment.
- 06B:020 Career Management Topics** arr.
Topics related to career exploration and career management.
- 06B:040 Academic Leadership Seminar** 1 s.h.
Orientation to service learning; service learning project, professional enrichment activities, academic skill enhancement; for students living on the Leadership Community in Business and Entrepreneurship Learning Community Floor.
- 06B:050 Competitive Intelligence Resources** 1 s.h.
Search concepts and sources specific to business information; print, CD-ROM, online search services, the Internet.
- 06B:060 Undergraduate Leadership Council** 1 s.h.
Participation on advisory council for Tippie College of Business undergraduate program; computing resources, student activities, and liaison with student groups. Prerequisites: application and interview.
- 06B:070 Academic Success in Business** 1 s.h.
Academic skills for students, targeted at graduation; help removing probationary status; learning styles, motivation, adjustment issues, time management, classroom and study skills.
- 06B:080 Business Student Ambassador Seminar** 1 s.h.
Experience as a Business Student Ambassador, proving tours of the John Pappajohn Building, acting as hosts at college functions, providing information and assistance to visiting groups, participating in community service, assisting student recruitment activities. Prerequisite: admission to Tippie College of Business and acceptance as a Business Student Ambassador.
- 06B:100 Foundations of Business** 3 s.h.
Concepts associated with the competitive business environment and skills for attaining professional employment, developing a

successful career within an organization, and expanding a career within an industry; career search, persuasive communication, team building.

06B:101 Topics in Business arr.

06B:105 Administrative Practicum arr.

Development and implementation of projects and programs for the business college's undergraduate program, such as curriculum issues, marketing of academic and nonacademic programs, assisting in development and preparation for teaching courses. Repeatable. Prerequisite: admission to Tippie College of Business.

06B:110 Successful Business Presentations arr.

Oral presentation skills in business settings.

06B:115 Technical and Professional Editing 1-3 s.h.

Introduction to editorial skills required for production of high-quality professional and technical documents; hands-on workshop.

06B:120 Web Portfolio: Bizfolio Project 1 s.h.

Design and implementation of an electronic portfolio web site; introduction to a web authoring software package. Prerequisite: admission to Tippie College of Business.

06B:130 Business Communication Internship arr.

Opportunity for student to earn academic credit for serving as a peer tutor, an orientation and training assistant, or an administrative intern in the Tippie College of Business Writing Center. Repeatable. Prerequisite: consent of instructor.

06B:140 Business Writing 3 s.h.

Development of communication and analytical skills; cover letter and résumé preparation, interviewing techniques, editing and proofreading, research, presentations, entrepreneurship, creative problem solving; group business plan presentation, individual written business plan.

06B:194 Honors Seminar 3 s.h.

Research topics and methods in business. Prerequisites: business honors standing and consent of business honors director.

06B:195 Honors Project 3 s.h.

Independent research project for seniors in business.

06B:199 Academic Internship arr.

Professional internship experience with associated academic content (e.g., paper, course work). Repeatable. Prerequisite: consent of associate dean, undergraduate program.

Nondepartmental Graduate Courses

06B:300 Seminar on Teaching arr.

Education objectives, syllabus preparation, instruction methods, classroom management, instructor and student misbehavior, evaluation.

Accounting

Chair: W. Bruce Johnson

Director, Professional Program in Accounting:

Lynn M. Pringle

Director, RSM McGladrey Institute of Accounting

Education and Research: Ramji Balakrishnan

Director, Master of Accounting program:

Lynn M. Pringle

Professors: Ramji Balakrishnan (Ernst and Young Research Professor), Daniel W. Collins (Henry B. Tippie Research Chair in Accounting), Douglas V. De Jong (John F. Murray Professor), W. Bruce Johnson (Arthur Andersen Alumni/Faculty Professor), Mark C. Penno, Albert A. Schepanski

Professor emeritus: Valdean C. Lembke

Associate professors: Joyce E. Berg, Richard M. Tubbs

Associate professor emeritus: Richard A. Grimlund

Assistant professors: Cristi A. Gleason, Haidan Li, Sonja Olhoft Rego

Clinical assistant professor: Lynn M. Pringle

Lecturers: Amy An, Thomas J. Carroll, Robert J. Hartman

Undergraduate degree: B.B.A. in Accounting

Graduate degrees: M.Ac.; Ph.D. in Business Administration

Web site: <http://www.biz.uiowa.edu/acct>

The Department of Accounting offers a broad education that prepares undergraduate and graduate students for careers in public accounting, private industry, government, nonprofit organizations, and academia.

Professional Program in Accounting

The Professional Program in Accounting draws on curricula that provide a strong base of traditional technical subject matter and the skills needed for solving complex business problems. This framework of study enables students to continue professional growth over the entire span of their careers. The program emphasizes communication skills and provides the academic background required for leadership positions in business, government, and public accounting. It also qualifies students to take the Certified Public Accountant (CPA) and Certified Management Accountant (CMA) examinations.

The Professional Program in Accounting leads to a Bachelor of Business Administration in accounting, which requires 120 s.h. of credit (see “Undergraduate Program” below), and the Master of Accounting, which requires 30 s.h. of graduate credit (see “Graduate Programs” later in

this section). Students are granted the B.B.A. upon successful completion of the junior and senior years of the Professional Program in Accounting, and the M.Ac. after successful completion of the fifth year.

Undergraduate Program

The Department of Accounting offers the Bachelor of Business Administration in accounting for students admitted to the Professional Program in Accounting. Undergraduate accounting majors are subject to the probation and dismissal rules described in the Tippie College of Business section of the Catalog and are governed by the Tippie College of Business Honor Code.

The B.B.A. is not sufficient preparation to take the CPA examination. The Iowa Accountancy Act requires individuals who wish to take the CPA examination to have a baccalaureate degree, 24 s.h. of business-related course work, and 24 s.h. of accounting course work (not including 06A:001 Introduction to Financial Accounting or internships).

Bachelor of Business Administration

Undergraduate students admitted to the Professional Program in Accounting work toward the B.B.A. in accounting, which requires at least 24 s.h. in the major, including a minimum of 21 s.h. in accounting course work. Course work in the program provides concentrated coverage of professional accounting subjects and closely related topics in commercial law, business, and information systems.

To enter the Professional Program in Accounting, undergraduates must complete 60 s.h. of course work at The University of Iowa (or equivalent course work at another institution) and must be admitted to the Tippie College of Business. Students already admitted to the business college who wish to declare accounting as a major are automatically admitted to the professional program if they have a University of Iowa g.p.a. of at least 3.00, a cumulative g.p.a. of at least 3.00, and a B-minus average in 06A:001 Introduction to Financial Accounting and

06A:002 Managerial Accounting. Students who wish to declare accounting as a major but do not satisfy the automatic admission requirements may still apply to the professional program.

Students must complete the following prerequisite courses before admission to the Professional Program in Accounting.

06A:001 Introduction to Financial Accounting	3 s.h.
06A:002 Managerial Accounting	3 s.h.
06E:001 Principles of Microeconomics	4 s.h.
06E:002 Principles of Macroeconomics	4 s.h.
22M:017 Calculus and Matrix Algebra for Business	4 s.h.
22S:008 Statistics for Business	4 s.h.

Professional Program in Accounting requirements for the junior and senior years are as follows.

JUNIOR YEAR

Fall Semester

06A:131 Income Measurement and Asset Valuation	3 s.h.
06A:133 Introduction to Taxation	3 s.h.
06A:150 Professional Orientation Seminar Series (must be taken during first or second semester in the professional program)	3 s.h.
06B:100 Foundations of Business (taken first semester after admission to the college)	3 s.h.
One business core requirement	3 s.h.

The business core requirements (06F:100, 06J:047, 06J:048, 06K:100, 06M:100) may be taken in any sequence, preferably before the senior year; 06J:047 is a prerequisite to 06A:148, so it should be taken before spring semester of the senior year. Students must complete 06J:100 Foundations of Business during their first semester after admission to the Tippie College of Business.

Spring Semester

06A:132 Valuation of Financial Claims	3 s.h.
06K:180 Applied Information Systems	3 s.h.
Two business core requirements	6 s.h.
Elective	3 s.h.

Due to the overlap in course content, accounting majors may not receive degree credit for 06A:120 Financial Accounting and Reporting and 06A:113 Taxes and Business Decisions.

SUMMER: GMAT AND ADMISSION TO THE M.AC.

Students who intend to continue in the Professional Program in Accounting after receiving the B.B.A. should take the Graduate

Management Admission Test (GMAT) during the summer before their senior year, as preparation for applying to the Master of Accountancy program.

Students who plan to earn 3-6 s.h. of internship credit for 06A:190 Experiential Learning during the spring semester of their senior year must be admitted to the M.Ac. program by December 1 of their senior year. Those who do not participate in 06A:190 may apply to the M.Ac. program after December 1 of their senior year. See "Application Deadlines" below.

SENIOR YEAR WITH INTERNSHIP

Seniors who wish to include a formal accounting internship in their program take 06A:190 Experiential Learning during spring semester of their senior year. To earn 3-6 s.h. of credit for the internship, they must be admitted to the M.Ac. Program (the fifth year of the Professional Program in Accounting) by December 1 of their senior year and must have departmental approval before the beginning of their internship semester.

Students who participate in the internship normally must attend a summer session before or after their senior year in order to complete the B.B.A. requirements.

Students who choose the internship option should pursue the following study plan.

Fall Semester

06A:130 Accounting for Management Analysis and Control	3 s.h.
06A:144 Auditing	3 s.h.
06A:148 Business Law (or summer if offered)	3 s.h.
One business core requirement	3 s.h.
Elective	3 s.h.

Spring Semester

06A:190 Experiential Learning	3-6 s.h.
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Summer Session

06A:148 Business Law (if not already taken)	3 s.h.
Electives	6 s.h.

SENIOR YEAR WITHOUT INTERNSHIP

Students who do not wish to include the internship program (06A:190) during their senior year pursue the following study plan.

Fall Semester

06A:144 Auditing	3 s.h.
One business core requirement	3 s.h.
Three electives	9 s.h.

Spring Semester

06A:130 Accounting for Management Analysis and Control	3 s.h.
06A:148 Business Law	3 s.h.
Three electives	9 s.h.

OPTIONAL ACCOUNTING ELECTIVES

06A:141 Advanced Tax Topics	3 s.h.
06A:145 Advanced Financial Accounting	3 s.h.
06A:190 Experiential Learning	3-6 s.h.
06A:199 Academic Internship	1 s.h.

Graduate Programs

The Department of Accounting offers the Master of Accountancy (M.Ac.), which is granted upon successful completion of the fifth year of the Professional Program in Accounting, and a Doctor of Philosophy (Ph.D.) in business administration. Ph.D. requirements are described under "Graduate Programs" in the Tippie College of Business section of the Catalog and on the Department of Accounting web site.

The department also offers a joint M.Ac./J.D. with the College of Law; see Juris Doctor in the College of Law section of the Catalog.

Applicants to the graduate programs in accounting must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Application materials must include the applicant's score on the Graduate Management Admission Test (GMAT).

Graduate students in accounting are subject to the probation and dismissal rules of the Graduate College and are governed by the Tippie College of Business Honor Code.

Master of Accountancy

The Master of Accountancy (M.Ac.) is a nonthesis program that permits students to specialize in accounting areas according to their interests and objectives. It builds on the technical skills acquired in the undergraduate program, broadens students' perspectives of the role of accounting in organizations and decision making, and further develops written and oral communication skills.

M.Ac. course work focuses on the conceptual and economic foundations of accounting with applications to current and emerging problems of professional practice. It also provides an opportunity to acquire expertise in one of four

areas of specialization: financial accounting/auditing, management information systems, taxation, and managerial accounting.

Students from a variety of academic backgrounds enter the M.Ac. program. Those who enter with an undergraduate degree in accounting can expect to complete the degree in 12 months. Those who enter with a nonaccounting undergraduate degree typically require four semesters to complete the M.Ac. Study plans are adjusted to reflect each student's particular academic background.

The M.Ac. requires a total of 30 s.h. beyond the B.B.A. At least 12 s.h. must be earned in graduate-level accounting courses, and at least 21 s.h. must be earned in 200-level courses.

Courses leading to specialization areas and those required for the core program are as follows. Because of the cross-disciplinary nature of the subject matter included in the specialization areas, courses in a number of other departments are included.

SPECIALIZATION IN FINANCIAL ACCOUNTING/AUDITING**Accounting Courses**

Total of 12 s.h.

All of these:

06A:221 Financial Reporting: Theory and Practice	3 s.h.
06A:230 Advanced Auditing	3 s.h.
06A:245 Financial Information and Capital Markets	3 s.h.

One of these:

06A:220 Design and Use of Cost Management Systems	3 s.h.
06A:231 Taxes and Business Strategy	3 s.h.

Finance Courses

Total of 6 s.h.

06N:225 Managerial Finance (requires consent of M.B.A. office)	3 s.h.
One additional 200-level finance course	3 s.h.

Management Information Systems Courses

Total of 3-6 s.h.

06K:226 Visual Basic Programming (if not already taken)	3 s.h.
06K:230 Database Systems	3 s.h.

General Electives

Total of 6-9 s.h.

SPECIALIZATION IN MANAGEMENT INFORMATION SYSTEMS

Due to the timing of course offerings, students who do not begin the M.Ac. program in the summer session should take a computer programming course while they are undergraduates. This decreases the number of required management information systems courses and increases electives by 3 s.h. in the M.Ac. program.

Accounting Courses

Total of 12 s.h.

06A:220 Design and Use of Cost Management Systems 3 s.h.

Two of these:

06A:221 Financial Reporting: Theory and Practice 3 s.h.

06A:230 Advanced Auditing 3 s.h.

06A:231 Taxes and Business Strategy 3 s.h.

One of these (not already taken):

06A:221 Financial Reporting: Theory and Practice 3 s.h.

06A:230 Advanced Auditing 3 s.h.

06A:231 Taxes and Business Strategy 3 s.h.

06A:241 Tax Research 3 s.h.

06A:245 Financial Information and Capital Markets 3 s.h.

Management Information Systems Courses

Total of 9-12 s.h.

06K:226 Visual Basic Programming (if not already taken) 3 s.h.

Three 200-level information systems courses (06K or 22C) 9 s.h.

General Electives

Total of 6-9 s.h.

SPECIALIZATION IN TAXATION

Accounting Courses

Total of 9 s.h.

Two of these:

06A:220 Design and Use of Cost Management Systems 3 s.h.

06A:221 Financial Reporting: Theory and Practice 3 s.h.

06A:230 Advanced Auditing 3 s.h.

One of these (not already taken):

06A:220 Design and Use of Cost Management Systems 3 s.h.

06A:221 Financial Reporting: Theory and Practice 3 s.h.

06A:230 Advanced Auditing 3 s.h.

06A:241 Tax Research 3 s.h.
06A:245 Financial Information and Capital Markets 3 s.h.

Taxation Courses

Total of 12 s.h.

06A:231 Taxes and Business Strategy 3 s.h.

06A:241 Tax Research 3 s.h.

College of Law tax courses 6 s.h.

General Electives

Total of 9 s.h.

College of Law courses (prefix 091) follow a different calendar than do business courses. Some courses may require consent of instructor.

SPECIALIZATION IN MANAGERIAL ACCOUNTING

Accounting Courses

Total of 12 s.h.

06A:220 Design and Use of Cost Management Systems 3 s.h.

Two of these:

06A:221 Financial Reporting: Theory and Practice 3 s.h.

06A:230 Advanced Auditing 3 s.h.

06A:231 Taxes and Business Strategy 3 s.h.

One of these (not already taken):

06A:221 Financial Reporting: Theory and Practice 3 s.h.

06A:230 Advanced Auditing 3 s.h.

06A:231 Taxes and Business Strategy 3 s.h.

06A:241 Tax Research 3 s.h.

06A:245 Financial Information and Capital Markets 3 s.h.

Management Information Systems Courses

Total of 3-6 s.h.

06K:226 Visual Basic Programming (if not already taken) 3 s.h.

06K:230 Database Systems 3 s.h.

Nonaccounting Business Electives

Two 200-level business electives 6 s.h.

General Electives

Total of 6-9 s.h.

CORE PROGRAM COURSE REQUIREMENTS

Students who do not wish to pursue a specialization area must complete 30 s.h. beyond the B.B.A. At least 15 s.h. must be earned in graduate-level accounting courses and at least 21 s.h. must be earned in 200-level courses. The following courses are required.

Accounting Courses

Total of 15 s.h.

06A:220 Design and Use of Cost Management Systems (taken spring semester)	3 s.h.
06A:221 Financial Reporting: Theory and Practice (taken fall semester)	3 s.h.
06A:230 Advanced Auditing (taken spring semester)	3 s.h.
06A:231 Taxes and Business Strategy (taken fall semester)	3 s.h.
One of these (not already taken):	
06A:241 Tax Research	3 s.h.
06A:245 Financial Information and Capital Markets	3 s.h.

Management Information Systems Courses

Total of 3-6 s.h.

06K:226 Visual Basic Programming (if not already taken)	3 s.h.
06K:230 Database Systems	3 s.h.

General Electives

Total of 9-12 s.h.

COURSE WORK FOR STUDENTS WITHOUT UNDERGRADUATE DEGREES IN ACCOUNTING

Courses taken by students who enter the program with a nonaccounting bachelor's degree are determined by each student's background and interest area. In addition to meeting the core program requirements for the M.Ac., students typically take a combination of undergraduate and M.B.A. courses to remove academic deficiencies in quantitative methods, business, and accounting. Students with a bachelor's degree in another area of business typically are required to take 45-51 s.h. in order to complete the M.Ac. program. Those with degrees outside of business and with no accounting courses typically are required to take 57-60 s.h.

CPA Examination and the Iowa Accountancy Act

The Iowa Accountancy Act that became effective in January 2001 requires individuals who wish to take the CPA examination to have a bachelor's degree, 24 s.h. of business course work, and 24 s.h. of accounting course work beyond principles of accounting (06A:001).

Admission

Admission to the M.Ac. program is competitive. The admissions committee reviews applications individually, considering quantitative aspects

(grade-point average and GMAT scores) and qualitative aspects of each applicant's background and professional experience (if applicable) to assess the applicant's potential for academic success and professional growth.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

University of Iowa undergraduate accounting students are encouraged to take the Graduate Management Admission Test (GMAT) the summer before their senior year. Those who participate in the formal accounting internship during their senior year (06A:190 Experiential Learning) must apply to the M.Ac. early enough to ensure admission by December 1 of their senior year. Students who do not participate in 06A:190 may apply to the M.Ac. after December 1 of their senior year. See "Application Deadlines" below.

Application materials must include the following: an Application for Graduate Admissions; official transcripts of all undergraduate and graduate course work submitted by each institution the applicant has attended; official scores on the Graduate Management Admission Test (GMAT); a supplemental application form with essay responses; a résumé and cover letter; and at least three letters of reference from former instructors or employers. (B.B.A. accounting students at The University of Iowa are not required to provide letters of reference.)

Applicants whose first language is not English must score at least 600 (paper-based) or 250 (computer-based) on the Test of English as a Foreign Language (TOEFL).

For application packets and complete information about application procedures, contact the University's Office of Admissions or the Department of Accounting.

APPLICATION DEADLINES

The Department of Accounting admissions committee reviews completed M.Ac. application files (which must include official GMAT scores) on five dates: March 1, April 15, July 15, October 1, and December 1. Applications are reviewed on these dates regardless of whether the applicant plans to begin the M.Ac. program in the fall semester (August), spring semester (January), or summer session (June). Final Graduate College application deadlines are as follows.

Fall semester entry: July 15 (April 15 for international students)

Spring semester entry: December 1 (October 1 for international students)

Summer session entry: April 15 (March 1 for international students)

Students who wish to apply for a teaching assistantship must apply to the M.Ac. program no later than March 1.

Joint M.Ac./J.D. Degree

The Department of Accounting and the College of Law offer the joint Master of Accountancy/Juris Doctor. The joint M.Ac./J.D. requires a minimum of 18 s.h. of graduate course work in accounting. Students in the program may count up to 12 s.h. of College of Law courses as electives for the M.Ac., and up to 12 s.h. of graduate accounting courses as electives for the J.D.

Separate application to each program is required. Applicants must be accepted to each program before they may enroll in the joint program.

Doctor of Philosophy

Students majoring in accounting may earn a Ph.D. in business administration. Ph.D. requirements are described under “Graduate Programs” in the Tippie College of Business section of the Catalog and on the Department of Accounting web site.

Faculty

The department’s faculty members stay current in their discipline by producing and disseminating accounting-related knowledge. They keep abreast of the latest developments in the field of education and the profession by participating in educational conferences and seminars and publishing in leading academic journals.

Courses

Primarily for Undergraduates

06A:001 Introduction to Financial Accounting 3 s.h.
Accounting and financial reporting procedures used by business and not-for-profit entities; emphasis on accounting concepts and use of accounting information in making economic decisions. Prerequisite: sophomore or higher standing.

06A:002 Managerial Accounting 3 s.h.
Basic topics in cost behavior, measurement, accumulation; use of cost data for relevant analysis, budgeting, performance evaluation. Prerequisites: 06A:001, 06E:001, and 22M:017.

06A:020 Accounting for Nonbusiness Students 3 s.h.
Financial and managerial accounting; financial statements—their elements, format, interrelationship, interpretation, and uses; analysis of corporate annual reports; cost/volume/profit relationships; decision analysis, performance evaluation.

For Undergraduate and Graduate Students

06A:101 Directed Readings in Accounting arr.
Individual guided readings in accounting topics. Prerequisite: admission to Professional Program in Accounting.

06A:113 Taxes and Business Decisions 3 s.h.
Tax concepts; emphasis on recognizing tax-planning opportunities, pitfalls inherent in common management decisions. Prerequisites: 06A:002 or equivalent, and nonaccounting major or consent of advisor.

06A:120 Financial Accounting and Reporting 3 s.h.
External financial reporting practices in context of decisions by management, current and potential stockholders, financial analysts; emphasis on interpretation, use of financial statements. Prerequisites: 06A:002 or equivalent, and nonaccounting major or consent of advisor.

06A:130 Accounting for Management Analysis and Control 3 s.h.
Advanced topics in cost estimation, measurement, accumulation; use of cost data for decision making, performance evaluation in multi-unit organizations. Prerequisites: 06E:071, 06K:070, and admission to Professional Program in Accounting.

06A:131 Income Measurement and Asset Valuation 3 s.h.
Accounting rules that determine how economic events and transactions are described in published financial reports; emphasis on revenue and expense recognition, asset valuation, accrual accounting model. Prerequisite: admission to Professional Program in Accounting or pre-accounting major.

06A:132 Valuation of Financial Claims 3 s.h.
Current and long-term liabilities and stockholders’ equity, off-balance sheet financing, cash flow statement, earnings-per-share, financial instruments. Prerequisite: 06A:131.

06A:133 Introduction to Taxation 3 s.h.
Federal income taxation; individual, corporate, partnership income tax laws, regulations; emphasis on developing a broad perspective on structure, administration, rationale of federal income tax system. Prerequisite: admission to Professional Program in Accounting or pre-accounting major.

06A:141 Advanced Tax Topics 3 s.h.
Taxation of corporations, partnerships from organization through liquidation; relative merits of conducting business through partnership, corporation, proprietorship, S corporation; introduction to tax research. Prerequisites: 06A:133, 06K:180, and senior standing.

06A:144 Auditing 3 s.h.
General framework underlying auditing, role of audit standards in planning and conduct of audits, effect of regulation, ethics, liability on audit practices. Prerequisites: 06A:132, 06A:150, 06K:180, and senior standing.

06A:145 Advanced Financial Accounting 3 s.h.
Accounting and reporting standards for business combinations, including mergers, consolidations, and multinational enterprises; accounting for partnerships, business segments, transactions denominated in foreign currency, including hedges using foreign currency derivative instruments; reporting standards for interim financial statements and fund accounting applied to government and nonprofit entities. Prerequisites: 06A:132 and senior standing.

06A:148 Business Law	3 s.h.	06A:246 Corporate Governance	3 s.h.
Contracts, sales, debtor-creditor relations, business organizations, other aspects of law applied to business. Prerequisites: 06J:047 and senior standing.		How to evaluate and implement mechanisms for good corporate governance; to ensure returns for investors and firms' access to capital markets on reasonable terms; perspectives of investor, firm, regulator.	
06A:150 Professional Orientation Seminar Series	3 s.h.	06A:286 Seminar in Accounting Research	arr.
Accounting careers and how accounting information is used in the business world; the M.Ac. program, internships, writing and assessments, speaking skills and oral presentations. Offered fall semesters. Corequisite: 06A:131 or 06A:132.		Forum on current research in accounting, related disciplines; faculty, student, guest papers, Ph.D. dissertation proposals. Prerequisite: Ph.D. enrollment.	
06A:170 Special Topics in Accounting	arr.	06A:287 Seminar in Selected Accounting Topics	arr.
Prerequisite: consent of instructor.		Individual study, research paper preparation. Prerequisites: Ph.D. enrollment and consent of instructor.	
06A:190 Experiential Learning	3-6 s.h.	06A:290 Thesis: Accounting	arr.
Professional internship experience with related course work (papers, oral presentation). Prerequisites: admission to M.Ac. program and consent of undergraduate accounting advisor.		Prerequisites: Ph.D. enrollment and consent of instructor.	
06A:199 Academic Internship	arr.		
Professional internship experience. Prerequisite: consent of undergraduate accounting advisor.			

Primarily for Graduate Students

06A:220 Design and Use of Cost Management Systems	3 s.h.
Development of cost accumulation and reporting systems that complement a firm's strategy and structure; how activity-based cost management systems increase competitiveness by helping a firm manage its costs, processes, people. Prerequisite: 06A:130 or 06A:235 or consent of instructor.	
06A:221 Financial Reporting: Theory and Practice	3 s.h.
Corporate accounting choices in framework of traditional accounting theory, economic consequences, firm valuation. Prerequisites: 06A:132 and graduate standing in business.	
06A:230 Advanced Auditing	3 s.h.
Advanced issues such as ethics, independence, regulation and litigation, audit evidence, models of audit testing. Prerequisites: 06A:144 and graduate standing in business.	
06A:231 Taxes and Business Strategy	3 s.h.
Effect of taxes on business decisions, including investment strategies, financial policies; emphasis on tax planning, evaluating tax consequences of business decisions. Prerequisites: 06N:215 or equivalent or consent of instructor, and graduate standing in business.	
06A:235 Managerial Accounting	3 s.h.
Introduction to cost accumulation, reporting, cost management systems; managerial and divisional performance evaluation; appropriate use of cost data for short- and long-run decisions; product costing in manufacturing and service industries. Prerequisite: 06N:215 or consent of instructor.	
06A:240 Financial Accounting Standards and Analysis	3 s.h.
Accounting model, underlying measurement concepts, valuation rules for assets, liabilities, related issues of income determination; emphasis on economic substance of transactions, evaluation and interpretation of financial data. Prerequisite: 06N:215.	
06A:241 Tax Research	3 s.h.
Deciding what research is needed, evaluating tax materials, developing facility with electronic and printed tax materials. Prerequisite: 06A:141 for undergraduates.	
06A:245 Financial Information and Capital Markets	3 s.h.
Use of corporate financial statements for investment and lending decisions; emphasis on financial analysis techniques, valuation, business analysis, cash flow projections, credit scoring, related research evidence. Prerequisite: 06A:240 or equivalent.	

Economics

Chair: Raymond G. Riezman

Professors: William P. Albrecht, Gary C. Fethke (Leonard A. Hadley Professor of Leadership), John W. Fuller, John F. Geweke (Harlan E. McGregor Professor of Economic Theory), Srihari Govindan, Marlynneth Beth Ingram, Forrest D. Nelson, George R. Neumann (George Daly Professor of Economics), Harry J. Paarsch, B. Ravikumar (Henry B. Tippie Research Professor of Economics), Raymond G. Riezman (Henry B. Tippie Research Professor of Economics), N.E. Savin (George Daly Professor of Economics), Charles H. Whiteman (C. Woody Thompson Professor of Economics)

Professors emeriti: Carol C. Fethke, Hyman Joseph, Gerald L. Nordquist, Thomas F. Pogue, Larry Sgontz, Calvin D. Siebert, S.Y. Wu

Associate professors: Matthew F. Mitchell, John L. Solow, Gustavo J. Ventura

Associate professor emeritus: Michael S. Balch

Assistant professors: Marina Azzimonti, April M. Franco, Ayca Kaya, Fernando Leiva, Elena Pastorino, Galina Vereshchagina, Yuzhe Zhang

Undergraduate degrees: B.A., B.S., B.B.A. in Economics

Undergraduate nondegree program: Minor in Economics

Graduate degrees: M.A., Ph.D. in Economics

Web site: <http://www.biz.uiowa.edu/economics>

Economics is the study of how societies allocate limited resources to achieve competing ends. Using both empirical and deductive methods, economics analyzes incentives, constraints, organizational forms, and market forces to understand patterns of production, exchange, and consumption of goods and services. It treats diverse issues such as wealth and poverty, government expenditures and taxation, prosperity and depression, inflation and unemployment, relations between management and labor, economic growth, environmental protection, health care delivery, the war on drug abuse, free trade versus protectionism, U.S. competitiveness in international markets, and the quality of American education.

The Department of Economics offers degree programs for undergraduates and graduate students.

Undergraduate Programs

The department offers three undergraduate degrees in economics: the Bachelor of Arts (B.A.) and Bachelor of Science (B.S.) awarded by the College of Liberal Arts and Sciences and the Bachelor of Business Administration (B.B.A.) awarded by the Henry B. Tippie College of Business.

Each baccalaureate program provides an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economics also provides excellent preparation for the study of law and for graduate study in fields such as business management, public administration, hospital and health administration, urban and regional planning, transportation, journalism, political science, and statistics.

The B.A. is designed to achieve a balance between economic theory, mathematical tools, and field applications. The B.S. maintains a similar balance but emphasizes development of analytic tools; it prepares students for graduate work in economics or related business and technical fields. The B.B.A. emphasizes economic foundations of business fields: accounting, finance, marketing, business law, and management.

Bachelor of Arts

The Bachelor of Arts in economics requires 32 s.h. in the major. Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others. The *Handbook for Economics Majors*, available from the department, offers help in developing a study plan.

The following courses are required.

All of these:

06E:071 Statistics for Strategy Problems	3 s.h.
22M:017 Calculus and Matrix Algebra for Business (students who have taken 22M:025 or 22M:031 may use that class)	4 s.h.
22S:008 Statistics for Business	4 s.h.

A total of 21 s.h. in 100-level economics theory and field courses, as follows.

All of these:

06E:104 Microeconomic Theory	3 s.h.
06E:105 Macroeconomics	3 s.h.
Two advanced field courses chosen from 06E:171 through 06E:189	6 s.h.
Three additional courses chosen from 06E:111 through 06E:189	9 s.h.

Unless otherwise approved by the director of undergraduate studies, no more than 6 of the 21 s.h. required in 100-level economics courses may be satisfied by transfer or correspondence credit. Students should take 06E:104 and 06E:105 at The University of Iowa.

PREREQUISITES

Prerequisites for most 100-level courses in economics: 06E:001 and 06E:002, or consent of instructor

Prerequisites for 06E:104: 06E:001 and 22M:017, or consent of instructor

Prerequisites for 06E:105: 06E:002, 06E:104, and 22M:017

Prerequisite for 06E:071: 22S:008

Prerequisites for courses numbered 06E:171 and above: 06E:104 and 06E:105

Bachelor of Science

The Bachelor of Science in economics requires a minimum of 33 s.h. in the major. Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others. The *Handbook for Economics Majors*, available from the department, offers help in developing a study plan.

The following courses are required.

This sequence: 22M:025-22M:026 Calculus I-II	8 s.h.
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One of these: 22S:120 Probability and Statistics	4 s.h.
22S:130-22S:131 Introduction to Mathematical Statistics I-II	6 s.h.

A total of 21 s.h. in 100-level economics theory and field courses, as follows.

All of these:

06E:104 Microeconomic Theory	3 s.h.
06E:105 Macroeconomics	3 s.h.
06E:184 Introduction to Econometrics	3 s.h.
Two additional advanced field courses numbered from 06E:171 through 06E:189	6 s.h.
Two additional courses chosen from 06E:111 through 06E:189	6 s.h.

Unless otherwise approved by the director of undergraduate studies, no more than 6 of the 21 s.h. required in 100-level economics courses may be satisfied by transfer or correspondence credit. Students should take 06E:104 and 06E:105 at The University of Iowa.

For students planning to pursue a graduate degree in economics, 22S:130 and 22S:131 are recommended in place of 22S:120.

PREREQUISITES

Prerequisite for 22S:120 and 22S:130: 22M:026 or 22M:032

Prerequisites for most 100-level courses in economics: 06E:001 and 06E:002, or consent of instructor

Prerequisites for 06E:104: 06E:001 and 22M:017, or consent of instructor

Prerequisites for 06E:105: 06E:002, 06E:104, and 22M:017

Prerequisites for courses numbered 06E:171 and above: 06E:104 and 06E:105

Prerequisite for 06E:184: 22S:120 or 22S:131

Bachelor of Business Administration

The B.B.A. in economics requires 21 s.h. of economics course work, including the business core course 06E:071 Statistics for Strategy Problems (3 s.h.), and 18 s.h. in 100-level economics courses, including the following. Students should take 06E:104 and 06E:105 at The University of Iowa. Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others. The *Handbook for Economics Majors*, available from the department, offers help in developing a study plan.

All of these:

06E:104 Microeconomic Theory	3 s.h.
06E:105 Macroeconomics	3 s.h.

Two field courses numbered from 06E:171 through 06E:189 6 s.h.
 Two additional courses numbered from 06E:111 through 06E:189 6 s.h.

PREREQUISITES

Prerequisites for most 100-level courses in economics: 06E:001 and 06E:002, or consent of instructor

Prerequisites for 06E:104: 06E:001 and 22M:017, or consent of instructor

Prerequisites for 06E:105: 06E:002, 06E:104, and 22M:017

Prerequisite for 06E:071: 22S:008

Prerequisites for courses numbered 06E:171 and above: 06E:104 and 06E:105

Four-Year Graduation Plan

B.A. and B.S. Students

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

These checkpoints apply to both the Bachelor of Arts and the Bachelor of Science.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least one-half of the semester hours required for graduation, 06E:001 and 06E:002, and the math component of quantitative courses required for major

Before the seventh semester begins: three-quarters of the semester hours required for graduation, 06E:104 and 06E:105, and one 100-level economics course

Before the eighth semester begins: three 100-level economics courses, including one advanced course (numbered 06E:171 through 06E:189), and the statistics component of the quantitative course requirement

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.B.A. Students

The following checkpoints are designed for students who enter the University as first-year pre-business students. In order to stay on the plan, students must maintain the grade-point average required for guaranteed admission to the Tippie College of Business and must apply for admission to the college by the established deadline.

Students must take 06B:100 Foundations of Business during their first semester after admission to the Tippie College of Business.

Before the third semester begins: 06E:001 or 06E:002, 22M:017, and 22S:008, or equivalents; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 06A:001, 06A:002, and 06E:001 or 06E:002 (whichever has not already been taken), or equivalents; all General Education requirements; and at least half of the semester hours required for graduation

Before the seventh semester begins: business core requirements, approximately half of the course work in the major (varies by major), and three-quarters of the semester hours required for graduation

Before the eighth semester begins: approximately three-quarters of course work in the major

During the eighth semester: all remaining course work in the major, and a sufficient number of semester hours to graduate

Honors

B.A. and B.S. Students

Students in the College of Liberal Arts and Sciences working toward a B.A. or B.S. in economics are encouraged to take part in the honors program in economics, which provides opportunities for high-achieving students to pursue special research interests. Honors students in economics must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

To enter the honors program in economics, students must complete 06E:104 Microeconomic Theory and 06E:105 Macroeconomics before the senior year. Honors students typically register for 06E:194 Honors Seminar in the fall of the senior year. Then they define and complete a research

project under the guidance of a supervising faculty member, earning up to 6 s.h. in 06E:195 Senior Thesis in Economics. The thesis is presented orally to a committee of three faculty members, typically the undergraduate honors advisor, the student's research supervisor, and a third faculty member agreed upon by the student and the honors advisor.

Interested students should consult the honors advisor by the second semester of their junior year.

B.B.A. Students

The Tippie College of Business offers qualified B.B.A. students the opportunity to pursue honors study. For more information, contact the Undergraduate Program Office or see "B.B.A. with Honors" in the Tippie College of Business section of the Catalog.

Minor

The minor in economics requires at least 15 s.h. in economics with a g.p.a. of at least 2.00; 12 of the 15 s.h. must be taken at The University of Iowa in courses numbered above 06E:100.

Course Work for Nonmajors

Students in the College of Liberal Arts and Sciences may wish to use economics courses as part of other majors or the General Education Program. The introductory courses 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics are approved for General Education in social sciences; they introduce the field of economics and the specialized topics of upper-division courses. The intermediate theory courses 06E:104 Microeconomics Theory and 06E:105 Macroeconomics provide a deeper foundation in the core theories and methods of the discipline. They serve as preparation for upper-division field courses or as terminal courses in an economics study plan.

Course work in economics can be related to majors in many other fields. For example, history majors might take 06E:178 American Economic History; political science majors could elect 06E:119 Economics of the Government Sector and 06E:125 International Economics; global studies majors, 06E:133 Environmental and Natural Resource Economics; pre-law students, 06E:171 Antitrust: Legal and Economic Analysis and 06E:172 Law and Economics; mathematics and engineering majors, 06E:104 Microeconomic

Theory and 06E:187 Introduction to Mathematical Economics; and statistics majors, 06E:184 Introduction to Econometrics. The *Handbook for Economics Majors* lists economics courses that complement studies in other fields.

Some students combine related interests by pursuing double majors in economics and another field, such as computer science, geography, global studies, history, mathematics, political science, sociology, or statistics.

Undergraduate Economics Forum

Students are invited to join the Undergraduate Economics Forum. The group sponsors programs to help students plan for careers or graduate study and holds social events, special lectures, and round-table discussions. It provides opportunities for students to meet other economics majors and department faculty members.

Graduate Programs

The department offers a Master of Arts and a Doctor of Philosophy in economics. It also offers a joint Doctor of Philosophy/Juris Doctor with the College of Law; see "Joint Ph.D./J.D. Program" later in this section.

Master of Arts

The Master of Arts is offered only to students working toward a Ph.D. in economics.

Doctor of Philosophy

The Doctor of Philosophy in economics provides rigorous training in economic theory, econometrics, and applied economics. The program has six components: a coordinated sequence of core courses, a qualifying examination, a research paper, a set of major field courses, a dissertation proposal and comprehensive examination, and a dissertation.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Application deadline for admission and financial support is February 1 for fall semester entry.

CORE SEQUENCE

First Semester

06E:200 Economic Analysis I	3 s.h.
06E:203 Microeconomics I	3 s.h.
06E:204 Macroeconomics I	3 s.h.

Second Semester

06E:201 Economic Analysis II	3 s.h.
06E:205 Microeconomics II	3 s.h.
06E:206 Macroeconomics II	3 s.h.

Third Semester

06E:221 Econometrics	3 s.h.
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Fourth Semester

06E:222 Applied Econometrics	3 s.h.
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QUALIFYING EXAMINATION

The qualifying examination is normally taken the summer after the first year.

RESEARCH PAPER

The research paper is normally completed the summer after the second year.

MAJOR FIELD COURSES

Each student chooses a major study area in addition to the core courses. The requirement for the major area is a minimum of 24 s.h. of intensive study in a field and in courses that enable students to understand the relationship between their specialty and related fields.

DISSERTATION PROPOSAL AND COMPREHENSIVE EXAMINATION

Students must defend a dissertation proposal in a comprehensive examination within one year of completing the research paper requirement.

DISSERTATION

Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Joint Ph.D./J.D. Program

The Department of Economics and the College of Law offer a joint Ph.D./J.D. program; see Juris Doctor in the College of Law section of the Catalog.

Special Seminar

Each year the department offers a seminar program that brings eminent economists from

other universities and from government agencies to The University of Iowa campus. Presentations by Department of Economics faculty members and students also are featured.

Courses

Primarily for Undergraduates

Note: 06E:001 and 06E:002 may be taken in either order or simultaneously. They are approved for General Education in social sciences for B.A. and B.S. students.

06E:001 Principles of Microeconomics 3-4 s.h.
Organization, workings of modern economic systems; role of markets, prices, competition in efficient allocation of resources and promotion of economic welfare; alternative systems; international trade. GE: social sciences (except for B.B.A. students).

06E:002 Principles of Macroeconomics 3-4 s.h.
National income and output, employment and inflation; money, credit; government finance; monetary, fiscal policy; economic growth, development; international finance. GE: social sciences (except for B.B.A. students).

06E:071 Statistics for Strategy Problems 3 s.h.
Continuation of 22S:008; working knowledge of statistical techniques, scientific data-based approach to problem formulation and solution, statistical techniques in the context of real data analysis, assessment of defects in statistical analyses, using data for making business decisions, choosing appropriate statistical procedures, developing skill in communicating statistical results to audiences without knowledge of statistics. Prerequisites: 22M:017 and 22S:008.

06E:104 Microeconomic Theory 3 s.h.
Economic theory of consumer behavior, producer behavior, role of markets in coordinating economic decisions; conditions for efficient resource allocation by market mechanisms; market imperfections, strategic behavior. Prerequisites: 06E:001 and 22M:017, or consent of instructor.

06E:105 Macroeconomics 3 s.h.
Measurement of national product, unemployment, inflation; determination of national income, price level; role of stabilization policies; economic growth, dynamics of inflation. Prerequisites: 06E:002, 06E:104, and 22M:017; or consent of instructor.

06E:111 Labor Economics 3 s.h.
Microeconomic analysis of labor markets, related institutions; labor supply decisions made by workers, labor demand decisions made by firms, market equilibrium; economic analysis of unions; returns to education; family decisions. Closed to students who have taken or are taking 06E:175. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:113 Health Economics 3 s.h.
Structure of America's health care industry, economic analysis applied to its problems of production, pricing, distribution; cost-effectiveness, financing of medical costs, role of government. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:117 Money, Banking, and Financial Markets 3 s.h.
Role of money, institutions in determination of income, employment, prices in domestic and world economy. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:119 Economics of the Government Sector 3 s.h.
Economic functions of government in modern economies; economic decision making; budgetary processes; effects of

government expenditures, taxation on allocation of resources, distribution of income, economic growth, stability. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:125 International Economics 3 s.h.

Modern theories of international trade and investment; role of tariffs and other restrictions of international trade; foreign exchange markets, international monetary arrangements, international economic policy. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:129 Economic Growth and Development 3 s.h.

Determinants of rising living standards; accumulation of physical and human capital; predictions of economic growth models compared to observed changes in living standards. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:133 Environmental and Natural Resource Economics 3 s.h.

Environmental and resource use problems; efficient mechanisms and other policies for environmental protection, management of common property resources. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:135 Regional and Urban Economics 3 s.h.

Theory of location and regional development; central place theory; why cities exist and trade with one another; models of land use patterns, rents; empirical tests of models; policy applications. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:141 Economics of American Industries 3 s.h.

Structural evolution; imperfect competition, resource allocation; development of public policy on monopoly; selected industries. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:145 Introduction to the Economics of Transportation 3 s.h.

Transportation markets—intercity, rural, urban; transportation modes—rail, highway, air, water, pipeline; issues in environmental and economic regulation, finance, policy, planning, management, physical distribution. Same as 044:133, 102:133.

06E:160 Economics of Families and Households 3 s.h.

Micro- and macroeconomic theory applied to economic decisions of families, households; practical and theoretical issues in income generation, spending and saving decisions, risk management and asset allocation, investments, and intergenerational wealth transfers. Prerequisites: 6 s.h. of 100-level economics courses and junior or senior standing, or consent of instructor.

06E:164 Economies in Transition 3 s.h.

Emerging markets and newly industrialized nations in Asia, Latin America, the former Soviet Union; developments in these regions over past decades—financial crises, industrialization, economic reform, privatization, impact of globalization, development of human capital, income distribution; role of institutions in the transition from poor to rich nation. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:169 Introductory Topics in Economics arr.

Topics vary.

06E:171 Antitrust: Legal and Economic Analysis 3 s.h.

Topics in federal antitrust policy; merger policy, monopolization, predatory pricing, collusion, vertical restrictions, resale price maintenance, enforcement; case law, economics literature. Prerequisite: 06E:104 or 091:208 or consent of instructor.

06E:172 Law and Economics 2-3 s.h.

Law examined through analytic tools of microeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic well-being. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:173 Advanced International Economics 3 s.h.

Neoclassical model of international trade, imperfect competition and international trade and investment, role of trade barriers;

regional trade agreements and the World Trade Organization. Prerequisites: 06E:104 and 06E:105, or graduate standing.

06E:174 Monetary Economics 3 s.h.

Demand for and supply of money; money's role in economy; empirical studies of money's impact; problems with monetary control. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:175 Economic Analysis of Labor Markets 3 s.h.

Labor supply and demand; investments in human capital, compensating wage differentials, discrimination, long-term contracts, occupational choice, family decisions, unions, immigration. Prerequisites: 06E:104, 06E:105, elementary calculus and statistics.

06E:176 Public Sector Economics 3 s.h.

Economic functions of government; budgetary processes; effects of government expenditures, taxation on resource allocation, income distribution, economic growth and stability. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:177 Industrial Organization 3 s.h.

Market structure; effects of business practices, informational problems on market structure; appraisal of antitrust policies, government regulation of business. Prerequisites: 06E:104 and 06E:105.

06E:178 American Economic History 3 s.h.

Emphasis on role of population, technology. Prerequisites: 06E:104 and 06E:105 for economics majors; 06E:001 and 16A:061 for non-economics majors. Same as 16A:144.

06E:179 History of Economic Thought 2-3 s.h.

Evolution of economics as a social science; ideas of Smith, Ricardo, Malthus, Marx, Marshall, Keynes, and their major critics. Prerequisites: 06E:104 and 06E:105.

06E:183 Natural Resource Economics 3 s.h.

Environmental and natural resource economics. Prerequisites: 06E:104 and 06E:105.

06E:184 Introduction to Econometrics 3 s.h.

Single equation linear statistical models, estimation and hypothesis testing; serial correlation, heteroscedasticity, generalized least squares estimation; specification analysis; errors in variables; emphasis on interpretation, application of econometric models, methods, use of computers. Prerequisite: 22S:120 or equivalent.

06E:187 Introduction to Mathematical Economics 3 s.h.

Mathematical structure of economic principles, problems, systems; may include constrained optimization, choice under uncertainty, general equilibrium and welfare economics, dynamical systems and control theory, game theory. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:189 Advanced Topics in Economics arr.

Varied content. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

For Advanced Undergraduates

06E:194 Honors Seminar 3 s.h.

Preparation for writing senior honors thesis. Prerequisite: consent of instructor.

06E:195 Senior Thesis in Economics arr.

Independent research leading to senior honors thesis. Prerequisite: consent of instructor.

06E:196 Readings and Independent Study in Economics arr.

06E:199 Internship arr.
Participation in approved internship programs (e.g., Washington Center Internships). Prerequisite: consent of instructor.

Primarily for Graduate Students

With consent of the department chair, qualified undergraduates may enroll in courses listed for graduate students.

06E:200 Economic Analysis I 3 s.h.
Theory of the competitive firm, theory of the consumer, noncompetitive models of the firm; optimization, constrained optimization, comparative statics, introduction to game theory.

06E:201 Economic Analysis II 3 s.h.
Behavior under uncertainty, macroeconomic models; dynamic programming, asset pricing, saving, consumption.

06E:203 Microeconomics I 3 s.h.
Price theory; emphasis on problem formulation and solving, economic intuition; producer and consumer behavior, competitive and noncompetitive markets, welfare economics. Offered fall semesters. Prerequisite: 06E:200 or consent of instructor.

06E:204 Macroeconomics I 3 s.h.
Economic growth, business cycles, money and inflation. Offered fall semesters. Prerequisite: 06E:201 or consent of instructor.

06E:205 Microeconomics II 3 s.h.
Behavior under uncertainty, general equilibrium and welfare analysis, models with asymmetric information. Offered spring semesters. Prerequisite: 06E:203 or consent of instructor.

06E:206 Macroeconomics II 3 s.h.
Dynamic macroeconomic models; stochastic macroeconomics; time consistency equilibrium business cycle theory. Offered spring semesters. Prerequisite: 06E:204 or consent of instructor.

06E:211 Mathematical Economics I 3 s.h.
Convex analysis in economic theory; ordinal and cardinal preference relations; quasiconcave, concave numerical representations; separation principle for convex sets—linear programming, concave programming; Brouwer fixed point theorem; existence of competitive equilibrium. Prerequisite: 06E:205 or consent of instructor.

06E:212 Mathematical Economics II 3 s.h.
Theories of n-person games, noncooperative or cooperative; applications to general economic equilibrium analysis. Prerequisite: 06E:211.

06E:221 Econometrics 3 s.h.
Statistical inference in single and multiple equation stochastic models, models with nonindependent or nonidentically distributed error structure, dynamic models; OLS, GLS, IV, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests. Prerequisite: 22S:154 or equivalent.

06E:222 Applied Econometrics 3 s.h.
Empirical problems; multiple linear regression, nonlinear regression, maximum likelihood, hazard functions, univariate and multivariate time series, flexible functional forms. Prerequisite: 06E:221.

06E:223 Econometric Theory I 3 s.h.
Statistical theory underlying econometric inference; emphasis on estimation, hypothesis testing in linear models. Prerequisite: 06E:221.

06E:234 International Business—M.B.A. 3 s.h.
Problems in international business; how to export, how to deal with import competition, international joint ventures; country studies. Prerequisite: consent of instructor.

06E:235 International Trade Theory 3 s.h.
The theory of international trade, including basic models of international trade; capital and labor mobility and trade; protection of international trade; the political economy of international trade; empirical applications of international trade. Prerequisite: consent of instructor.

06E:241 Macroeconomics III 2-6 s.h.
Current research in macroeconomics; development of research topics with emphasis on theoretical and empirical analysis. Prerequisites: 06E:205 and 06E:221.

06E:245 Monetary Theory 2-3 s.h.
Research at the frontier of monetary theory and policy; overlapping generations models, search models of money, representative agent monetary models, intermediation and banking theory, and financial contracts.

06E:250 Labor Economics 3 s.h.
Problems and models, including intertemporal models of labor markets; uncertainty and labor market activity; retirement decisions, economic theories of fertility; economics of discrimination; job search models; economic models of unions; bargaining and strikes, public sector labor markets; determinants of income distribution; emphasis on empirical verification of theory. Prerequisites: 06E:205, and 06E:184 or 06E:221.

06E:271 Industrial Organization 2-4 s.h.
The firm, monopolistic competition, oligopoly and workable competition; industrial organization, nature of equilibrium under uncertainty. Prerequisites: 06E:205 and 06E:211.

06E:272 Economics of Organization 2-4 s.h.
Theoretical design of mechanisms for achieving efficient allocations within organizations, and development of empirical frameworks to implement such mechanisms; applications to problems in industrial organization and labor economics. Prerequisite: 06E:205.

06E:299 Contemporary Topics in Economics 3 s.h.
Topics not offered in other courses. Repeatable. Prerequisite: consent of instructor.

06E:300 Readings in Economics arr.
Prerequisite: consent of instructor.

06E:301 Thesis in Economics arr.
Prerequisite: consent of instructor.

Advanced Graduate Seminars

06E:310 Seminar in Economic Theory arr.
Prerequisite: consent of instructor.

06E:311 Seminar in Economic Theory II arr.

06E:321 Workshop in Microeconomics 1 s.h.
Prerequisite: consent of instructor.

06E:322 Workshop in Macro and Monetary Economics 1 s.h.
Prerequisite: consent of instructor.

Finance

Chair: Anand M. Vijh

Professors: David S. Bates, Jarjisu Sa-Aadu (Chester A. Phillips Professor of Business Finance and Real Estate), Anand M. Vijh (Marvin and Rose Lee Pomerantz Chair in Finance), Paul A. Weller (John F. Murray Professor)

Professors emeriti: Charles E. Marberry, Robert M. Soldofsky, Richard A. Stevenson

Clinical professor: John H. Spitzer

Associate professors: Matthew T. Billett, Jon A. Garfinkel, Puneet Handa, Erik Lie, Thomas A. Rietz, Gerry L. Suchanek, Ashish Tiwari

Associate professor emeritus: G. Carl Schweser

Assistant professors: Satadru Hoke, Todd I. Houge, James T. Leverty, Yiming Qian

Lecturers: Chesca Colloredo-Mansfeld, Larry Hershberger, Heidi Lie, Sarah Rogers

Undergraduate degree: B.B.A. in Finance

Graduate degrees: M.B.A.; Ph.D. in Business Administration

Web site: <http://www.biz.uiowa.edu/finance>

Undergraduate Program

The Department of Finance undergraduate program provides a balance of theory, applications, and financial information technology that facilitates students' transition from classroom to workplace. Through fundamental finance principles and state-of-the-art financial markets information technologies, students develop analytical abilities to interpret financial markets data, implement the latest trading and investment strategies, and make effective managerial decisions in national as well as international settings.

Careers for students majoring in finance include corporate treasury operations, cash management, mergers and acquisitions, investment banking, sales and security trading, security analysis, commercial banking and financial services, credit analysis, mortgage lending, financial planning, consulting, public administration, and venture capital.

The program stresses learning by doing, partnership with industry, and internships, with the goal of enhancing students' career development. Students receive a balanced education consistent with the globalization of business and the explosion in financial markets and information technology.

Bachelor of Business Administration

The Bachelor of Business Administration in finance requires 20 s.h. in the major, as follows.

06A:120 Financial Accounting Reporting	3 s.h.
06F:110 Financial Information Technology	2 s.h.
06F:111 Investment Management	3 s.h.
06F:117 Corporate Finance	3 s.h.

Three of these:

*06F:102 Principles of Risk Management and Insurance	3 s.h.
*06F:103 Property and Liability Insurance	3 s.h.
*06F:104 Corporate and Financial Risk Management	3 s.h.
*06F:105 Life and Health Insurance	3 s.h.
*06F:106 Employee Benefit Plans	3 s.h.
06F:112 Applied Equity Valuation	3 s.h.
06F:113 Fixed Income Securities	3 s.h.
06F:114 Commercial Banking	3 s.h.
06F:115 Investment Banking	3 s.h.
06F:116 Futures and Options	3 s.h.
06F:118 Advanced Corporate Finance	3 s.h.
06F:126 Real Estate Process	3 s.h.
06F:130 International Finance	3 s.h.

*Students may count only two of these courses toward the finance major.

Certificate in Risk Management and Insurance

The Department of Finance and the Emmett J. Vaughan Institute of Risk Management and Insurance offer the Certificate in Risk Management and Insurance. The certificate program provides undergraduate students with a foundation for careers in corporate risk management, risk management consulting, employee benefits management, insurance brokerage, and underwriting. See Risk Management and Insurance in the Catalog.

Graduate Program

The Department of Finance offers the Doctor of Philosophy in business administration. Ph.D. requirements are described under "Graduate Programs" in the Tippie College of Business

section of the Catalog and on the Department of Finance web site.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue the M.A.

For information about the M.B.A., see Master of Business Administration Program in the Catalog or contact the Tippie School of Management.

Courses

Primarily for Upper-Division Undergraduates

- 06F:100 Introductory Financial Management** 3 s.h.
Financial management goals and decision making; valuation of bonds and stocks, risk and return analysis, portfolio diversification, market efficiency, asset pricing, cost of capital, agency theory, capital budgeting, financial planning. Prerequisites: 06A:002, 06E:001, 06E:002, and junior standing.
- 06F:101 Directed Readings in Finance** arr.
Individually guided readings in selected topics. Prerequisite: consent of instructor.
- 06F:102 Principles of Risk Management and Insurance** 3 s.h.
Introduction to risk and insurance; risk identification and evaluation, demand for insurance, effects of limited liability, theory of moral hazard and adverse selection; business and personal risk; insurance as a risk management tool. Prerequisite: 06F:100. Corequisite: 06F:110 or consent of instructor.
- 06F:103 Property and Liability Insurance** 3 s.h.
Fundamentals of commercial property and liability insurance; commercial property and liability contracts, functions of property and liability insurers; regulation and financial analysis of property and liability insurers; marketing, underwriting, rate making, claim settlements. Prerequisite: 06F:102.
- 06F:104 Corporate and Financial Risk Management** 3 s.h.
Analysis and treatment of pure and financial risks faced by business organizations; development and implementation of the risk management process, application of varied risk management techniques to identified exposures; how businesses manage risk and how insurance is used to manage the cost of risk; case studies. Prerequisite: 06F:102.
- 06F:105 Life and Health Insurance** 3 s.h.
Types of life insurance and annuity contracts and their uses; regulation of life and health insurers; development of financial plans using life insurance products; Social Security, group, and individual health insurance products, including major medical, disability income, long-term care policies; marketplace analysis; contractual provisions, determination of human life values, mathematics of life contingencies and pricing. Prerequisite: 06F:102.
- 06F:106 Employee Benefit Plans** 3 s.h.
Management of employee benefit plans (e.g., group life and health insurance, retirement programs); design, administration, and financing of employee benefits; federal administration of employee benefit plans; funding requirements, financial alternatives; funding and vesting of retirement annuities; design and management of health care plans, including "cafeteria" approach and nonqualified deferred compensation arrangements; economic effects and
- financing employee benefits and retirement plans in private and public sectors. Prerequisite: 06F:102.
- 06F:108 Topics in Finance I** 1-3 s.h.
Contemporaneous issues in finance. Prerequisite: 06F:100.
- 06F:109 Topics in Finance II** 1-3 s.h.
Contemporaneous issues in finance. Prerequisite: 06F:100.
- 06F:110 Financial Information Technology** 2 s.h.
Applications of commonly used financial software and data systems reviewed by student teams. Prerequisite: 06F:100.
- 06F:111 Investment Management** 3 s.h.
Investment in marketable securities in domestic and international markets; financial markets, securities trading, evaluation of risk/return trade-off, formulation and implementation of investment strategies, efficient portfolio formation. Prerequisite: 06F:100. Corequisite: 06F:110.
- 06F:112 Applied Equity Valuation** 3 s.h.
Valuation of financial securities using cases and financial information technology; macroeconomic and industry analysis, regulatory analysis, financial statement analysis, technical analysis, trading securities, active portfolio management, performance evaluation. Prerequisites: 06F:111 and UI cumulative g.p.a. of at least 2.80.
- 06F:113 Fixed Income Securities** 3 s.h.
Theories of fixed income securities, term structure of interest rates; asset pricing models, valuation of fixed income securities and contingent claims, fixed income portfolio management, immunization strategies, yield curve analysis. Prerequisite: 06F:100 or consent of instructor. Corequisite: 06F:110.
- 06F:114 Commercial Banking** 3 s.h.
Management of commercial banks and financial service firms; asset and liability management, credit policy, capital risk, liquidity planning, use of swaps and derivatives to hedge interest rate risk, global banking, investment strategies. Prerequisite: 06F:100. Corequisite: 06F:110.
- 06F:115 Investment Banking** 3 s.h.
How investment bankers interact with clients in access to growth capital, sales, trading, and investment banking; role of investment bankers through varied perspectives, including those of the client (e.g., corporate CFO, treasurer, corporate development officer) and service provider (e.g., investment banking professional). Prerequisites: 06F:100, and 06F:117 or consent of instructor.
- 06F:116 Futures and Options** 3 s.h.
Use of options, futures, and other derivative securities in financial management; understanding types of derivative securities, markets, trading technology; applications of risk management and speculation; pricing relations with underlying securities. Prerequisite: 06F:111.
- 06F:117 Corporate Finance** 3 s.h.
Advanced managerial decision making; corporate financial policy, dividend policy, agency theory, corporate restructuring, capital structure strategies, mergers and acquisitions, option pricing fundamentals, convertible debt, callable debt, warrants. Prerequisite: 06F:100. Corequisite: 06F:110.
- 06F:118 Advanced Corporate Finance** 3 s.h.
Issues relevant to financial management, payout policy, financial distress and bankruptcy, restructuring, market for corporate control; recent research and cases from the corporate arena; other topics (e.g., bankruptcy) to broaden application and understanding of finance theory. Prerequisite: 06F:117.
- 06F:126 Real Estate Process** 3 s.h.
Fundamentals of real estate finance and investments; economic base analysis, asset analysis, market analysis, mortgage markets, underwriting, alternative mortgages, mortgage-backed securities, real estate securitization, land development, valuation principles, investment analysis, tax consideration, portfolio management. Prerequisite: 06F:100. Corequisite: 06F:110.

06F:130 International Finance 3 s.h.

International monetary systems, exchange rate determination, use of currency derivative in hedging and risk management, currency swaps, foreign direct investment, international corporate finance, international capital budgeting, international portfolio investment, Third World debt, privatization, joint ventures. Prerequisite: 06F:100. Corequisite: 06F:110.

06F:190 Hawkinson Scholar Seminar 1 s.h.

Advanced skill and understanding required for pursuit of investment banking, management consulting careers; specialized résumé and interview training, industry presentations, relevant case assignments. Repeatable. Prerequisite: consent of Hawkinson Institute of Business Finance director.

06F:191 Hawkinson Scholar Seminar: Topics in Finance 0 s.h.

Subsectors in the financial services industry, including hedge funds, investment banking, commercial banking; valuation techniques used in real-world mergers, acquisitions, equity offerings, debt financing, and so forth.

06F:199 Academic Internship 1-2 s.h.

Professional internship experience with associated academic content. Repeatable. Prerequisite: consent of department chair.

Primarily for Graduate Students

06F:201 Directed Readings in Finance—M.B.A. arr.

Prerequisite: consent of instructor.

06F:202 M.A. Research Report 1 s.h.

Prerequisites: nonthesis M.A. enrollment and consent of instructor.

06F:205 Contemporary Topics in Finance arr.**06F:208 Structured Finance—Securitization 3 s.h.**

Securitized assets such as mortgages, asset-backed securities (e.g., credit cards, auto loans, trade receivables), collateralized debt obligations, institutional structures, credit risk, valuation, cost of capital, corporate finance, accounting; legal, tax, and regulatory issues associated with securitization; how to design, value, and implement structured-financed products that create value from stakeholders' perspectives. Prerequisite: 06N:225.

06F:209 Investment Banking 3 s.h.

Overview of industry consolidation, underwriting of securities, merger valuation options, legal and regulatory considerations, IPOs, private equity; industry-specific case studies, student/practitioner discussion of issues facing industry. Prerequisite: 06N:225 for graduate students; consent of instructor for undergraduates.

06F:210 Financial Information Technology 1 s.h.

Applications of commonly used financial software and data systems reviewed by student teams.

06F:212 Investment Management 3 s.h.

Hands-on approach to investing in marketable securities in domestic and global markets; market efficiency, risk-return relationships, asset pricing models, security valuation, options and futures valuation, portfolio strategies and management. Prerequisite: 06N:225. Corequisite: 06F:210.

06F:213 Futures and Options 3 s.h.

Use of options, futures, and other derivative securities in financial management; types of derivative securities, markets, trading technology; applications of risk management and speculation; pricing relations with underlying securities. Prerequisite: 06N:225. Corequisite: 06F:210.

06F:214 Real Estate Finance and Investments 3 s.h.

Structuring real estate finance and investment; mortgage markets and pricing, mortgage-backed securities, development process,

real estate valuation, tax effects, securitized real estate, real estate cycles, application of derivative instruments, strategic asset allocation. Prerequisite: 06F:126 or 06N:225. Corequisite: 06F:210.

06F:215 Corporate Finance 3 s.h.

Structured problems and cases in corporate financial policy decisions; financial decision models, current and fixed asset administration, cost of capital, capital budgeting, dividends, cash flow projections, cash management, mergers and acquisitions. Prerequisite: 06N:225. Corequisite: 06F:210.

06F:216 Fixed Income Securities 3 s.h.

Theories of fixed income securities, term structure of interest rates; asset pricing models, valuation of fixed income securities, valuation of contingent claims, fixed income portfolio management. Prerequisite: 06N:225. Corequisite: 06F:210.

06F:218 Advanced Corporate Finance 3 s.h.

Applied management; financial instruments and innovations, IPOs, SEOs, mergers and acquisitions, leverage buyouts, capital structure, dividend policy, corporate restructuring, treasury operations, risk, real options, corporate control, executive compensation. Prerequisite: 06N:225. Corequisite: 06F:210.

06F:219 Finance for Entrepreneurs 3 s.h.

Same as 06T:233.

06F:220 Management of Financial Institutions 3 s.h.

Principles of lending and asset/liability management; leverage and capital requirements for financial institutions; money market and capital market instruments; interest rate futures, swaps, options. Repeatable. Prerequisite: 06N:225. Corequisite: 06F:210.

06F:221 Applied Securities Management I 3 s.h.

Hands-on approach to portfolio management; setting goals, trading securities, developing programs to evaluate fund performance. First of a two-semester sequence; must be followed by 06F:222. Prerequisites: 06N:225 and consent of instructor.

06F:222 Applied Securities Management II 3 s.h.

Continuation of 06F:221. Prerequisites: 06F:221 and consent of instructor.

06F:223 International Finance 3 s.h.

Impact of international financial markets on business and financial decisions in foreign environments; global finance, foreign exchange, Eurocurrency markets, currency derivatives, risk hedging, international bond and equity markets, privatization, joint ventures. Prerequisites: 06N:225 and two years experience, or consent of instructor. Corequisite: 06F:210.

06F:224 Security Analysis 3 s.h.

Valuation of financial securities (primarily equities) using discounted cash flow model; industry, regulatory analysis; financial statement analysis; active portfolio management; value-based management techniques; valuation of firms outside the United States. Prerequisite: 06N:225.

06F:225 Finance Theory I 3 s.h.

Options valuation; financial leverage, market efficiency and information economics, term structure models, capital market equilibrium models, corporate finance issues; emphasis on theory. Prerequisite: Ph.D. enrollment.

06F:226 Seminar in Corporate Finance 3 s.h.

Valuation (DCF and CAPM); valuation under certainty, uncertainty; financial structure, cost of capital; dividend policy; firm investment in perfect, imperfect capital markets; options pricing theory; state preference model. Prerequisite: Ph.D. enrollment.

06F:227 Finance Theory II 3 s.h.

Continuum time theories of financial markets, including connection between an arbitrage-free pricing system and martingales; pricing of contingent claims, general equilibrium and term structure theory. Prerequisite: Ph.D. enrollment.

06F:228 Advanced Empirical Finance 3 s.h.

Market efficiency and term structure theory tests; tests of asset pricing models, dividend policy and financial structure issues.
Prerequisite: Ph.D. enrollment.

06F:229 Seminar in Finance 0 s.h.

Prerequisite: Ph.D. enrollment.

06F:288 Directed Readings in Finance—Ph.D. arr.

Prerequisites: Ph.D. student standing and consent of instructor.

06F:290 Thesis in Business arr.

Prerequisite: consent of instructor.

Management and Organizations

Chair: Frank L. Schmidt

Professors: Jay Christensen-Szalanski, Nancy R. Hauserman (Williams Teaching Professor), Michael K. Mount (Henry B. Tippie Research Professor of Human Resources), Sara L. Rynes (John F. Murray Professor), Frank L. Schmidt (Ralph L. Sheets Professor)

Professors emeriti: Norman F. Kallaus, Charles R. Klasson, Lola L. Lopes, Gerald L. Rose, Peter P. Schoderbek, Duane E. Thompson, Jude P. West

Clinical professor: David K. Hensley

Associate professors: Terry L. Boles, Kenneth G. Brown, Amy L. Kristof-Brown, Greg L. Stewart

Clinical associate professor: Lon D. Moeller

Assistant professor: Lisa C. Dragoni

Lecturers: Daniel A. Cohen, Dennis M. Schrag

Undergraduate degree: B.B.A. in Management

Graduate degrees: M.B.A.; M.A., Ph.D. in Business Administration

Web site: <http://www.biz.uiowa.edu/manorg>

Undergraduate Program

The Department of Management and Organizations offers study of human resource management; individual, team, and organizational behavior; employment law and ethics; leadership and personal development; negotiations; training and development; and organizational design. The program is designed to give students a thorough background in these areas as well as an understanding of their application to real-life situations. Specific courses, research projects, and other experiences, such as simulations, are blended to include both theoretical and pragmatic aspects of the field.

The program prepares students for a variety of line, staff, and professional positions in business, consulting firms, government, nonprofit institutions, and education. Graduates find employment opportunities in general management, sales, human resource management, strategic reward systems, staff benefits, organizational staffing, training and development, career management, and employment law. Many graduates pursue further study in law, human resources, industrial and organizational psychology, or labor relations.

Bachelor of Business Administration

The Bachelor of Business Administration in management requires 21 s.h. in the major, as follows.

06J:125 Entrepreneurial Strategy	3 s.h.
06J:130 Individuals, Teams, and Organizations	3 s.h.
06J:131 Strategic Human Resource Management	3 s.h.
06J:132 Law and Ethics in Management	3 s.h.
06J:156 Dynamics of Negotiations	3 s.h.
Two of these:	
06J:140 Competitive Strategy	3 s.h.
06J:145 Training and Developing Human Resources	3 s.h.
06J:146 International Business Environment	3 s.h.
06J:147 Nonprofit Organizational Effectiveness I	3 s.h.
06J:148 Nonprofit Organizational Effectiveness II	3 s.h.
06J:159 Introduction to the U.S. Health Care System	3 s.h.
06J:160 Staffing Organizations	3 s.h.
06J:162 Leadership and Personal Development	3 s.h.
06J:168 Topics in Management	3 s.h.
06J:171 Strategic Reward Systems	3 s.h.
06T:192 Entrepreneurship: Business Consulting	3 s.h.

Graduate Programs

The Department of Management and Organizations offers the Doctor of Philosophy in business administration. Ph.D. requirements are described under "Graduate Programs" in the Tippie College of Business section of the Catalog and on the Department of Management and Organizations web site.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue the M.A.

For information about the M.B.A., see Master of Business Administration Program in the Catalog or contact the Tippie School of Management.

Courses

Primarily for Upper-Division Undergraduates

06J:047 Introduction to Law 3 s.h.
General history, structure of law; law's action in guiding changing economic, social patterns. Prerequisite: sophomore standing.

06J:048 Introduction to Management 3 s.h.
Principles of management, organizational structure, decision making, leadership, line-staff relationships, administration of organizations. Prerequisite: sophomore standing.

06J:101 Directed Readings in Management and Organizations arr.
Prerequisite: consent of instructor.

06J:125 Entrepreneurial Strategy 3 s.h.
The synergistic effect of entrepreneurial attributes (e.g., innovation, creativity, opportunity recognition) and managerial attributes (e.g., strategic management, planning, budgeting) on profit and nonprofit organizations.

06J:130 Individuals, Teams, and Organizations 3 s.h.
Theories of organizational behavior applied to current business trends for individuals, teams, organizations; personality, managing diversity, work-family conflict, self-managed teams, charismatic leadership, work motivation, managing conflict, organizational culture. Prerequisites: 06J:047 and 06J:048.

06J:131 Strategic Human Resource Management 3 s.h.
People management activities, policies, and practices that promote effective organizations; how changes in technology, business restructuring, legal and social concerns, other issues affect human resource management. Prerequisites: 06J:047 and 06J:048.

06J:132 Law and Ethics in Management 3 s.h.
Laws affecting employers and employees, such as regulatory health and safety policies, unemployment and retirement benefits, and employment discrimination including hiring, termination, testing issues. Prerequisites: 06J:047 and 06J:048.

06J:140 Competitive Strategy 3 s.h.
How top managers plan and execute strategies that enable businesses to compete in local and global markets; analytical skills for coping with organizational uncertainties and business realities from the perspective of a senior manager; case studies. Prerequisite: 06J:048. Recommended: senior standing.

06J:145 Training and Developing Human Resources 3 s.h.
Concepts, practices in training and development; strategic issues affecting the design, implementation, and evaluation of training programs and of career management and organizational development activities. Prerequisite: 06J:131.

06J:146 International Business Environment 3 s.h.
Differences in international and domestic business; cultural, legal, political factors for managers. Prerequisite: junior or higher standing.

06J:147 Nonprofit Organizational Effectiveness I 3 s.h.
Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as 024:147, 025:176, 032:127, 042:157, 049:175, 096:168.

06J:148 Nonprofit Organizational Effectiveness II 3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as 024:148, 025:177, 032:128, 042:158, 049:176, 096:169.

06J:156 Dynamics of Negotiations 3 s.h.
Predictable aspects and dynamics of bargaining experiences; simulations, experiential exercises to foster skills needed for effective negotiation in almost any situation. Prerequisite: senior standing.

06J:159 Introduction to the U.S. Health Care System 3 s.h.
Same as 174:102.

06J:160 Staffing Organizations 3 s.h.
Staffing processes; external influences such as labor markets, the legal environment; support activities such as job analysis, employment planning; staffing activities such as internal and external recruiting, selection. Prerequisite: 06J:131.

06J:162 Leadership and Personal Development 3 s.h.
Practical development and application of leadership and managerial skills to enhance individual and organizational effectiveness. Prerequisites: 06J:130, 06J:131, and senior standing.

06J:165 Business Policy 3 s.h.

06J:168 Topics in Management 3 s.h.
Topics not regularly offered in other courses. Prerequisites: 06J:047 and 06J:048.

06J:171 Strategic Reward Systems 3 s.h.
Role of pay and other rewards on organizational objectives; compensation's impact on employee behavior and performance; mix of pay and benefits in compensation systems; legal environment regulating pay and benefits; nonmonetary forms of reward. Prerequisite: 06J:131.

06J:199 Academic Internship arr.
Professional internship experience with associated academic content. Repeatable. Prerequisite: consent of department chair.

Primarily for Graduate Students

06J:201 Directed Readings in Management and Organizations arr.

06J:202 M.A. Research Report 1 s.h.
Prerequisite: nonthesis M.A. enrollment.

06J:205 Contemporary Topics in Management and Organizations arr.
Ph.D. seminar; research topics in human resources and organizational behavior.

06J:232 Legal Environment of Business 3 s.h.
Legal issues surrounding start-up and day-to-day management of a business; contract law, standard business formations, tort law, employment law, business ethics, alternative dispute resolution. Prerequisite: 06N:212.

06J:235 Maximizing Team Performance 3 s.h.
Current approaches to implementing effective teams within organizations; team selection and formation, group dynamics, facilitation skills, performance and obstacle management.

06J:242 Managing and Preventing Conflict 3 s.h.
Skills for management of high-conflict situations in the workplace and for long-term business success and job satisfaction; experience developing mediation-based skills and communication techniques to prevent and resolve workplace conflicts.

06J:243 Dynamics of Consulting 3 s.h.
Consulting models, trends, processes; characteristics of internal versus external consulting services; integration of behavioral and organizational principles into organizational change programs. Prerequisite: 06N:212.

- 06J:244 Managing Organizational Performance** 3 s.h.
 Concepts and practices for effective management, measurement, and improvement of organizational performance; establishing and communicating organizational expectations, the manager as coach and motivator, measurement and methodologies, performance improvement methods. Prerequisite: 06N:212 or management course.
- 06J:245 Strategic Employee Development** 3 s.h.
 Concepts, practices in training and development; strategic issues affecting the design, implementation, and evaluation of training programs and of career management and organizational development activities. Prerequisite: 06N:212.
- 06J:246 International Management** 3 s.h.
 Management issues encountered in international business settings; assessing international politico-economic and sociocultural environments; managing a multicultural workforce; forming international structures and alliances; developing international business strategy.
- 06J:247 Nonprofit Organizational Effectiveness I** 3 s.h.
 Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as 021:263, 024:247, 028:257, 032:227, 042:247, 091:320, 174:247.
- 06J:248 Nonprofit Organizational Effectiveness II** 3 s.h.
 Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as 021:265, 024:248, 028:258, 032:228, 042:248, 091:322, 174:248.
- 06J:256 Dynamics of Negotiations** 3 s.h.
 Predictable aspects and dynamics of bargaining experiences; simulations, experiential exercises to foster skills needed for effective negotiation in almost any situation. Prerequisite: M.B.A. enrollment or consent of instructor.
- 06J:257 Legal Issues in Human Resource Management** 3 s.h.
 Laws, regulations governing human resource management policies, practices; employee discipline, termination, layoffs, privacy, involvement programs; occupational safety and health; workers' compensation; discrimination. Prerequisite: 06N:212.
- 06J:260 Staffing Organizations** 3 s.h.
 Staffing processes; external influences such as labor markets, the legal environment; support activities such as job analysis, employment planning; staffing activities such as internal and external recruiting, selection. Prerequisite: 06N:212.
- 06J:261 Managing Through Motivation** 3 s.h.
 Contemporary motivation theories and their application; role of intrinsic motivation, justice, incentive pay, job design, goals, feedback, social influence, attitudes, creativity. Prerequisites: 06N:212 and 06N:227.
- 06J:262 Leadership and Personal Development** 3 s.h.
 Major theories; determinants of leader effectiveness, personal and career success; practical development of leadership, managerial skills to enhance individual, organizational effectiveness. Prerequisite: 06N:212.
- 06J:263 Strategic Management of Change** 3 s.h.
 How congruence in organizational strategy, structure and culture, job design, and employee characteristics produces effective organizations; emphasis on managing organizational change, implementing and working in teams, project management. Prerequisite: 06N:212.
- 06J:267 Organizational Theory Ph.D.** 3 s.h.
 Organizational theory; effect of changing environment and technological factors on organizational structure and effectiveness; resource dependency and power, conflict, interorganizational network, population ecology, economic theories of organization, institutional theory.
- 06J:268 Seminar in Management** 3 s.h.
 Topics vary.
- 06J:269 Meta-Analysis in Behavioral and Social Sciences (Ph.D.)** 3 s.h.
 Methods for quantitative integration of findings in behavioral, social sciences: overall effect size or correlation, whether conflicting findings documented in research literature are due to moderators (interactions) or statistical and measurement artifacts.
- 06J:270 Research Methods in Management and Organizations (Ph.D.)** 3 s.h.
 Methods commonly used in behavioral research; critical evaluation of research; research process from idea generation to publication; practice in generating hypotheses, drafting surveys, analyzing data, reviewing manuscripts.
- 06J:271 Strategic Reward Systems** 3 s.h.
 Role of pay and other rewards on organizational objectives; compensation's impact on employee behavior and performance; mix of pay and benefits in compensation systems; legal environment regulating pay and benefits; nonmonetary forms of reward. Prerequisite: 06N:212.
- 06J:272 Training and Careers (Ph.D.)** 3 s.h.
 Research-based examination of training and development programs; emphasis on societal, legal, organizational factors that affect training program design, implementation, evaluation; systemic relationships among training, careers, organizational development management.
- 06J:273 Measurement Theory and Methods in the Behavioral and Social Sciences (Ph.D.)** 3 s.h.
 Classical measurement theory, methods applied to psychological tests, questionnaires, ratings of work-related and other performances, behaviors; reliability theory and methods, instrument construction and item analysis, criterion construction, validity, combining and weighting instruments, cross-validation. Prerequisite: basic statistical methods course.
- 06J:274 Staffing Organizations (Ph.D.)** 3 s.h.
 Aspects of selection, including professional and legal standards, job analysis techniques, validation strategies, criterion development, selection techniques (e.g., psychological tests, interviews, biographical data, assessment centers), ethical issues.
- 06J:275 Group Processes and Conflict (Ph.D.)** 3 s.h.
 Understanding and implementing work groups in organizations; social influence and group processes, including communications, conflict, intergroup relations.
- 06J:276 Leadership (Ph.D.)** 3 s.h.
 Understanding and implementing leadership in organizations; focus on reading and analysis of basic research-related leadership theories; "great person" theories in contrast to traditional behavioral and situational theories.
- 06J:277 Motivation and Attitudes (Ph.D.)** 3 s.h.
 Motivational processes, attitudes, communication and interorganizational networks; emphasis on motivational antecedents and consequences, theoretical implications for models of work performance.
- 06J:278 Reward Systems and Performance Evaluation (Ph.D.)** 3 s.h.
 Compensation systems, government influences, equity in compensation and individual wage determination; research-based examination of performance evaluation and appraisal, theories of work performance.

**06J:279 Individual Differences in
Traits/Abilities (Ph.D.) 3 s.h.**

Research on individual and group differences in intelligence, personality, interests, values, other traits; findings related to performance in work world.

06J:290 Thesis in Management and Organizations arr.

06J:295 Mentored Research arr.

Management research conducted by doctoral students under faculty supervision; culminates in second-year research paper.

Management Sciences

Chair: Kurt M. Anstreicher

Professors: Kurt M. Anstreicher (Henry B. Tippie Research Professor of Management Sciences), Warren J. Boe, Gary C. Fethke (Leonard A. Hadley Professor of Leadership), Raj Jagannathan, Philip C. Jones (Clement T. and Sylvia H. Hanson Chair in Manufacturing Productivity), Johannes Ledolter (C. Maxwell Stanley Professor), Padmini Srinivasan

Professor emeritus: Colin E. Bell

Associate professors: Ann M. Campbell, Renato E. de Matta, W. Nick Street

Associate professor emerita: Eleanor M. Birch

Assistant professors: Samuel Burer, Faiz Currim, Jeffrey W. Ohlmann, Barrett Thomas

Undergraduate degree: B.B.A. in Management Information Systems

Graduate degrees: M.B.A.; Ph.D. in Business Administration

Web site: <http://www.biz.uiowa.edu/mansci>

Undergraduate Program

The Department of Management Sciences offers a variety of educational experiences that develop students' knowledge of managerial decision-making systems. Students acquire skill in applying this knowledge by constructing quantitative models, using computer technology, and creating database systems.

Students prepare for a variety of career opportunities in both manufacturing and service organizations. Graduates find entry-level work as computer programmers, systems analysts, sales representatives with computer companies, and management trainees. Entry-level work in operations management is found in materials management, line supervision, purchasing, and manufacturing systems.

Bachelor of Business Administration

The Bachelor of Business Administration in management information systems requires 22 s.h. in the major, as follows.

06K:126 Visual Basic Programming	3 s.h.
06K:176 Managerial Decision Models	3 s.h.
06K:182 Applications Database Management Systems	3 s.h.
06K:183 Systems Analysis and Design	3 s.h.

06K:184 Introduction to Data Communications	3 s.h.
22C:016 Computer Science I	4 s.h.
One additional course from approved list of management sciences courses	3 s.h.

Graduate Programs

The Department of Management Sciences offers the Doctor of Philosophy in business administration. Ph.D. requirements are described under "Graduate Programs" in the Tippie College of Business section of the Catalog and on the Department of Management Sciences web site.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue the M.A.

For information about the M.B.A., see Master of Business Administration Program in the Catalog or contact the Tippie School of Management.

Courses

Primarily for Undergraduates

06K:070 Computer Analysis	3 s.h.
The computer and its uses in organization operation, management; computer systems terminology, programming, management information systems, use of applications software.	

For Undergraduate and Graduate Students

06K:100 Operations Management	3 s.h.
Strategic, tactical, operational issues that arise in management of production and service operations; product and process design, facilities planning, quality management, materials management, operations planning and scheduling, emerging technologies in production and service management. Prerequisite: junior standing. Pre- or corequisite: 06K:070.	
06K:101 Directed Readings	arr.
Prerequisite: consent of instructor.	
06K:102 Management Science Topics	arr.
Special topics in management information systems. Prerequisite: junior standing.	
06K:103 Introduction to PC Hardware	1 s.h.
Basic hardware that makes up a PC, how each component relates to the other. Prerequisite: management information systems major.	

06K:126 Visual Basic Programming 3 s.h.

Introduction to programming using Visual Basic. Corequisite: 06K:070.

06K:128 Web and Multimedia 3 s.h.

How multimedia tech is accomplished; tools used with each tech and modifications needed to function efficiently on the web; projects culminating in a web site.

06K:176 Managerial Decision Models 3 s.h.

Mathematical programming, including linear, nonlinear, dynamic programming, with applications in economics, management; classical optimization techniques, transportation, network flow problems. Prerequisite: 06K:070.

06K:180 Applied Information Systems 3 s.h.

Application of computer technology to accounting and transaction processing systems; information systems infrastructure and trends; problem solving with microcomputer spreadsheets, database; accounting cycle operations using accounting software. Prerequisites: 06A:001, 06A:002, 06E:071, and 06K:070.

06K:182 Applications Database Management Systems 3 s.h.

Design, implementation of a database using relational DBMS; emphasis on issues of logical and physical design, database administration, concurrency control, maintenance. Prerequisite: 06K:070.

06K:183 Systems Analysis and Design 3 s.h.

Design, implementation of an information system; student projects in determination of information needs, system design, information plan development; construction of prototype information system. Prerequisite: B.B.A. senior standing. Corequisite: 06K:182 or consent of instructor.

06K:184 Introduction to Data Communications 3 s.h.

Computer communications: computer-communication system, hardware, data transmission principles; examples of existing communication networks; related managerial issues. Prerequisites: 06K:070 and B.B.A. senior standing.

06K:185 Software Development Project 3 s.h.

Development of a system using techniques from previous courses; project planning, user expectations, sys architecture and design, quality management; presentation of results. Prerequisite: 06K:182.

06K:186 Database Management II 3 s.h.

Advanced conceptual and logical design, in-depth SQL, DB administration, concurrency control, web database access; theory and practice. Prerequisite: 06K:182 or equivalent.

06K:188 Computer and Network Security 3 s.h.

Network-based attacks and how to respond to them; access control, authentication methods, encryption, Public Key Infrastructure, operating system hardening, security policy practices.

06K:189 E-Commerce Technology 3 s.h.

Technical tools for building e-commerce web sites; Dot Net versions of active server pages, VB, C#; student project to build prototype of an e-commerce site. Prerequisite: 06K:070.

06K:190 Network Design and Performance 3 s.h.

Computer software as central to the study of network facilities selection, performance metrics; skill development through work with the telecommunications hierarchy's layered structure. Prerequisite: 06K:184.

06K:191 Business Consulting 3 s.h.

Organizational consulting; emphasis on integration of strategy, business processes, technology, and change management through case-based learning techniques; proposal simulation. Prerequisite: 06K:070.

06K:199 Academic Internship arr.

Professional internship experience with associated academic content. Repeatable. Prerequisite: consent of department chair.

Primarily for Graduate Students

06K:201 Directed Readings arr.

Prerequisite: consent of instructor.

06K:202 M.A. Research Report 1 s.h.

Prerequisites: nonthesis M.A. enrollment and consent of instructor.

06K:217 Data and Decisions II 3 s.h.

Advanced quantitative analysis techniques with management applications; multiple regression, time series, monte-carlo simulation, and linear, nonlinear, and discrete optimization; emphasis on spreadsheet-based modeling. Prerequisite: 06N:216 or consent of instructor.

06K:220 Introduction to Information Systems 3 s.h.

Effective ways for business firms to harness the power of information technology for strategic purposes; conventional and emerging architectures of information systems; integrated perspective on structural relationships among IT components; emphasis on case studies.

06K:223 Management of E-Commerce Systems 3 s.h.

06K:226 Visual Basic Programming 3 s.h.

Introduction to programming using Visual Basic. Corequisite: 06K:070.

06K:227 Introduction to Modeling with VBA 3 s.h.

Introduction to programming Visual Basic for Applications in Excel; case studies in finance, marketing, operations, accounting. Prerequisite: 06N:216.

06K:228 Web and Multimedia 3 s.h.

How multimedia tech is accomplished; tools used with each tech and modifications for efficient function on the web; projects culminating in a web site. Prerequisite: 06K:070.

06K:230 Database Systems 3 s.h.

Theories and methodologies for semantic, logical, and physical database design; entity/relationship diagrams and their mapping to database schemas; normalization; languages for relational database systems, including relational algebra, Structured Query Language, query by example; query optimization and index selection; database and view creation, query and update processing; form and report design; practice with commercial DBMS products; integrity, security, concurrency control, transaction recovery.

06K:233 Text Retrieval 3 s.h.

Theories and models for automatic text representation and retrieval using large text databases; methods for evaluating retrieval algorithms; alternative query models—Boolean, extended Boolean, probabilistic, vector, fuzzy and rough set models; vocabulary normalization; architecture of World Wide Web search engines and metadata. Prerequisite: 06K:230. Same as 021:230.

06K:234 Information and Knowledge Management 3 s.h.

Methods to determine where the ability to capture and reuse organizational knowledge will prove most profitable to companies; how to design processes and technologies to use this information. Same as 021:234.

06K:238 Data Mining and Marketing 3 s.h.

Data mining and knowledge discovery as applied to marketing, with emphasis on customer relationship management; predictive modeling, data reduction, association rules.

06K:272 Database Analysis and Design 3 s.h.

Advanced topics in database management systems.

06K:273 Computer Networks and Intelligent System 3 s.h.

06K:274 Advanced E-Commerce and Data Security 3 s.h.

06K:275 Knowledge Discovery 3 s.h.

Knowledge discovery process, including data reduction, cleansing, transformation; advanced modeling techniques from classification, prediction, clustering, association; evaluation and integration. Prerequisite: consent of instructor. Same as 22C:141.

06K:277 Management Sciences Topics 3 s.h.

Prerequisite: consent of instructor.

06K:278 Web Mining 3 s.h.

Techniques for mining the web and other unstructured or semistructured, hypertextual, distributed information repositories; crawling, indexing, ranking, filtering algorithms.

06K:284 Operations Strategy 3 s.h.

A firm's strategic use of operations for competitive advantage through decisions on facility size, degree of vertical integration, process technology selection, proper approach to quality, productivity, and technology.

06K:285 Project Management 3 s.h.

Preparation for managing projects and project portfolios; project selection, project planning and budgeting, scheduling, resource allocation, project control; integration of project planning tools, including project management software.

06K:286 Linear Programming 3 s.h.

Mathematical programming models; linear and integer programming, transportation models, large-scale linear programming, network flow models, convex separable programming. Prerequisites: calculus and linear algebra courses. Same as 056:270.

06K:287 Discrete Optimization 3 s.h.

Introduction to modeling and solving discrete optimization problems; integer programming, network flows, dynamic programming. Prerequisite: 06K:286 or consent of instructor.

06K:288 Computer and Network Security 3 s.h.

Network-based attacks and how to respond to them; access control, authentication methods, encryption, Public Key Infrastructure, operating system hardening, security policy practices.

06K:289 E-Commerce Technology 3 s.h.

Technical tools for building e-commerce web sites; Dot Net versions of active server pages, VB, C#; student project to build prototype of an e-commerce site.

06K:290 Thesis in Management Sciences arr.

Prerequisites: Ph.D. enrollment and consent of instructor.

06K:292 Supply Chain Management 3 s.h.

Design, operation, and management of a supply chain; supplier and customer contracting and partnering, inventory, transportation and logistics. Prerequisite: 06N:229.

06K:293 Seminar in Lean Practices 3 s.h.

Lean principles across the enterprise; real-world applications in manufacturing and service sectors; taught in conjunction with LAI Lean Academy.

06K:294 Rapid Continuous Improvement 3 s.h.

Hands-on experience working on rapid continuous improvement (RCI) teams sponsored by industrial affiliates of the business college involved in using RCI. Offered spring break. Prerequisite: consent of instructor.

06K:295 Field Studies in Operations Management 3 s.h.

Supervised study of operations systems in field settings; problem formulation, identification of process improvements, communication of results to client organizations. Prerequisite: 06N:229.

06K:296 Service OM 3 s.h.

Major issues which represent great challenges for managers of service operations in the pure service sector (e.g., legal, banking, travel and tourism, health care, etc.).

06K:297 Research Seminar in Management Sciences 0 s.h.

Current research topics. Prerequisite: Ph.D. enrollment or consent of instructor.

06K:299 Special Topics in Management Sciences arr.

Prerequisite: consent of instructor.

Marketing

Chair: Catherine A. Cole

Professors: Catherine A. Cole, Gary J. Gaeth (Cedar Rapids Area Business Chair), Thomas S. Gruca, Irwin P. Levin, Peter C. Riesz, Gary J. Russell, Randall L. Schultz, Doyle L. Weiss

Professor emerita: Carol C. Fethke

Associate professor: John P. Murry

Associate professor emeritus: E. John Kottman

Assistant professors: Sri Devi Duvvus, Dhananjay Nayakankuppam, Lopo L. Rego, Jing (Alice) Wang

Lecturer: David E. Collins

Undergraduate degree: B.B.A. in Marketing

Graduate degrees: M.B.A.; Ph.D. in Business Administration

Web site: <http://www.biz.uiowa.edu/mrktg>

Undergraduate Program

The Department of Marketing offers courses that help undergraduate students understand the business, social, and economic roles of marketing and prepare them for marketing careers.

Several decades ago, the study of marketing dealt almost exclusively with business activities involved in the flow of goods from production to consumption. Today it includes principles that are more widely applicable; they are as relevant to the success of arts, sports, and social programs as they are to firms selling goods and services. A major in marketing includes study in the behavioral sciences, communications, statistical analysis, and computer methods as well as marketing decision making.

Graduates find employment opportunities as market analysts, merchandise managers, buyers, purchasing agents, advertising managers, brand managers, and sales representatives in a variety of profit and nonprofit organizations.

Bachelor of Business Administration

The Bachelor of Business Administration in marketing requires 15-19 s.h. in the major, as follows.

06M:134 Marketing Research	3 s.h.
06M:135 Consumer Behavior	3 s.h.
06M:147 Marketing Management (must be taken in senior year)	3 s.h.

At least two, but no more than three, of these:

06M:105 Web Business Strategy	3 s.h.
06M:107 Retail Strategies	3 s.h.
06M:125 Direct Marketing Strategies	3 s.h.
06M:137 Advertising Theory	3 s.h.
06M:139 Sales Management	3 s.h.
06M:151 International Marketing	3 s.h.
06M:190 Topics in Marketing	3 s.h.

Graduate Programs

The Department of Marketing offers the Doctor of Philosophy in business administration. Ph.D. requirements are described under "Graduate Programs" in the Tippie College of Business section of the Catalog and on the Department of Marketing web site.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue the M.A.

For information about the M.B.A., see Master of Business Administration Program in the Catalog or contact the Tippie School of Management.

Courses

Primarily for Upper-Division Undergraduates

06M:100 Introduction to Marketing Strategy 3 s.h.
Philosophy and activities of marketing; marketing environment of an organization; strategies with respect to marketing decisions, buyer behavior; spreadsheet analysis of marketing problems.
Prerequisites: 06E:001 and junior standing.

For Undergraduate and Graduate Students

06M:101 Directed Readings in Marketing arr.
Prerequisite: consent of instructor.

06M:105 Web Business Strategy 3 s.h.
Introduction to World Wide Web business and marketing; concepts, methods, and applications associated with doing business on the web; web page construction and design; case studies and/or entrepreneurial projects. Prerequisite: 06M:100.

06M:107 Retail Strategies 3 s.h.
Strategies for retail site selection, store design, supply chain management, customer relationship management/customer service; merchandising management strategies for planning merchandise assortments, buying systems, buying merchandise, pricing, promotion. Prerequisite: 06M:100.

06M:125 Direct Marketing Strategies 3 s.h.

Principles and processes of direct and database marketing; insight into the requirements for building a customer-based marketing strategy. Prerequisite: 06M:100.

06M:134 Marketing Research 3 s.h.

Marketing, research methods; role of marketing research information as a tool in management decision making. Prerequisites: 06E:071 and 06M:100.

06M:135 Consumer Behavior 3 s.h.

Behavioral and social aspects of marketing; research methods and findings from behavioral sciences, their relation to production, consumption, and marketing of products, services. Prerequisite: 06M:100.

06M:137 Advertising Theory 3 s.h.

Advertising as a promotional force; emphasis on theory, planning, resulting strategic and tactical decisions made by advertising executives. Prerequisite: 06M:100.

06M:139 Sales Management 3 s.h.

Personal selling, management of sales force; emphasis on recruitment, selection, training of sales representatives; problems in allocation of sales effort, supervision, control. Prerequisite: 06M:100.

06M:147 Marketing Management 3 s.h.

Marketing problems of organizations; emphasis on marketing manager's role in developing, presenting goal-oriented marketing strategies; application of marketing concepts to real business situations. Prerequisites: 06M:100, 06M:134, 06M:135, a marketing elective numbered above 100, and senior standing.

06M:151 International Marketing 3 s.h.

Differences in global environment: how cultural considerations, political, legal, and economic conditions affect market entry strategies and marketing mix decisions; development of marketing plan for non-U.S. environments. Prerequisite: 06M:100.

06M:190 Topics in Marketing 3 s.h.

Topics not regularly offered in other courses. Prerequisites: 06M:100 and consent of instructor.

06M:199 Academic Internship arr.

Professional internship experience with associated academic content. Repeatable. Prerequisite: consent of department chair.

Primarily for Graduate Students

06M:201 Directed Readings in Marketing arr.

Prerequisite: consent of instructor.

06M:205 Web Business Strategy 3 s.h.

Introduction to World Wide Web business and marketing; concepts, methods, and applications associated with doing business on the web; web page construction and design; case studies and/or entrepreneurial projects. Prerequisite: 06N:211.

06M:223 Brand Management 3 s.h.

Strategies for building, leveraging, and defending brands; principles of consumer behavior, how they relate to building brand identity and equity; branding of consumer goods and services. Prerequisite: 06N:211.

06M:225 Direct Marketing Strategies 3 s.h.

Principles and processes of direct and database marketing; insight into requirements for building a customer-based marketing strategy. Prerequisite: 06N:211.

06M:227 Category Management 3 s.h.

Marketing strategy related to manufacturing product line interactions, retailer product assortment, consumer response; category definition, product line pricing and branding,

cross-category promotions, channel coordination, efficient consumer response, loyalty programs, database marketing. Prerequisite: 06N:211.

06M:229 Customer Relationship Management 3 s.h.

Analytical approaches to customer relationship management; issues, techniques and terminology associated with database marketing and data mining; analysis of customer databases; assessing lifetime valuation (LTV) of customers, identifying "high potential" customers, estimating return on marketing investment, building predictive models to estimate the probability of response to a marketing campaign. Prerequisite: 06N:211.

06M:230 Marketing Research Methods 3 s.h.

Managerial applications of marketing research techniques, including methods of design, analysis, interpretation of marketing research studies; assessing value of information, sampling, sources of bias, instrument construction, interpretation of scanner data, geodemographic data, applications of integrated research systems. Prerequisites: 06N:211 and 06N:216.

06M:231 Business to Business Marketing 3 s.h.

Industrial buyer behavior, buyer-seller relationships, interactive product policy and market segmentation, distribution and selling systems; skill development in market strategy formulation for industrial products and services, and in solving problems and making decisions about industrial marketing. Prerequisite: 06N:211.

06M:232 Buyer Behavior 3 s.h.

Behavior of consumers and industrial buyers; research methods and findings from behavioral sciences applied to production, consumption, and marketing of products, services; application of consumer behavior concepts to managerial decision making. Prerequisite: 06N:211.

06M:233 Service Marketing 3 s.h.

Production, consumption, and marketing of services; solutions to problems faced by service managers; development of an organizational marketing system for delivery of quality service. Prerequisite: 06N:211.

06M:234 Product Management 3 s.h.

Techniques of new product development; idea generation, concept screening, product design, market testing, forecasting, brand management strategies within the firm. Prerequisites: 06N:211 and 06N:216.

06M:235 International Marketing 3 s.h.

Domestic versus international perspective; identification and evaluation of opportunities and risks in non-U.S. markets; research problems in global markets; effects of international organizations, foreign exchange, macroeconomic policies, local law, and cultural differences on consumer behavior and marketing decisions; multinational versus global marketing strategies (entry, product adaptation, channel logistics, pricing, promotion); emphasis on practical applications. Prerequisite: 06N:211.

06M:236 Advertising and Promotion Strategy 3 s.h.

Marketing communications as dialogue between producers and consumers, how promotional mix evolves; emphasis on advertising, sales promotion, branding. Prerequisite: 06N:211.

06M:237 Field Studies in Marketing 3 s.h.

Experience in planning, designing, carrying out, reporting on a marketing research project for a profit or nonprofit client organization; communication with managers, application of marketing research, meeting deadlines, converting research findings into action recommendations for management. Repeatable. Prerequisites: 06N:211 and 06N:216. Recommended: 06M:230.

06M:238 Contemporary Topics in Marketing 3 s.h.

Topics not regularly offered in other courses. Prerequisites: 06N:211 and graduate standing.

06M:242 Seminar in Marketing Models—Ph.D. 3 s.h.

Theoretical, operational models in marketing, with emphasis on recent advances; in-depth criticism of models, participation in model development project. Prerequisite: consent of instructor.

06M:243 Seminar in Consumer Behavior—Ph.D. 3 s.h.

Key facets of consumer behavior—information processing, perception, memory, learning, attitude formation, attitude change, decision making, emotion; behavioral research methods. Prerequisite: consent of instructor.

06M:245 Seminar in Research Topics—Ph.D. arr.

Individual research topics. Prerequisite: consent of instructor.

06M:247 Directed Readings in Marketing—Ph.D. arr.

Prerequisite: consent of instructor.

06M:290 Thesis in Marketing arr.

Prerequisite: consent of instructor.

Master of Business Administration Program

Associate dean: Gary J. Gaeth

Graduate degree: M.B.A.

Web site: <http://www.biz.uiowa.edu/mba>

The Henry B. Tippie School of Management offers a Master of Business Administration (M.B.A.) program that provides students with a foundation for future growth and flexibility in professional management. The program, which is fully accredited by AACSB—the Association to Advance Collegiate Schools of Business, enables students to build broad-based personal portfolios of analytical skills, knowledge, leadership, and professional experience. The curriculum is rigorous, yet learning takes place in a collaborative environment that builds teamwork skills and encourages independent problem solving.

Students in the Tippie M.B.A. program come from every region of the United States and from countries worldwide. They represent a variety of backgrounds, undergraduate majors, and professional experience. The curriculum is designed for college graduates in any field; previous business course work is not required. However, full-time work experience is required for admission. Contact the Tippie School of Management for a brochure listing complete program requirements.

Full-Time, On-Campus M.B.A.

The full-time, on-campus M.B.A. program requires 60 s.h., including a minimum of 12 s.h. in a concentration area. Students may transfer up to 9 s.h. from another AACSB-accredited institution.

Full-Time M.B.A. Study Plan

First Semester

06N:199 M.B.A. Competitive Prep	1 s.h.
06N:201 Tippie M.B.A. Leadership Series	2 s.h.
06N:211 Marketing Management	3 s.h.
06N:215 Corporate Financial Reporting	3 s.h.
06N:216 Data and Decisions	3 s.h.
06N:225 Managerial Finance	3 s.h.

Second Semester

06N:212 Management in Organizations	3 s.h.
06N:213 Managerial Economics	2 s.h.
06N:229 Operations Management	3 s.h.

06N:230 Seminar in Strategic Management I	1 s.h.
Concentrations/Electives	6 s.h.

Third Semester

06N:228 International Economic Environment of the Firm	2 s.h.
06N:240 Strategic Management and Policy	3 s.h.
Concentrations/Electives	9 s.h.

Fourth Semester

06N:231 Seminar in Strategic Management II	1 s.h.
Concentrations/Electives	15 s.h.

CONCENTRATION OPTIONS

During their first year in the program, M.B.A. students choose an individual concentration area which consists of at least 12 s.h. in a specific discipline. Primary concentration areas include corporate finance, accounting, marketing, brand and category management, investments, strategic management and consulting, and operations management. Specialty concentrations include entrepreneurship, management information systems, nonprofit management, and international business. Individual students may develop their own concentration area, subject to approval by the Tippie School of Management.

ELECTIVES

Each student chooses 18 s.h. of graduate-level electives, in addition to their concentration course work; up to 6 s.h. may be earned in nonbusiness electives. Students must have prior approval to take courses outside the Tippie School of Management.

Admission

Applicants to the M.B.A. program must submit a complete application file, including the following:

- a completed Tippie School of Management application form and fee;
- official transcripts of all undergraduate and graduate course work, which must be submitted to the Office of Admissions by each institution attended;

official Graduate Management Admission Test (GMAT) scores;

the completed supplemental application form with essay responses, and a résumé and cover letter; and

three completed recommendation forms.

Applicants whose first language is not English must score at least 600 (paper-based) or at least 250 (computer-based) on the Test of English as a Foreign Language (TOEFL). For TOEFL registration information, contact the University of Iowa Office of Admissions.

APPLICATION DEADLINES

The full-time, on-campus M.B.A. program admits students only for fall entry. Application deadlines are as follows.

International applicants: April 15

U.S. citizens and permanent residents (priority deadline): April 15

U.S. citizens and permanent residents: July 1

Applications received after April 15 are considered on a space-available basis.

M.B.A. for Professionals and Managers

The M.B.A. for Professionals and Managers (M.B.A.-P.M. program) is tailored for working professionals building on the synergies of working and concurrent learning. It prepares graduates for a professional career in business or in the public sector. The curriculum is designed for students with varied backgrounds, undergraduate majors, and professional experience. Previous course work in business is not required.

Courses are offered each semester during evening hours in Cedar Rapids at the college’s Cedar Rapids Area Education and Conference Center; in Newton at the Newton Polytechnic campus of the Des Moines Area Community College; in Des Moines at the W.A. Krause Center for Entrepreneurial Education and the Pappajohn Education Center; and in the Quad Cities at the Kahl Educational Center. M.B.A.-P.M. students also may enroll in on-campus courses in Iowa City when space is available; they may complete up to 30 s.h. of credit toward the M.B.A. on the Iowa City campus.

M.B.A.-P.M. Study Plan

The M.B.A.-P.M. program requires 45 s.h., including a business core of 10 courses, which develops competency in general management skills and key functional business areas, and five business electives. The elective courses, which contribute to the development of an area of expertise and foster a deeper understanding of management and business practices, are offered in marketing, finance, and management, with a smaller number offered in management information systems/operations management, accounting, and entrepreneurship. Students earn the M.B.A. in three years by completing two courses each fall and each spring semester and one course during the summer. There is some flexibility in course sequence and length of time allowed to complete the program. Following is a sample study plan.

FIRST YEAR

06N:211 Marketing Management	3 s.h.
06N:212 Management in Organizations	3 s.h.
06N:215 Corporate Financial Reporting	3 s.h.
06N:216 Data and Decisions	3 s.h.
Business elective (summer session)	3 s.h.

SECOND YEAR

06N:213 Managerial Economics	3 s.h.
06N:225 Managerial Finance	3 s.h.
06N:227 Human Resource Management	3 s.h.
06N:229 Operations Management	3 s.h.
Business elective (summer session)	3 s.h.

THIRD YEAR

06N:228 International Economic Environment of the Firm	3 s.h.
06N:240 Strategic Management and Policy	3 s.h.
Business electives	6 s.h.
Business elective (summer session)	3 s.h.

Admission

The M.B.A.-P.M. program admits students for fall or spring entry; applications are accepted throughout the year. Admission decisions are based on the quality of work experience, undergraduate grade-point average, GMAT score, letters of reference, and completed application materials. Applicants should have a minimum of three years of postbaccalaureate professional work experience before admission.

APPLICATION DEADLINES

Applicants who meet the priority deadlines are assured of an admission decision before the

registration period for admitted students; those admitted to the program receive student registration priority. The University must receive GMAT scores by the following application deadlines.

Priority deadline for fall (August): June 1

Final deadline for fall (August): July 15

Priority deadline for spring (January): November 1

Final deadline for spring (January): December 15

Enrollment in Courses Before Formal Admission

With permission, individuals not yet admitted to the program may enroll in M.B.A.-P.M. courses over three semesters within a 12-month period, for a maximum of 9 s.h. One of the three courses must include 06N:215 Corporate Financial Reporting or 06N:216 Data and Decisions. Credit is applied to the degree once the applicant is admitted to the program. Individuals who request their first registration in an M.B.A. course must first submit their résumé and transcript to the Tippie School of Management for approval. To be considered for nonadmitted status, applicants should have at least one-and-a-half years of postbaccalaureate professional work experience.

Executive M.B.A. Program

The Executive M.B.A. program leads to the Master of Business Administration. Admission is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. Applicants should have at least 10 years of postgraduate managerial experience. Previous academic work in business is not required.

Course work is presented over 21 months. The program begins in mid-August with a five-day residency in Iowa City, followed by classes one day each week on alternating Fridays and Saturdays. Each entering class progresses through the program as a group.

Classes for the Executive Engineer Dual Master's Degree Program are held at the Cedar Rapids Area Education and Conference Center. Classes for the Iowa City Executive M.B.A. Program are held in the Pomerantz Center. The Tippie School of Management also offers the Executive M.B.A. Program to students in Hong Kong.

Executive M.B.A. Study Plan

Degree requirements include two 5-day residency periods (one at the beginning of each academic year), an international business seminar (7-10 days during spring semester of the second year), 14 core courses, and two electives selected and taken by all members of the class.

FIRST YEAR

06N:211 Marketing Management	3 s.h.
06N:212 Management in Organizations	3 s.h.
06N:213 Managerial Economics	1-3 s.h.
06N:215 Corporate Financial Reporting	3 s.h.
06N:216 Data and Decisions	3 s.h.
06N:225 Managerial Finance	3 s.h.
06N:227 Human Resource Management	2-3 s.h.
06N:228 International Economic Environment of the Firm	1-3 s.h.
06N:230 Seminar in Strategic Management I	1-3 s.h.

SECOND YEAR

06A:235 Managerial Accounting	3 s.h.
06A:245 Financial Information and Capital Markets	3 s.h.
06F:215 Corporate Finance	3 s.h.
06N:210 Advanced Models for Decision Support	3 s.h.
06N:229 Operations Management	3 s.h.
06N:231 Seminar in Strategic Management II	3 s.h.
06N:235 Seminar in International Business	0-3 s.h.
06N:240 Strategic Management and Policy	3 s.h.
Business electives	6 s.h.

International Executive M.B.A. Study Plan

06A:235 Managerial Accounting	3 s.h.
06N:211 Marketing Management	3 s.h.
06N:212 Management in Organizations	3 s.h.
06N:213 Managerial Economics	3 s.h.
06N:215 Corporate Financial Reporting	3 s.h.
06N:216 Data and Decisions	3 s.h.
06N:225 Managerial Finance	3 s.h.
06N:228 International Economic Environment of the Firm	3 s.h.
06N:229 Operations Management	3 s.h.
06N:240 Strategic Management and Policy	3 s.h.
Business electives	15 s.h.

Joint Degree Programs

Joint degree programs allow students to pursue two degrees concurrently, earning both more quickly than if they pursued each degree separately. The Tippie School of Management collaborates with several other University of Iowa academic units to offer joint degrees: an M.B.A./J.D. with the College of Law; an M.B.A./M.A. with the School of Library and Information Science (Graduate College); an M.D./M.B.A. with the Carver College of Medicine; an M.B.A./M.S.N. with the College of Nursing; and an M.B.A./M.H.A. with the College of Public Health.

Separate application to each college is required. Applicants must be admitted to both colleges before they can be admitted to the joint degree program.

Accelerated Professional Track

Highly qualified undergraduate students in the College of Liberal Arts and Sciences, the College of Engineering, or the Tippie College of Business may be admitted to the Accelerated Professional Track (APT) program. These students begin taking M.B.A. core courses as electives in their undergraduate program so they can earn a bachelor's degree and an M.B.A. more quickly than if they pursued each degree separately. APT students must complete an internship while in the program.

To enter the APT program, students must complete 90 s.h. of undergraduate study, have a g.p.a. of at least 3.50, have clearly defined career goals, and indicate their intent to pursue both degree programs on a full-time basis. Students also must have a professional background similar to that of students enrolled in the M.B.A. program.

Courses

See the course lists for individual departments for descriptions of M.B.A. electives.

06N:000 M.B.A. Internship	0 s.h.
Prerequisite: consent of Tippie School of Management.	
06N:199 M.B.A. Competitive Prep	1 s.h.
Professional development, career strategies for successful competition in the M.B.A. marketplace. Prerequisite: consent of M.B.A. program associate.	
06N:200 Directed Readings—M.B.A.	1-3 s.h.
Prerequisite: consent of associate dean for graduate programs.	

06N:201 Tippie M.B.A. Leadership Series **0-3 s.h.**
Seminars in developmental areas of leadership, including communications, social responsibility, and personal development. Prerequisite: graduate standing.

06N:202 M.B.A. Case Competition **1-3 s.h.**
Students represent Tippie School of Management in a case competition; internal case work, presentation and case analysis training. Prerequisite: M.B.A. student standing.

06N:210 Advanced Models for Decision Support **3 s.h.**
Quantitative techniques in decision making, including identifying controllable decision variables, setting decision objectives, defining choice-limiting constraints, developing computer solutions in contemporary business. Prerequisite: 06N:216.

06N:211 Marketing Management **3 s.h.**
Concepts, principles, models of marketing management; focus on strategic planning, management decision making, and implementation of marketing programs. Prerequisite: graduate standing.

06N:212 Management in Organizations **3 s.h.**
How to explain, predict, and influence behavior in organizations; decision making, leadership, communication, group skills in management positions; motivation, leadership, teams, organizational culture, organizational design, individual differences, organizational change. Prerequisite: graduate standing.

06N:213 Managerial Economics **1-3 s.h.**
Models of consumer and firm behavior with applications; market equilibrium and structure; pricing decisions. Prerequisite: graduate standing.

06N:215 Corporate Financial Reporting **3 s.h.**
Contemporary financial reporting practices in the United States; how alternative accounting treatments affect the usefulness of financial information in applied decision settings. Prerequisite: graduate standing.

06N:216 Data and Decisions **3 s.h.**
Quantitative modeling techniques and statistical analysis for management decision making; use of Excel for spreadsheet analysis; decision analysis, statistical inference, regression, linear programming, probability. Prerequisite: graduate standing.

06N:217 Ethics **1-2 s.h.**

06N:225 Managerial Finance **3 s.h.**
Time value of money, applications of present value techniques; stock and bond valuation, capital budgeting, cost of capital calculation, portfolio formation and efficient market analysis, financial statement analysis, pro-forma analysis, hedging financial risks. Pre- or corequisite: 06N:215.

06N:227 Human Resource Management **2-3 s.h.**
Systematic approach to managing human resources through practices consistent with validated theories and empirical research; human resources practices and business strategies; human resources strategy, recruitment and selection, training and development, employment law, international human resources, career management, compensation. Prerequisite: graduate standing.

06N:228 International Economic Environment of the Firm **1-3 s.h.**
Basic determinants of aggregate output, employment, wages, unemployment, consumption, investment, international trade flows, interest rates, exchange rates, prices and inflation in open economies; sources and nature of economic growth; effects of domestic and foreign monetary, fiscal policies; effects of trade, exchange rate policies. Prerequisite: 06N:213 or consent of instructor.

06N:229 Operations Management 3 s.h.

Planning and decision making activities for managing an organization's operations; trade-offs associated with operations management decisions, tools and techniques for helping operations managers implement decisions, reach goals; production and service delivery strategy, capacity planning, product and process design, total quality management, demand management, production and service planning, scheduling, materials control, emerging production and service technologies. Prerequisite: 06N:216.

06N:230 Seminar in Strategic Management I 1-3 s.h.

Introduction to strategic management; the role of marketing, operations, and finance in strategic planning; case studies. Prerequisite: graduate standing.

06N:231 Seminar in Strategic Management II 1-3 s.h.

Strategic management integrating all aspects of business; computer simulation, lectures, case studies, readings.

06N:235 Seminar in International Business 0-6 s.h.

Issues and challenges facing organizations doing business in international markets; social, economic, political factors, business policies and customs in the global environment; may include travel, study abroad. Repeatable. Prerequisite: M.B.A. enrollment.

06N:240 Strategic Management and Policy 3 s.h.

Firm's competitive strategy from a manager's perspective; key strategic frameworks; integration of concepts learned throughout M.B.A. program, previous work experience. Prerequisites: 06N:211, 06N:215, 06N:225, and 06N:229.

Entrepreneurship

Director: David Hensley

Undergraduate nondegree programs: Certificate in Entrepreneurship, Technological Entrepreneurship

Web site: <http://www.iowa.jpec.org/students/undergradprogram.html>

Certificate in Entrepreneurship

The Tippie College of Business and the John Pappajohn Entrepreneurial Center offer University of Iowa students the opportunity to earn a Certificate in Entrepreneurship while pursuing their undergraduate degrees. The Colleges of Engineering and Liberal Arts and Sciences and the UI health science colleges also collaborate in the certificate program.

The certificate program helps prepare students to start and lead their own companies and expands their understanding of how entrepreneurial firms operate. It encourages innovation and creativity and develops skill in recognizing opportunity—all necessary for entrepreneurs and successful business leaders.

The program was named the 2004 National Model Undergraduate Entrepreneurship Program by the United States Association for Small Business and Entrepreneurship.

Entrepreneurship students learn from a select team of faculty members and business leaders distinguished by their ability to teach, model, and inspire the entrepreneurial process. They gain understanding of the entrepreneurial approach to acquiring and managing resources; acquire team-building skills critical to both small and large companies; and develop sound business planning skills necessary for launching new ventures and products.

The program includes networking opportunities with successful entrepreneurs and other business leaders, and experiential learning opportunities.

Students may begin working toward the Certificate in Entrepreneurship in their sophomore year. Entrepreneurship courses (prefix 06T) are counted as semester hours earned in business on the degree evaluation.

Undergraduate students in the Tippie College of Business, the College of Liberal Arts and Sciences, and the UI health sciences colleges

must declare their intention to pursue the certificate. Forms are available from the John Pappajohn Entrepreneurial Center and the Undergraduate Program Office in the Tippie College of Business. The Certificate in Entrepreneurship is noted on the student's permanent record when the undergraduate degree is added to the transcript.

Requirements

The Certificate in Entrepreneurship requires a minimum of 18 s.h. in entrepreneurship-related course work. Students may apply 6 s.h. of transfer credit toward the certificate, with approval of the entrepreneurship program director. Required courses are as follows.

06T:120 Entrepreneurship and New Business Formation	3 s.h.
06T:133 Capital Acquisition and Cash Flow Management	3 s.h.
06T:134 Entrepreneurial Marketing	3 s.h.
06T:150 Managing the Growth Business	3 s.h.

Nonbusiness students also must take 06T:116 Basics of Small Business Marketing (1 s.h.) or 06M:100 Introduction to Marketing Strategy (3 s.h.); and 06T:113 Basics of Small Business Accounting (1 s.h.) or 06A:020 Accounting for Nonbusiness Students (3 s.h.) or another approved accounting course.

Students earn an additional 6 s.h. in elective courses chosen from the following list. Students who wish to use a course not on the list must consult with the Pappajohn Entrepreneurial Center staff.

06T:101 Directed Readings in Entrepreneurship	arr.
06T:141 Technology Applications for Entrepreneurs	3 s.h.
06T:142 Innovation and Change	3 s.h.
06T:145 Legal Aspects of Entrepreneurship	3 s.h.
06T:146 Strategic Management of Technology and Innovation	3 s.h.
06T:190 Seminar in Entrepreneurship	2-3 s.h.
06T:192 Entrepreneurship: Business Consulting	3 s.h.
06T:194 Entrepreneurship: Advanced Business Planning	3 s.h.
06T:199 Academic Internship	3 s.h.
06J:156 Dynamics of Negotiations	3 s.h.

Certificate in Technological Entrepreneurship

The College of Engineering and the Tippie College of Business offer a joint program leading to the Certificate in Technological Entrepreneurship. See College of Engineering in the Catalog or contact engineering's Student Development Center for details.

Major in Performing Arts Entrepreneurship

The Division of Performing Arts (College of Liberal Arts and Sciences) collaborates with the John Pappajohn Entrepreneurial Center to offer a B.A. with a major in Performing Arts Entrepreneurship. Contact the Division of Performing Arts for details.

Courses

06T:101 Directed Readings in Entrepreneurship arr.
Independent study; topics and assignments approved by instructor. Prerequisite: consent of instructor.

06T:113 Basics of Small Business Accounting 1 s.h.
Duplicates 06A:001; financial statements of small companies; basics of balance sheets, income statements, cash flow statements; development of assumptions for projections; simple comparative analysis. Prerequisite: closed to business and pre-business students.

06T:116 Basics of Small Business Marketing 1 s.h.
Duplicates 06M:100; basic marketing concepts for nonbusiness majors; traditional and guerrilla marketing strategies; focus on marketing information required in a business plan. Prerequisite: closed to business and pre-business students.

06T:117 Writing a Successful Business Plan 1 s.h.
The business planning process; components of a business plan, strategies for writing a successful plan; how potential investors evaluate business plans.

06T:120 Entrepreneurship and New Business Formation 3 s.h.
The entrepreneurial process from conception to birth of a new venture; attributes of successful entrepreneurs, innovation and creativity, opportunity recognition, venture screening, identification of resources, feasibility analysis. Corequisite: 06A:001 or 06A:020 or 06T:113.

06T:133 Capital Acquisition and Cash Flow Management 3 s.h.
Understanding the process of capital acquisition and cash flow management; techniques, projections, and measurements used in valuing and funding new and growing ventures; sources and strategies for raising capital. Prerequisite: 06T:120.

06T:134 Entrepreneurial Marketing 3 s.h.
Practical marketing concepts for determining market potential of a business; developing a marketing plan, identifying markets, creating products, designing promotions and sales programs, assessing ongoing customer service needs. Prerequisite: 06T:120. Corequisite: 06M:100 or 06T:116.

06T:141 Technology Applications for Entrepreneurs 3 s.h.
Current technology applications for creating web sites; use of technology for managing and disseminating business information; development of basic e-commerce strategy; hands-on course. Prerequisites: 06T:120, and 06T:133 or 06T:134.

06T:142 Innovation and Change 3 s.h.
Environment necessary for innovation; innovation applied to products, services, processes; strategies for regaining competitive advantage; management of stress created by innovation and change. Prerequisites: 06T:120, and 06T:133 or 06T:134.

06T:145 Legal Aspects of Entrepreneurship 3 s.h.
Areas of law significant to new and emerging businesses; legal system pitfalls, constraints, opportunities; overview. Prerequisites: 06T:120, and 06T:133 or 06T:134.

06T:146 Strategic Management of Technology and Innovation 3 s.h.
Role of technology in creation, growth, and survival of industries; process, risks, and rewards of technological innovation, commercialization; successful approaches to developing technological strategy and products. Prerequisites: 06T:120, and 06T:133 or 06T:134.

06T:150 Managing the Growth Business 3 s.h.
Issues faced by new, rapidly growing businesses; adapting organizational structure as business expands, building a management team, hiring new employees, managing strategic growth; case studies, particularly in technology sector. Prerequisites: 06T:120, 06T:133, and 06T:134.

06T:190 Seminar in Entrepreneurship 2-3 s.h.
Topics such as franchising, business acquisition, real estate development, e-commerce, technology transfer. Repeatable. Prerequisites: 06T:120, and 06T:133 or 06T:134; or consent of instructor.

06T:192 Entrepreneurship: Business Consulting 3 s.h.
Experience on teams providing consulting services to start-up and early-stage companies; the consulting process—proposal development, data collection and analysis, final report preparation and presentation; projects—marketing studies, financial projections, strategic planning. Prerequisites: 06T:120, 06T:133, and 06T:134; or consent of instructor.

06T:194 Entrepreneurship: Advanced Business Planning 3 s.h.
Mentoring for individuals in final stages of preparing to launch their own business. Prerequisites: 06T:120, 06T:133, and 06T:134; or consent of instructor.

06T:199 Academic Internship arr.
Professional internship experience with academic credit (e.g., paper, course work). Repeatable. Prerequisite: consent of department chair.

06T:210 Developing Professional Service Business 2-3 s.h.
Use of professional skills and functional knowledge in creating a specialized service business. Same as 053:210.

06T:217 Writing a Successful Business Plan 1 s.h.
The business planning process; components of a business plan, strategies for writing a successful plan; how potential investors evaluate business plans.

06T:220 Entrepreneurship: New Business Formation 3 s.h.
The entrepreneurial process from conception to birth of a new venture; attributes of successful entrepreneurs, innovation and creativity, opportunity recognition, venture screening, identification of resources, feasibility analysis.

06T:233 Finance for Entrepreneurs 3 s.h.
Understanding the process of capital acquisition and cash flow management; techniques, projections, and measurements used in valuing and funding new and growing ventures; sources and strategies for raising capital. Same as 06F:219.

06T:234 Entrepreneurial Marketing 3 s.h.

Practical marketing concepts for determining market potential of a business; developing a marketing plan, identifying markets, creating products, designing promotions and sales programs, assessing ongoing customer service needs.

06T:241 Technology Applications for Entrepreneurs 3 s.h.

Current technology applications for creating web sites; use of technology for managing and disseminating business information; development of basic e-commerce strategy; hands-on course.

06T:242 Innovation and Change 3 s.h.

Environment necessary for innovation; innovation applied to products, services, processes; strategies for regaining competitive advantage; management of stress created by innovation and change.

06T:245 Legal Aspects of Entrepreneurship 3 s.h.

Areas of law significant to new and emerging businesses; legal system pitfalls, constraints, opportunities; overview.

06T:246 Strategic Management of Technology and Innovation 3 s.h.

Role of technology in creation, growth, and survival of industries; process, risks, and rewards of technological innovation, commercialization; successful approaches to developing technological strategy and products.

06T:250 Managing the Growth Business 3 s.h.

Issues faced by new, rapidly growing businesses; adapting organizational structure as business expands, building a management team, hiring new employees, managing strategic growth of a business; case studies, particularly in technology sector.

06T:290 Seminar in Entrepreneurship 1-3 s.h.

Topics such as franchising, business acquisition, real estate development, e-commerce, technology transfer. Repeatable.

06T:292 Entrepreneurship: Business Consulting 3 s.h.

Experience on teams providing consulting services to start-up and early-stage companies; the consulting process—proposal development, data collection and analysis, final report preparation and presentation; projects—marketing studies, financial projections, strategic planning.

06T:294 Entrepreneurship: Advanced Business Planning 3 s.h.

Mentoring for individuals in final stages of preparing to launch their own business.

International Business

Coordinators: Patricia Mason-Browne (Liberal Arts and Sciences), Shari Piekarski (Tippie College of Business)

Undergraduate nondegree program: Certificate in International Business

Web site: <http://www.biz.uiowa.edu/upo/ibc/>

The Henry B. Tippie College of Business and the College of Liberal Arts and Sciences offer the Certificate in International Business. The program includes study of international business and economics, international relations and institutions, a foreign language, and the contemporary art, literature, culture, and/or politics of the related geographical area.

Certificate in International Business

The Certificate in International Business requires 29 s.h. and satisfaction of the foreign language requirement. See “Requirements” below.

The program is designed not only for undergraduate students who intend to pursue careers in international business but for any undergraduate interested in gaining a better understanding of the global economy and a broader awareness of the political, historical, and social environment in which international business operates. The range of courses in the program permits students to tailor areas of specialization suited to their individual interests and to complement majors in both liberal arts and sciences and in business.

When students complete the certificate requirements and graduate, the notation “Certificate in International Business” is added to their transcript. Direct questions to the Tippie College of Business Undergraduate Program Office or the CLAS Academic Programs & Services office.

Application

Undergraduate students pursuing a degree from The University of Iowa are eligible to work toward the Certificate in International Business. Students who already have earned a baccalaureate degree from The University of Iowa may return to complete or earn a certificate in international business if they are not enrolled in a graduate or professional program. Holders of

baccalaureate degrees from other institutions who are not enrolled in a graduate or professional program may enroll at The University of Iowa to complete a Certificate in International Business. Contact the Office of Admissions.

Interested students must declare their intention to pursue the certificate with an international business certificate advisor and must submit a plan of study. Students admitted to the Tippie College of Business or advised at the college’s Undergraduate Program Office should consult the advising staff in that office. Students in the College of Liberal Arts and Sciences should consult an international business certificate advisor in the Academic Advising Center.

Requirements

The certificate requires 29 s.h. of course work plus satisfaction of the foreign language requirement (required credit varies according to language studied). Students must maintain a g.p.a. of at least 2.00 on all international business certificate course work. Courses used to satisfy the certificate may not be taken pass/nonpass. A course may not be used to satisfy more than one certificate requirement.

A minimum of 20 s.h. of certificate course work (other than language courses) must be completed at The University of Iowa or in approved study abroad programs. Students who want to use credit earned while studying abroad should consult an international business certificate advisor before leaving campus. University of Iowa Guided Independent Study (correspondence study) is accepted toward the certificate.

The certificate requires course work in international business, international relations and institutions, foreign language, and area studies, as follows.

INTERNATIONAL BUSINESS

These courses provide students with an essential understanding of economics, which is central to all business operation. They also help students develop knowledge of the functional areas of international business.

Both of these:

- 06E:001 Principles of Microeconomics 3-4 s.h.
- 06E:002 Principles of Macroeconomics 3-4 s.h.

Three of these (total of 9 s.h.):

- 06E:125 International Economics 3 s.h.
- 06E:129 Economic Growth and Development 3 s.h.
- 06E:164 Economies in Transition 3 s.h.
- 06E:173 Advanced International Economics 3 s.h.
- 06F:130 International Finance 3 s.h.
- 06J:146 International Business Environment 3 s.h.
- 06M:151 International Marketing 3 s.h.
- 091:282 International Business Transactions 3 s.h.
- 091:287 International Trade Law: Basic Norms and Regulation 3 s.h.

INTERNATIONAL RELATIONS AND INSTITUTIONS

These courses familiarize students with comparative politics, social geography, foreign policy, and issues related to world population and the environment—topics relevant to decision making in the international business world.

Two of these (total of 6 s.h.):

- 16A:152 United States in World Affairs 3 s.h.
- 16W:138/152:138 History of International Health 3 s.h.
- 019:156 Comparative Communication Systems 3 s.h.
- 030:040 Introduction to the Politics of Industrial Democracies 3 s.h.
- 030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.
- 030:042 Introduction to the Politics of Developing Areas 3 s.h.
- 030:060 Introduction to International Relations 3 s.h.
- 030:061 Introduction to American Foreign Policy 3 s.h.
- 030:142 European Integration 3 s.h.
- 030:149 Problems in Comparative Politics 3 s.h.
- 030:150 Comparative Administrative Politics 3 s.h.
- 030:151 Political Leadership 3 s.h.
- 030:155 Social Movements and Collective Action 3 s.h.
- 030:156 Ethnic Conflict in the International Arena 3 s.h.
- 030:160 International Politics 3 s.h.
- 030:161 International Organization and World Order 3 s.h.
- 030:162 American Foreign Policies 3 s.h.
- 030:163 Chinese Foreign Policy 3 s.h.
- 030:164 International Systems: Continuity and Change 3 s.h.

- 030:165 International Conflict 3 s.h.
- 030:166 Global Political Communication 3 s.h.
- 030:167 Politics and the Multinational Enterprise 3 s.h.
- 030:168 Politics of Terrorism 3 s.h.
- 030:169 Problems of International Politics 3 s.h.
- 030:170 The Politics of International Economics 3 s.h.
- 030:173 Voluntary Organization and Politics in Comparative Perspective 3 s.h.
- 030:177 Globalization 3 s.h.
- 034:159 Families in Comparative Perspective 3 s.h.
- 036:042/042:042 Intercultural Communication 3 s.h.
- 044:010 The Contemporary Global System 4 s.h.
- 044:011 Population Geography 3 s.h.
- 044:015 Introduction to Political Geography 3 s.h.
- 044:030 The Global Economy 3 s.h.
- 044:035 World Cities 3 s.h.
- 044:094 International Development 3 s.h.
- 044:172 Development Planning and Policy 3 s.h.
- 044:176 Social Consequences of Global Change 3 s.h.
- 044:194 Geographic Perspectives on Development 3 s.h.
- 091:193 Human Rights in the World Community 3 s.h.
- 091:195 Introduction to Public International Law 3 s.h.
- 113:010 Anthropology and Contemporary World Problems 3 s.h.
- 113:134 Gender and Indian Diaspora 3 s.h.
- 113:137 Anthropology of Tourism 3 s.h.
- 113:143 Environment and Culture 3 s.h.
- 113:144 Culture and Consumption 3 s.h.
- 113:145 Economic Anthropology of the Third World 3 s.h.
- 113:151/034:151 Sociology of the Third World 3 s.h.
- 113:181 Race, Ethnicity, and International Relations 3 s.h.

FOREIGN LANGUAGE

This component enables students to develop an intermediate level of competence in a second language. Through language study, students not only gain insight into the culture of another region of the world, they also develop a deeper understanding of their own language and culture.

Students must complete an approved foreign language sequence. For questions about languages not listed below or about study abroad course work, see an international business certificate advisor.

Chinese

One of these sequences:
 039:008-039:009 First-Year Chinese:
 First and Second Semesters 10 s.h.
 039:100-039:101 Advanced First-Year
 Chinese: First and Second Semesters 10 s.h.

Both of these:
 039:105-039:106 Second-Year Chinese:
 First and Second Semesters 10 s.h.

French

One of these sequences:
 009:001-009:002 Elementary French I-II 8 s.h.
 009:010 First-Year French Review 5 s.h.

All of these:
 009:011-009:012 Intermediate
 French I-II 8 s.h.

A course for which 009:012 is
 prerequisite (may include Iowa Regents
 Program credit)

German

One of these:
 013:011-013:012 Elementary German
 I-II (both courses) 8 s.h.
 013:014 First-Year German Review 5 s.h.

Both of these:
 013:021 Intermediate German I 4 s.h.
 013:022 Intermediate German II 4 s.h.

A course for which 013:022 is prerequisite

Hindi

039:123 First Year Hindi: First Semester 5 s.h.
 039:124 First Year Hindi: Second
 Semester 5 s.h.
 039:126 Second Year Hindi: First
 Semester 4 s.h.
 039:127 Second Year Hindi: Second
 Semester 4 s.h.

Italian

One of these:
 018:001-018:002 Elementary Italian I-II
 (both courses) 8 s.h.
 018:103 Intensive Elementary Italian 6 s.h.

All of these:
 018:011-018:012 Intermediate Italian I-II 8 s.h.

A course for which 018:012 is
 prerequisite

Japanese

One of these sequences:
 39J:011-39J:012 Elementary Japanese:
 Review and First-Year Japanese: Second
 Semester 8 s.h.

39J:010 & 39J:012 First-Year Japanese:
 First and Second Semesters 10 s.h.

Both of these:
 39J:101-39J:102 Second-Year Japanese:
 First and Second Semesters 10 s.h.

Portuguese

One of these:
 038:100-038:101 Accelerated
 Elementary Portuguese and
 Accelerated Intermediate Portuguese
 (both courses) 0-10 s.h.
 038:102 Portuguese for Spanish Speakers 3 s.h.

A course for which 038:101 or 038:102 is
 prerequisite

Russian

All of these:
 041:001-041:002 First-Year Russian I-II 8 s.h.
 041:003-041:004 Second-Year
 Russian I-II 8 s.h.

A course for which 041:004 is
 prerequisite

Spanish

One of these:
 035:001-035:002 Elementary Spanish I-II
 (both courses) 8 s.h.
 035:005 Elementary Spanish Review 5 s.h.

One of these:
 035:011-035:012 Intermediate Spanish
 I-II (both courses) 8 s.h.
 035:013 Accelerated Intermediate
 Spanish 6 s.h.

A course for which 035:012 is prerequisite

Swahili

All of these:
 103:125-103:126 Elementary Swahili I-II 8 s.h.
 103:127-103:128 Intermediate
 Swahili I-II 8 s.h.

AREA STUDIES

These courses help students learn about the
 culture, contemporary history, art, literature, and
 politics of the geographic region in which their
 second language is spoken. They cover topics
 critical to understanding sociocultural influences
 on individuals with whom students share the
 world, and with whom they may conduct
 business.

Students complete 6 s.h. from one geographic
 area. The area should be appropriate to the
 language the student chooses for the language
 requirement.

Asia

Appropriate for these languages: Chinese, Hindi, or Japanese

01H:016/039:016 Asian Art and Culture 3 s.h.
 016:005/039:055 Civilizations of Asia: China 3 s.h.
 016:006/039:056 Civilizations of Asia: Japan 3 s.h.
 16W:172/39J:172 Japan—Age of the Samurai 3 s.h.
 16W:173/39J:173 Modern Japan 3 s.h.
 16W:182/039:132 Vietnam War in Historical Perspective 3 s.h.
 16W:194/039:134 Imperialism and Modern India 3 s.h.
 16W:196/039:154 Modern China 1600s to 1920s 3 s.h.
 16W:198/039:196 China Since 1927 3 s.h.
 026:144/032:174 Indian Philosophy 3 s.h.
 026:145/032:175 Buddhist Philosophy 3 s.h.
 030:042 Introduction to the Politics of Developing Areas 3 s.h.
 030:143/039:178 Government and Politics of the Far East 3 s.h.
 030:148 Government and Politics of China 3 s.h.
 030:163 Chinese Foreign Policy 3 s.h.
 032:004/039:064 Living Religions of the East 3 s.h.
 032:006/039:006 Introduction to Buddhism 3 s.h.
 032:008/039:018 Asian Humanities: India 3 s.h.
 032:009/039:019 Asian Humanities: China 3 s.h.
 032:177/039:136 Indian Literature 3 s.h.
 034:154 Society and Politics in East Asia 3 s.h.
 039:015 Introduction to Chinese Culture 3 s.h.
 039:020/032:007 Asian Humanities: Japan 3 s.h.
 039:057/016:007 Civilizations of Asia: South Asia 3 s.h.
 039:122/113:129 Language/Politics of Culture in South Asia 3 s.h.
 039:145/008:127/048:106 Topics in Asian Cinema 3 s.h.
 039:158/048:158 East-West Literary Relations 3 s.h.
 039:180 Modern Chinese Writers 3 s.h.
 039:192/048:192 East Meets West: A Cross-Cultural Course 3 s.h.
 039:197/131:197 Gender in Chinese Literature and Culture 3 s.h.
 039:199 Asian Studies arr.
 39J:103 Language in Japanese Society 3 s.h.
 39J:125/113:125 Japanese Society and Culture 3 s.h.

39J:126/113:126 Japanese Ethos: Narrative and Performance 3 s.h.
 39J:141/048:143 Traditional Japanese Literature in Translation 3 s.h.
 39J:142/048:142 Modern Japanese Fiction in Translation 3 s.h.
 39J:144 Major Authors in Modern Japanese Literature 3 s.h.
 39J:155 Contemporary Japanese Culture 3 s.h.
 113:107/131:107 Gendering India 3 s.h.

Europe

Appropriate for these languages: French, German, Italian, Portuguese, or Spanish

01H:157/009:130/033:130 Paris and the Art of Urban Life 3 s.h.
 008:124/048:127 Topics in British and Irish Film 3 s.h.
 009:030 Cultural Misunderstandings: France and U.S.A. 3 s.h.
 009:110 Introduction to French Literature: Twentieth Century 3 s.h.
 009:114 French Civilization 3 s.h.
 009:116 Cinema, Society, and Culture in 20th-Century France 3 s.h.
 009:120 French-Speaking Cultures 3 s.h.
 009:147/048:105 French Cinema 3 s.h.
 009:168/048:168 Post-Colonial Literature in France 3 s.h.
 013:101 Introduction to German Literature 3 s.h.
 013:105 German Cultural History 3 s.h.
 013:108 The German Media 3 s.h.
 013:112 Twentieth-Century German Literature 3 s.h.
 013:115 Contemporary German Civilization 3 s.h.
 013:117 Current Issues 3 s.h.
 13E:119 German Film 3 s.h.
 13E:120 Germany in the World 3 s.h.
 16E:135 Twentieth-Century Europe: The Nazi Era 3 s.h.
 16E:136 Twentieth-Century Europe: The Cold War and After 3 s.h.
 16E:144 Modern France, 1870-Present 3 s.h.
 16E:146 France from 1815 to the Present 3 s.h.
 16E:148/131:182 Society and Gender in Europe 1750-Present 3 s.h.
 16E:152 Modern Britain 1867-Present 3 s.h.
 16E:156 Germany Since 1914: Weimar, Hitler, and After 3 s.h.
 16E:161 Politics and Culture in Twentieth-Century Europe 3 s.h.
 018:105 Modern Italian Fiction 3 s.h.
 018:106 Modern Italian Poetry and Drama 3 s.h.
 018:132 Images of Modern Italy 3 s.h.

030:040 Introduction to the Politics of Industrial Democracies	3 s.h.
030:140 Government and Politics of Europe	3 s.h.
030:142 European Integration	3 s.h.
030:147 Comparative Parties and Elections	3 s.h.
030:176 French Politics and Society	3 s.h.
035:150 Spanish Civilization	3 s.h.
035:152 Modern Spanish Literature	3 s.h.
035:161 Masterpieces of Modern Spanish Literature	3 s.h.
038:107 Introduction to Portuguese Literature	3 s.h.
038:114 Culture and Civilization of the Portuguese-Speaking World	3 s.h.
048:021 European Film History	3 s.h.
048:104 Topics in European Film	3 s.h.

Latin America

Appropriate for these languages: Portuguese or Spanish

16W:110 Topics in Latin American History	3 s.h.
16W:112 Introduction to Modern Latin America	3 s.h.
16W:114 Latin America and the U.S.: Historical Perspective	3 s.h.
16W:115 Latin American Revolution	3 s.h.
030:042 Introduction to the Politics of Developing Areas	3 s.h.
030:144 Latin American Government	3 s.h.
030:145 Latin American Political Parties	3 s.h.
035:020 Contemporary Spanish American Narrative	3 s.h.
035:070/038:070/130:070/187:070 Introduction to Latin American Studies	3 s.h.
035:111 Readings in Spanish American Literature and Culture	3 s.h.
035:121 Introduction to Hispanic Linguistics	3 s.h.
035:123 Foundations in Sociolinguistics	3 s.h.
035:130 Spanish American Civilization	3 s.h.
035:131 Contemporary Spanish American Fiction	3 s.h.
035:132 Spanish American Poetry	3 s.h.
035:134 Spanish American Short Story	3 s.h.
035:135 Latinos in the United States	3 s.h.
035:136 Culture and Language in the Andes	3 s.h.
035:144/131:162 Latin American Women Writers	3 s.h.
035:145/048:145 Latin American Cinema	3 s.h.
035:175 Cultural Identity in Caribbean Literature	3 s.h.
035:176/038:176/048:153/113:132/130:176 Latin American Studies Seminar	3 s.h.

035:179 Survey of Twentieth-Century Puerto Rican Literature	3 s.h.
038:020 Contemporary Brazilian Narrative	3 s.h.
038:106 Brazilian Literature II	3 s.h.
038:112 Topics in Luso-Brazilian Literature	3 s.h.
038:114 Culture and Civilization of the Portuguese Speaking World	3 s.h.
113:131 Latin American Economy and Society	3 s.h.

Middle East/Africa

Appropriate for these languages: Swahili, or proficiency in another contemporary Middle Eastern or African language

01H:021 Introduction to the Art of West Africa	3 s.h.
01H:022 Introduction to the Art of Central Africa	3 s.h.
01H:111 Art and Independence in West Africa	3 s.h.
008:119/129:119 African Literature	3 s.h.
008:159/048:159/187:159 African Literature Today	3 s.h.
08G:014/129:008 Literatures of the African Peoples	3 s.h.
009:120 French-Speaking Cultures	3 s.h.
009:146 Francophone Cinema	3 s.h.
009:130/129:135 Francophone Literature of the African Diaspora	3 s.h.
16W:119/129:138 African and African American Interactions	3 s.h.
16W:121/129:164 African History Since 1880	3 s.h.
030:042 Introduction to the Politics of Developing Areas	3 s.h.
030:146/044:161 African Development	3 s.h.
030:150 Comparative Administrative Politics	3 s.h.
032:030 Introduction to Islam	3 s.h.
032:155 Human Rights and Islam	3 s.h.
032:157 Modern Islamic Thought and Political Movement	3 s.h.
032:159 Comparative Islamic Law	3 s.h.
032:167 Islamic Ethics and Philosophy	3 s.h.
032:168 Religion and Politics in the Muslim World	3 s.h.
044:164 The Middle East	3 s.h.
113:104 Inside/Outside the Middle East	3 s.h.
113:113 Africans in the New World	3 s.h.

Russia/Eastern Europe

Appropriate for these languages: Russian, or proficiency in a modern Slavic language

16E:178 Soviet Union 1917-1945	3 s.h.
16E:179 Soviet Union 1945-1991	3 s.h.

030:041 Introduction to the Politics of Russia and Eurasia	3 s.h.
030:141 Russian/Post-Soviet Politics	3 s.h.
030:142 European Integration	3 s.h.
030:159 Government and Politics of Eastern Europe	3 s.h.
041:098 Introduction to Russian Culture	3 s.h.
041:099 Russia Today	3 s.h.
041:100 Russian Literature in Film	3 s.h.
041:102/048:107 Russian Literature in Translation 1860-1917	3 s.h.
041:103 Russian Literature Since 1917	3 s.h.
041:104/152:170 Health Care and Health Reforms in Russia	3 s.h.
041:155/008:155 Tolstoy and Dostoevsky	3-4 s.h.
041:160 Women in Russian Society	3 s.h.
041:164/048:164 Topics in Russian/East European/Eurasian Studies	3 s.h.
041:168/048:154 20th-Century Czech Authors	3 s.h.
041:187 Russian Language and Civilization	3 s.h.
041:188 Topics in Russian Language and Civilization II	3 s.h.
187:099 Introduction to Russia, the Soviet Union, and Successor States	3 s.h.

Risk Management and Insurance

Director: Larry Hershberger

Undergraduate nondegree program: Certificate in Risk Management and Insurance

Web site: <http://www.biz.uiowa.edu/finance>

The Department of Finance and the Emmett J. Vaughan Institute of Risk Management and Insurance offer the Certificate in Risk Management and Insurance. The certificate provides students with a foundation for careers in corporate risk management, risk management consulting, employee benefits management and insurance consulting, insurance brokerage, and underwriting. It also may be of interest to students seeking professional designations, such as Chartered Life Underwriters (CLU) and Chartered Property and Casualty Underwriter (CPCU).

B.B.A. students majoring in finance can concentrate in risk management and insurance, or they can supplement their corporate finance and investment courses with one or more courses in risk management and insurance.

B.B.A. students enrolled in other Tippie College of Business majors or in other University of Iowa colleges can take risk management and insurance courses to enhance their understanding of related financial services or learn about employment opportunities in the industry.

Students in the Department of Statistics Actuarial Science (College of Liberal Arts and Sciences) can take insurance courses to help prepare for their actuarial exams.

Certificate in Risk Management and Insurance

The Certificate in Risk Management and Insurance requires 24 s.h. The program is designed to promote understanding of the many aspects of risk management and insurance. It concentrates on value creation and asset protection, including pure insurance and risk management, as well as on corporate and financial risk management. It also addresses the financial and economic characteristics of potential exposures to loss that business organizations and individuals face, and the

techniques available for hedging the risks and minimizing the costs associated with these exposures.

The Certificate in Risk Management and Insurance requires the following course work (24 s.h.).

PREREQUISITE

06F:100 Introductory Financial Management (may be waived for students with sufficient insurance background) 3 s.h.

RISK MANAGEMENT AND INSURANCE CORE

06F:102 Principles of Risk Management and Insurance 3 s.h.

06F:104 Corporate and Financial Risk Management (offered fall) 3 s.h.

ELECTIVES

All students take two of these:

06F:103 Property and Liability Insurance (offered spring) 3 s.h.

06F:105 Life and Health Insurance (offered fall) 3 s.h.

06F:106 Employee Benefit Plans (offered spring) 3 s.h.

Finance majors take three of these:

06F:113 Fixed Income Securities 3 s.h.

06F:114 Commercial Banking 3 s.h.

06F:116 Futures and Options 3 s.h.

06F:126 Real Estate Process 3 s.h.

06J:156 Dynamics of Negotiations 3 s.h.

06J:162 Leadership and Personal Development 3 s.h.

06M:139 Sales Management 3 s.h.

056:054 Engineering Economy (engineering students) 3 s.h.

Non-finance majors take three of these:

06A:120 Financial Accounting Reporting 3 s.h.

06F:111 Investment Management 3 s.h.

06F:113 Fixed Income Securities 3 s.h.

06F:114 Commercial Banking 3 s.h.

06F:116 Futures and Options 3 s.h.

06F:117 Corporate Finance 3 s.h.

06F:126 Real Estate Process 3 s.h.

056:054 Engineering Economy (engineering students) 3 s.h.

Admission

Admission to the Certificate in Risk Management and Insurance program requires enrollment in a degree program; junior standing; a cumulative g.p.a. of at least 2.75; completion of 06F:100 Introductory Financial Management and 06F:102 Principles of Risk Management and Insurance with a grade of B-minus or higher; completion of 06F:110 Financial Information Technology and all prerequisites; and a grade of C or higher in all other risk management and insurance courses.

Affiliated Courses

The Department of Finance offers several courses that are affiliated with the Emmett Vaughan Risk Management and Insurance Institute and are included in the Certificate in Risk Management and Insurance curriculum. See Finance in the Catalog for course descriptions and prerequisites.

06F:102 Principles of Risk Management and Insurance	3 s.h.
06F:103 Property and Liability Insurance	3 s.h.
06F:104 Corporate and Financial Risk Management	3 s.h.
06F:105 Life and Health Insurance	3 s.h.
06F:106 Employee Benefit Plans	3 s.h.

College of Dentistry

Endodontics	530
Family Dentistry	533
Hospital Family Dentistry	534
Operative Dentistry	535
Oral and Maxillofacial Surgery	537
Oral Pathology, Radiology, and Medicine	540
Oral Science	543
Orthodontics	545
Pediatric Dentistry	547
Periodontics	549
Preventive and Community Dentistry .	551
Prosthodontics	553

Dean: David C. Johnsen

Executive associate dean: Jed S. Hand

Associate dean, research and graduate studies:
Christopher Squier

Associate dean, student affairs and curriculum:
Yvonne Chalkley

Assistant dean, patient care: Michael Kanellis

Assistant dean, finance and facilities: Scott Arneson

Degrees: B.S., D.D.S., M.S., Ph.D.

Web site: <http://www.dentistry.uiowa.edu>

The College of Dentistry is an integral part of The University of Iowa and its Health Sciences Campus. Its mission, which embraces the University's academic values as well as the ethical responsibilities implicit in educating future members of a profession, rests on a foundation representing every aspect of collegiate activity: education of students as general practitioners and specialists; research into all aspects of oral and dental disease and the delivery of health care; and service to the community, the state, and the profession.

Faculty members, D.D.S. students, and specialty residents provide oral health care to patients at clinics in the Dental Science Building, the Center for Disabilities and Development, and dentistry clinics at University of Iowa Hospitals and Clinics and Veterans Affairs Iowa City Health Care System. Faculty, staff, and students participate in interdisciplinary research and training activities involving the University's five health science colleges as well as other University colleges and departments.

Dentistry at The University of Iowa began in 1882 as a single department. In 1900 the University underwent general reorganization and the Dental Department became the College of Dentistry. Today the college is Iowa's only provider of dental education and ranks as a leader in dental education nationwide.

The college and its educational programs are accredited by the Commission on Dental Accreditation of the American Dental Association, an independent tripartite commission authorized and recognized by the Commission on Post-Secondary Education.

Programs offered by the college cover the full spectrum of dentistry and closely integrated fields. They include the Bachelor of Science in oral health science, a degree completion program for individuals holding an A.A.S. degree in dental hygiene; the Doctor of Dental Surgery program (D.D.S.), which prepares general dentists; advanced education programs in all dental specialties, each of which may lead to certification in a dental specialty; several

advanced education programs in other areas of dentistry, including the oral science program, which offers M.S. and Ph.D. degrees; post-D.D.S. residency programs in general and hospital-based dentistry; and a wide variety of continuing education programs for the dental and allied professions.

Professional Program (D.D.S.)

Doctor of Dental Surgery

The basic program leading to the Doctor of Dental Surgery (D.D.S.) consists of a minimum of three years of preprofessional study and four years of study in the College of Dentistry.

Course work during the first and second years of study integrates the biomedical sciences with preclinical and clinical disciplines. The biomedical sciences include gross anatomy, biochemistry, general histology, microbiology, pathology, pharmacology, and physiology. Students also study topics specific to dentistry, such as principles of occlusion, anesthesia and pain control, operative dentistry, periodontics, prosthodontics, cariology, and preventive dentistry. During the latter part of the first year, students are introduced to their first clinical patient-treatment situation.

The second-year program continues the study of biomedical sciences and preclinical courses, with additional patient treatment experiences in restorative and preventive dentistry. Students also are introduced to esthetic and implant dentistry.

Third-year dental students rotate through a series of clerkships that expose them to seven clinical disciplines.

Fourth-year dental students deliver comprehensive dental care in conditions that closely approximate those in private dental practice. They also are exposed to various community dentistry health programs throughout Iowa and other states that include hospitals, nursing homes, and the Special Care Clinic. They may choose to participate in the Colorado Migrant Worker Program, the Indian Health Service Program, or the Foreign Dental School Exchange Program. The community dentistry programs provide exposure to facets of dentistry usually not observable in an academic setting.

Biomedical Sciences in the Dental Curriculum

The following science courses are offered by departments in colleges other than dentistry and are a required part of the D.D.S. curriculum.

060:101 Human Gross Anatomy for Dental Students	6 s.h.
060:112 General Histology for Dental Students	4 s.h.
061:113 Dental Microbiology	3 s.h.
069:133 Introduction to Human Pathology	arr.
071:111 Pharmacology for Dental Students	5 s.h.
072:152 Human Physiology for Dental Students	4 s.h.
099:161 Biochemistry for Dental Students	4 s.h.

College of Dentistry nondepartmental courses are listed under "Nondepartmental Courses" at the end of this section. Courses offered by the college's departments are listed in each department's General Catalog section.

Combined Liberal Arts and Sciences/Dentistry Program

Students who are enrolled in a baccalaureate program at The University of Iowa may be allowed to use course work from their first year of dentistry to complete their elective semester-hour requirement toward the bachelor's degree.

The provision for acceptance by the College of Liberal Arts and Sciences of 30 s.h. of elective credit earned in any other college of the University allows College of Dentistry students to obtain a bachelor's degree from the College of Liberal Arts and Sciences after successfully completing the first year of dentistry. To take advantage of this plan, students must fulfill all specific requirements for the bachelor's degree, including the General Education Program requirements and the requirements for a major. Students also must satisfy the College of Liberal Arts and Sciences residence requirement before enrolling in the College of Dentistry. Contact the College of Liberal Arts and Sciences for more information.

Academic Procedures

Promotions, Graduation

Student promotions and graduation are determined by the collegiate academic and professional performance committee, which is made up of individuals appointed by the dean from the biomedical, preclinical, and clinical sciences and from other academic areas of the college. The performance committee may recommend to the dean that a student withdraw from the college or repeat specific courses when the student is deemed generally unprepared to be promoted or to enter the dental profession.

Committee for Appeals

When a student has been asked to withdraw from the college or wants special consideration of problems concerning promotion or graduation, he or she may appeal to the dean. All appeals are heard by an ad hoc committee appointed by the dean. The ad hoc committee investigates new information that has not been available previously or that has not been discussed as fully as the student feels it should have been. The committee determines whether this new information, or important new insights that may have been gained, could have influenced the collegiate academic and professional performance committee's decision. The recommendation of the appeals committee is submitted to the dean for final action.

Dentistry Licensure Examination

Iowa, Colorado, Illinois, Kansas, Minnesota, Missouri, Nebraska, North and South Dakota, Washington, Wisconsin, and Wyoming belong to the Central Regional Dental Testing Service, which serves as the testing agency for clinical examinations for licensure in these states. Examinations are administered at several testing sites located at schools of dentistry within the region. A separate license application is then filed with the individual state board of dentistry.

For licensure, all states also require the National Boards, conducted by the American Dental Association. Many states, including Iowa, also require a jurisprudence examination.

Student Organizations

All dental students are members of the American Student Dental Association through its local

chapter. The American Dental Education Association, the American Association of Dental Research, the American Association of Women Dentists, the American Academy of Pediatric Dentistry, the American Society for Geriatric Dentistry, the Student National Dental Association, and the Hispanic Dental Association also have local chapters.

Students who rank in the upper 12 percent of their senior class are eligible for election to Omicron Kappa Upsilon, a national scholastic honorary dental society.

The national dental professional fraternities Delta Sigma Delta and Psi Omega have chapters at Iowa. Both fraternities provide academic and social activities for students and their spouses.

Expenses

The College of Dentistry maintains the Supply-Instrument Management System (SIMS), which provides students with instruments and supplies necessary throughout their dental training. The SIMS usage fee for the D.D.S. is payable in installments over the four-year program.

A fee for expendable laboratory supplies is charged each of the first two years. A \$100 breakage fee also must be deposited; the deposit is refundable upon graduation or termination of enrollment.

Admission

Applicants must submit a completed AADSAS (Associated American Dental Schools Application Service) application form to the American Dental Education Association (ADEA). The AADSAS application must be completed online at the American Dental Education Association web site (<http://www.adea.org>).

Applications are accepted beginning June 1 of the year before the year of entry. Completed applications must be on file at ADEA by November 1. Applicants should apply as early as possible. Notifications of acceptance are sent beginning December 1.

Prospective dental students are encouraged to embark on an educational program that leads to a standard bachelor's degree. This ensures that students receive a well-rounded education.

Predental Studies

The basic academic requirement for admission to the College of Dentistry is completion of at least

90 s.h. of academic study at an accredited college. No more than 60 s.h. are accepted from a junior college or two-year institution. The preidental program of study should include the following.

English: satisfactory accomplishment in English composition, rhetoric, and speech commensurate with the academic requirements for a bachelor's degree at the college attended.

Physics: one year (equivalent to 8 s.h.), of which one-fourth must be laboratory work.

Chemistry: two years (equivalent to 16 s.h.), of which one year (equivalent to 8 s.h.) must be in organic chemistry; one-fourth of each year's study must be laboratory work.

Biochemistry: highly recommended.

Biological science: one year (equivalent to 8 s.h.), which must include appropriate laboratory work; the requirement may be satisfied by a one-year course in principles of biology, with instruction in cell biology, metabolism, organismic biology, animal biology, genetics, development, ecology, and evolution. Preference is given to applicants who have completed more than 8 s.h. Courses in human anatomy and cell physiology are strongly recommended.

Gross anatomy: highly recommended.

Electives: sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, business, and mathematics to provide a well-rounded educational background.

Grade-Point-Average Requirement

Applicants should have a cumulative g.p.a. of at least 2.50 on a 4.00 scale (a g.p.a. above 3.00 is preferred). The admissions committee gives special consideration to the quality of applicants' course work in the preidental sciences, in addition to the cumulative grade-point average.

Interviews

Personal interviews are required of applicants for admission to the College of Dentistry. Applicants are contacted to arrange an interview, usually after the AADSAS application is received by the admissions office.

Required Dental Admission Test

All applicants must complete the Dental Admission Test (DAT) sponsored by the Council on Dental Education of the American Dental

Association. A computerized DAT is available throughout the year at designated Prometric Centers.

Applicants are required to take the test by August 1, one year before entering dental school. Test application forms are available online (<http://www.ada.org>); from the University's Office of Admissions; the College of Dentistry Office for Student Affairs; and the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611.

Deposit by Accepted Applicants

Applicants accepted before February 1 are required to submit a \$500 deposit within 30 days after notification of admittance. Applicants admitted after February 1 must submit the deposit within two weeks after notification of admittance. This deposit is not refundable but is credited toward the first fee payment. Applicants who fail to make the deposit within the time specified forfeit their place in the entering class.

Additional Admission Considerations

Fulfillment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. From applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the study and practice of dentistry. The committee considers applicants' academic averages, science averages, DAT scores, letters of recommendation, the interview, and other factors.

Early Admission

The College of Dentistry's Deferred Admit Program (DAP) allows academically motivated students who are residents of Iowa and are interested in a dental career to be admitted to the College of Dentistry as early as the end of their first year of undergraduate study. Students postpone matriculation to the College of Dentistry until they have earned the amount of credit required for their undergraduate degree. As undergraduates, they are engaged in a liberal arts and sciences curriculum that incorporates the dental prerequisite courses. Once selected for the program, students must maintain a specified level of academic achievement to assure matriculation to the College of Dentistry.

Financial Support

Financial assistance for dental students is based on need. Dental students who demonstrate need are eligible for Health Professions Loans, Perkins Loans, and Stafford/Ford Loans. Students applying for loans must submit the Free Application for Federal Student Aid (FAFSA). Interest on many of these loans may be deferred while the student is in school, and the loans are repayable over an extended period of time after the course of study is completed.

Short-term and long-term loans are available through the financial aid coordinator at the College of Dentistry.

Research/teaching awards are given each year to qualified entering dental students. The Dental Research Awards and Resource Support Awards provide financial support up to \$15,000 per year for as many as four years, if the student maintains an appropriate level of performance. Awardees are engaged in collaborative research with faculty mentors.

Financial assistance (grants and loans) is available to disadvantaged students who qualify under The University of Iowa's Educational Opportunity Program and the Opportunity at Iowa Program.

Information on financial assistance for dental students is available from the University's Office of Student Financial Aid.

Undergraduate Program

Bachelor of Science in Oral Health Science

The College of Dentistry's Bachelor of Science in oral health science is a degree completion program for students who hold an Associate in Applied Science (A.A.S.) from an accredited dental hygiene program.

Graduates of dental hygiene programs are allowed up to 60 s.h. of credit for their A.A.S. degree. Each applicant is evaluated, taking into consideration educational background and experience.

The flexible format, designed to accommodate the needs of returning adult students, provides for considerable individualization of the program of study.

Admission

Applicants should have a cumulative g.p.a. of at least 2.50 on a 4.00 scale. They must apply for admission to the University and to the B.S. program in oral health science, and interview at the College of Dentistry. Official transcripts, including degrees conferred, from each college or university attended must be submitted along with the application to the University's Office of Admissions.

For more information about the B.S. in oral health science, contact the University's Office of Admissions.

Graduate Programs, Postgraduate Study

Programs of study leading to the Master of Science are offered by the Departments of Operative Dentistry; Oral and Maxillofacial Surgery; Oral Pathology, Radiology, and Medicine; Orthodontics; and Preventive and Community Dentistry. Admission to these graduate programs requires satisfaction of all requirements for admission to the Graduate College, the Doctor of Dental Surgery degree or its equivalent (or a bachelor's degree for dental hygienists applying to the Department of Preventive and Community Dentistry), and departmental approval. For graduate program descriptions, see the appropriate College of Dentistry department sections of the Catalog.

Several dentistry departments also offer postgraduate programs designed as preparation for clinical specialty practice (Endodontics; Operative Dentistry; Oral and Maxillofacial Surgery; Oral Pathology, Radiology, and Medicine; Orthodontics; Pediatric Dentistry; Periodontics; and Prosthodontics). These programs do not lead to an academic degree. A certificate is awarded upon satisfactory completion of the programs. See the appropriate sections of the Catalog.

Faculty

Iowa's dental faculty is predominantly full-time. In addition, 97 part-time adjunct faculty members assist with clinical teaching in the D.D.S. and advanced residency programs. Approximately 88 percent of the college's faculty members hold D.D.S. or D.M.D. degrees and 12 percent represent other disciplines. The vast majority of faculty dentists have advanced

education past the D.D.S., generally with master's degrees in specialty areas; about one-fifth hold a Ph.D.

The College of Dentistry is committed to the principle that diversity is essential to a strong educational environment—one that prepares new generations of dentists to provide high-quality care to patients from many backgrounds. The college's full-time faculty reflects that commitment.

Facilities

The College of Dentistry is located in the Dental Science Building on the University of Iowa Health Sciences Campus, in proximity to the Roy J. and Lucille A. Carver College of Medicine, College of Nursing, College of Pharmacy, College of Public Health, and University of Iowa Hospitals and Clinics. The Bowen Science Building and the Hardin Library for the Health Sciences also are nearby.

The south wing of the Dental Science Building is devoted to clinical teaching. There are 268 operatories in departmental clinics, student laboratories, clinical research space, and a cafeteria. The north wing houses the simulation clinic and technique bench teaching laboratory, the electronic classroom, college administrative offices, educational media service, computer support services, the academic Department of Preventive and Community Dentistry, and the research laboratories and faculty offices of the Dows Institute for Dental Research.

Dental Education and Patient Care

Patient care is integral to dental education. Students and faculty members deliver oral health care in clinics on the Health Sciences Campus and at several off-campus sites, including nursing homes. More than 25,000 people receive oral health care yearly in the college's clinics. Patients from throughout Iowa as well as from western Illinois and northern Missouri account for most of the 110,000 patient visits each year.

Interdisciplinary Centers

Dows Institute for Dental Research

Established in 1976, the Dows Institute for Dental Research occupies the fourth floor of the Dental Science Building's north wing. Laboratories are equipped to support a wide variety of research projects reflecting the complex nature of modern health care needs. Research in the area focuses on soft tissue and oral cancer; cariology and microbiology; epidemiology, behavior, health policy, and outcomes; and biomaterials, bone, and tissue engineering. Research also is carried out at the Office of Clinical Research and the Dental Clinical Research Center.

Although research is concentrated in these program areas, one of the unit's strengths has been the consistent level of interaction and collaboration among individuals and programs across the college and the University.

Dental Clinical Research Center

For nearly two decades, the Dental Clinical Research Center has offered the oral health care industry a multidisciplinary setting for product testing and development directed by experienced faculty scientists in laboratory or clinical settings. Center researchers have broad experience in designing tests of therapeutic claims and product safety that meet the criteria of the ADA's Council on Scientific Affairs and the Food and Drug Administration Clinical Trials.

Center for Oral and Maxillofacial Implants

Through integrated research, education, and clinical programs, the Center for Oral and Maxillofacial Implants facilitates the development of implants and their use as a therapeutic modality in dentistry. The center integrates basic and clinical research with technology transfer to the clinical setting, enhancing predoctoral, postgraduate, and continuing education and expanding treatment options available to patients served by the college. The center also provides vital coordination of dental specialties that participate in this treatment modality.

Nondepartmental Courses

- 112:100 Transfer Credits Accepted** arr.
- 112:118 Experiential Learning I** arr.
 Problem-based learning, case studies, simulations, communication projects, small group seminars, ethics, research and treatment planning activities integrating information addressed concurrently in the dental curriculum.
- 112:119 Experiential Learning II** arr.
 Continuation of 112:118.
- 112:120 First-Year Continuing Session** arr.
- 112:145 Introduction to Geriatric Dentistry** 2 s.h.
 Biological, psychological, social aspects of aging; normal aging, disease processes, pathological changes that affect oral health treatment of dental diseases and patient management.
 Prerequisite: D.D.S. enrollment or completion of dental hygiene program. Same as 153:145.
- 112:150 Second-Year Continuing Session** arr.
- 112:155 Introduction to Comprehensive Care/
 Experiential Learning III** 1 s.h.
 Comprehensive dental diagnosis and treatment planning; small group discussion of students' own patient cases.
- 112:167 Introduction to Quality Assurance** 2 s.h.
 Patient management, quality assurance concepts; students coordinate treatment, patient relations, issues of quality assurance for a group of patients; ethical, moral dilemmas in relation to dental practice.
- 112:168 Dental Therapeutics** 1 s.h.
 Patients' medications and their implications for dental treatment; clinical use of medications that dentists may prescribe; guidelines for dental prescribing.
- 112:170 Third-Year Continuing Session** arr.
- 112:180 Fourth-Year Lectures and Clinics** arr.
- 112:185 Clinical Admissions Emergency** 1 s.h.
 Clinical evaluation, diagnosis, and treatment of patients with dental emergencies; patient assessment and referral to appropriate department for treatment.
- 112:189 Advanced Topics in Quality Assurance** 2 s.h.
 Quality assurance from viewpoint of practicing dentist, dental educator, dental epidemiologist, court system; analysis of senior dental practice in relation to quality assurance criteria.
- 112:190 Dental Student Research Honors Program** arr.
 Prerequisites: D.D.S. enrollment and consent of mentor and program director.
- 112:199 Advanced Clinical Comprehensive
 Dentistry** 0 s.h.
 Clinical experience for professional improvement. Prerequisite: dental degree.

Endodontics

Head: William T. Johnson

Professors: David R. Drake, William T. Johnson, Richard E. Walton

Professor emeritus: Arne M. Bjorndal

Associate professor: Bruce C. Justman

Assistant professor: Anne E. Williamson

Clinical assistant professor: Manuel R. Gomez

Graduate degrees: M.S., Ph.D. in Oral Science
Graduate nondegree program: Certificate in Endodontics

Web site: <http://www.dentistry.uiowa.edu>

Professional Program

Course work and clinical experiences in endodontics are of vital importance in the overall education of a D.D.S. student.

Preclinical endodontics, taught during the sophomore year, includes a didactic and a laboratory component. In clinical endodontics, taught during the junior year, students study both normal and pathological conditions of the dental pulp and periapex. Diagnosis of pulpal and periradicular disease and various specialized aspects of endodontic treatment are emphasized. Students treat endodontic patients under direct supervision of faculty and staff.

Graduate Programs

The advanced programs offered by the Department of Endodontics are designed to provide qualified dentists with the scientific knowledge and clinical skills needed to practice endodontics and/or pursue a career in dental education and research.

The department offers several types of postdoctoral programs, which have similar clinical experiences but different didactic experiences. Each advanced program satisfies training requirements for eligibility for certification by the American Board of Endodontics. Students who complete the programs are encouraged to seek board certification. Various activities throughout the courses of study prepare the candidates for the board examination process.

The goal of each advanced program is to develop competent diagnosticians and clinicians. Students learn the scientific and clinical basis of

endodontics; develop clinical skills; gain knowledge of and experience in the educational process in order to function confidently as dental educators; and develop skills in designing, conducting, reporting, and publishing the results of original research. Students in the M.S. and Ph.D. programs also gain in-depth knowledge in a scientific training discipline as preparation for an academic/research career.

Master of Science

The Master of Science requires a minimum of 30 s.h. of graduate-level work, taken over 36 months. An original research project and thesis are required. Students follow a plan of study outlined by the Department of Endodontics in compliance with basic Graduate College regulations for graduate programs in dentistry. Under most circumstances, the degree granted is a Master of Science in oral science, although master's degrees are available in other disciplines. Following successful completion of the program requirements, students are granted a Master of Science degree and a Certificate in Endodontics.

Certificate

The Certificate in Endodontics requires a minimum of 24 months of full-time formal training. The program has the same clinical but fewer didactic course requirements than the combined M.S./certificate program, and it requires no formal thesis. Students are expected to complete an original research project in the area of endodontics and to write a scientific paper for submission to a refereed journal.

Other Graduate Programs

Other graduate programs are available, such as a certificate in combination with a Ph.D. Upon completing original research and successfully defending a dissertation, students are granted a Ph.D. in a basic science area. Such programs are available by special arrangement, depending on the candidate's experience and goals.

Graduate Program Policies

Grade-Point Average

Students in each advanced program must maintain a g.p.a. of at least 3.00 to receive the certificate and/or degree. Students who fall below this average are allowed one semester to raise their g.p.a. to at least 3.00. The circumstances of the grade-point average deficiency receive careful consideration.

Dental Practice Privileges

Students accepted and enrolled in any advanced program are not permitted to involve themselves in private dental practice enterprises outside the college. Failure to adhere to this policy may result in dismissal from the program.

Program Interruption

Whenever possible, students should complete the advanced program without interruption. Students who demonstrate need to discontinue the program temporarily should limit their time away to a maximum of one calendar year. Students must have permission from the endodontic graduate program director in order to interrupt their study.

Admission

Application for the M.S. and certificate programs are accepted from both U.S. and international graduates (or from those about to graduate).

Applicants to either the M.S. or certificate programs must be graduates of (or graduating from) an accredited college of dentistry or a foreign equivalent. M.S. and Ph.D. applicants must meet the admission requirements of the Graduate College. A cumulative g.p.a. of at least 2.50 or equivalent is necessary for consideration for admission to any of the advanced programs.

Application

Application forms for the M.S. and certificate programs are available online on the Office of Admissions web site (http://www.uiowa.edu/admissions/graduate_college.html).

Application forms for the Ph.D. program are available from and should be returned to the office of the associate dean for research and graduate studies in the College of Dentistry. Applications are forwarded to the Department of Endodontics.

Applications for all programs must include the completed application form, official transcripts from all undergraduate and graduate institutions attended, three letters of recommendation, National Board Examination Scores (at least Part I, and Part II if available), an updated curriculum vitae, a personal statement, and a recent photograph.

Applicants to the M.S. program are required to take the Graduate Record Examination, which may be completed during the first semester of enrollment. International applicants whose first language is not English must present a satisfactory score on the Test of English as a Foreign Language (TOEFL).

APPLICATION DEADLINE

All advanced programs begin on July 1. Applications should be submitted no later than September 1 of the year preceding the anticipated date of enrollment. Finalists for each program are asked for a personal interview in October or early November. Final decisions generally are made before the last week of November.

Financial Support

Applicants to the M.S. and certificate programs must be able to support themselves financially until they complete the program. Besides living expenses, prospective students should plan on expenses for tuition, books, specialized equipment (e.g., surgical operating microscope, notebook computer, and ultrasonic system), instrument usage, and thesis costs. Stipends are determined on a yearly basis and depend on availability of funding.

Courses

For D.D.S. Students

- | | |
|--|---------------|
| 083:140 Endodontics Preclinical Didactic | 1 s.h. |
| Basic principles, concepts, technical procedures for treatment of pulpal problems. | |
| 083:141 Endodontics Preclinical Laboratory | 1 s.h. |
| Basic technical procedures for treatment of pulpal problems. | |
| 083:160 Clinical Endodontic Practice | arr. |
| Clinical experience in diagnosis and treatment of routine pulpal and periradicular pathology; emergency diagnosis; treatment of patients. | |
| 083:165 Clinical Endodontic Seminar | 1 s.h. |
| Tooth pain, anesthesia, pulpal and periradicular reactions, endodontic radiologic interpretation, trauma diagnosis and treatment, surgical endodontics, endodontic implants, bleaching, retreatment, apexification/apexigenesis. | |

For Graduate Students

Also see courses listed under the Oral Sciences Program.

083:200 Update in Endodontics	1 s.h.
Recent advances in diagnosis, treatment planning, clinical techniques.	
083:225 Endodontic Literature Review I	2 s.h.
Current and historical research.	
083:226 Endodontic Literature Review II	2 s.h.
Continuation of 083:225.	
083:227 Endodontic Literature Review III	2 s.h.
Continuation of 083:226.	
083:228 Endodontic Literature Review IV	2 s.h.
Continuation of 083:227.	
083:255 Practice Teaching in Endodontics	arr.
083:300 Endodontic Certificate Program	0 s.h.
Advanced endodontic clinical and didactic education; nondegree program toward eligibility for board certification in endodontics.	

Family Dentistry

Head: David C. Holmes

Professors: Ana Diaz-Arnold, John V. Doering, James M. Leary

Professors emeriti: Charles Sabiston Jr., Vincent D. Williams, Gene A. Zach

Associate professor: Larry J. Squire

Assistant professor: Cheryl Morarend, Michael Spector, Philip L. Tan, Richard Williamson

Web site: <http://www.dentistry.uiowa.edu>

Professional Program

The Department of Family Dentistry introduces senior D.D.S. students to a comprehensive approach to managing patients' oral health care needs. The senior year integrates basic science knowledge, clinical skills, and dental laboratory experiences acquired during the first three years of dental school into a systematic approach to providing care.

Students who complete their education in Family Dentistry:

- understand the principles of comprehensive dental treatment planning;
- know the medical, ethical, and legal issues involved in patient care;
- are able to recognize the need for specialty consultation;
- are competent in coordinating and sequencing patient treatments;
- are effective members of the dental team;
- are prepared to enter general practice;
- are educated and have had appropriate training for the licensure examination; and
- appreciate the importance and value of lifelong learning.

Students spend five days a week in a clinical setting, where they gain experience in total patient management and care. Their didactic course work builds on their previous education. All areas of clinical and didactic instruction, patient awareness, and sensitivity to patients' needs are stressed.

The department's practice management curriculum prepares students to evaluate practice locations and manage the business aspects of a dental practice.

Courses

114:184 Dental Practice Management 2 s.h.

Principles of dental practice management; delivery of comprehensive dental treatment in a simulated group-practice clinical setting, with chairside dental assistants.

114:187 Clinical Experiences—Comprehensive Care arr.

Clinical experiences in diagnosis, treatment planning, and delivery of integrated, comprehensive dental care.

114:188 Clinical Competencies—Comprehensive Care arr.

Refinement of clinical skills, judgment, and critical self-evaluation in the delivery of integrated, comprehensive dental care.

114:194 Topics in Family Dentistry 3 s.h.

Current techniques, findings; applications for general practitioner and graduate specialty programs.

114:195 Treatment Planning and Sequencing 2 s.h.

Documentation of diagnostic procedures used in developing a treatment plan and sequence for selected clinical patients; student presentations.

Hospital Family Dentistry

Head: Kirk L. Fridrich

Division directors: Kirk L. Fridrich (Oral and Maxillofacial Surgery), Stephen J. Goepferd (Pediatric Dentistry), Jeffery Markt (Prosthodontics), Patricia K. Meredith (Family Dentistry), James Wheeler (Orthodontics)

Professors: Stephen A. Aquilino, Richard G. Burton, John C. Casco, John V. Doering, Kirk L. Fridrich, Stephen J. Goepferd, John Hellstein, David C. Johnson, Georgia K. Johnson, Daniel Lew, Glenn Maze, Axel Ruprecht, Robert L. Schneider, Clark M. Stanford, Steven D. Vincent, Richard Walton, Deborah L. Zeitler

Associate professors: Janet M. Guthmiller, William T. Johnson, Michael J. Kanellis, Patricia K. Meredith, William J. Synan, Kaaren Vargas

Assistant professors: Richard M. Burke, Mark A. Dittmer, Ali Fakhry, Lance P. Forbes, Terry J. Lindquist, Jeffrey C. Markt, Teresa A. Morgan, James J. Wheeler

Web site: <http://www.uihealthcare.com/depts/hospitaldentistry/index.html>

The College of Dentistry operates a hospital dentistry clinical service at University of Iowa Hospitals and Clinics. The service includes divisions of general dentistry, maxillofacial prosthodontics, oral and maxillofacial surgery, orthodontics, and pediatric dentistry, and it interacts with the college's specialties of orthodontics, periodontics, endodontics, diagnosis, oral pathology, and prosthodontics. A one-year general practice residency is offered by the Hospital Family Dentistry Program.

Residency Program

The residency program in general practice prepares dentists for a broader scope of private practice in general dentistry. The program combines clinical and didactic training on an individual basis and meets fundamental requirements of the Commission on Dental Accreditation of the American Dental Association.

The residency covers one year of hospital-based training. Through postdoctoral clinical, didactic, and hospital experience, residents prepare to meet the oral health needs of a wide range of ambulatory and nonambulatory patients.

Residency training includes use of hospital resources, management of ambulatory patients, inpatients, same-day surgery patients, and emergency medical and dental patients.

Residents participate in consultations with other hospital services and are assigned to appropriate hospital services to fulfill the objectives of the training program. They are appointed to the house staff of the hospital and have the same privileges and responsibilities as residents in other professional education programs.

Applicants must be graduates of an accredited college of dentistry and must be licensed to practice dentistry in the United States. Selection is made through a postdoctoral dental matching program sponsored by the American Dental Education Association.

The application deadline is November 1 for admission the following July 1. Applicants are appointed after the results of the match have been received and the staff takes official action.

Operative Dentistry

Head: Gerald Denehy

Professors: Gerald Denehy, Satish Khera

Professors emeriti: James Fuller, Wallace Johnson, Devore Killip

Adjunct professor: Robert Margeas

Associate professors: Steve Armstrong, Murray Bouschlicher, Yvonne Chalkley, Deborah Cobb, Thomas Schulein, Marcos Vargas

Assistant professors: Sandra Guzmán-Armstrong, Marcela Hernández

Adjunct assistant professors: Stephanie Barquist, Stephen Bender, Terry Donnelly, Richard Grunder, Mark Kampfe, Stephanie Nowysz-Ward, Jon Ryder, Jeremy Tu

Adjunct instructors: Ed Fung, Lynn Griebahn, Chadwin Wagener

Graduate degree: M.S. in Operative Dentistry

Graduate nondegree program: Certificate in Operative Dentistry

Web site: <http://www.dentistry.uiowa.edu/public/clinics/operative/operative.html>

Professional Program

Course work and clinical experiences in operative dentistry are fundamental to dental students' overall education. The operative dentistry curriculum is designed so that didactic material relates closely to laboratory and clinical experiences. The program prepares D.D.S. students to proceed independently in operative dentistry during the fourth year of training.

Graduate Program

The Department of Operative Dentistry offers advanced training designed to prepare dentists for teaching, research, and practice. Since the American Dental Association does not recognize operative dentistry as a specialty area, graduate students have the opportunity to take courses that particularly interest them. Students earn a Master of Science and a Certificate in Operative Dentistry.

Requirements for the M.S. include satisfactory completion of 52 s.h. of graduate-level courses; preparation of an acceptable thesis based on original research; and formal defense of the thesis.

Students must provide their own financial support for the graduate program, including research and thesis expenses.

Applicants to the program must be graduates of recognized schools of dentistry and must meet the admission requirements of the Graduate College. The department may request an interview with an applicant.

Courses

For D.D.S. Students

082:120 Dental Anatomy 3 s.h.
Basic dental terminology and nomenclature, human tooth morphology, creation of tooth crowns with wax.

082:122 Operative Dentistry I 6 s.h.
Principles, design of cavity preparations; placement of restorative materials; clinical simulation on dental mannequins.

082:140 Operative Dentistry II 1 s.h.
Principles, design of cavity preparations, restoration of teeth, patient management, pain control.

082:141 Operative Dentistry II Clinic 0, 3 s.h.
Procedures performed on operative clinic patients; based on biological principles for preparation of cavities, restoration with appropriate materials.

082:142 Esthetic Dentistry 1 s.h.
Principles of esthetic dentistry; tooth bleaching, tooth recontouring, esthetic buildups with composite resin; exercises on mannequins in Simulation Clinic.

082:160 Operative Dentistry III Clinic arr.
Patient treatment; amalgam, composite resin, gold; emphasis on physiological, esthetic importance of restorative treatment.

082:165 Operative Dentistry III Seminar 1 s.h.
Clinical problems, restorative dental materials, treatment methods.

For Graduate Students

Discipline Studies

082:224 Graduate Restorative Materials 2 s.h.
Dental materials science: composition, properties of dental alloys, polymers, ceramics. Same as 084:224.

082:225 Operative Dentistry Seminar I 1 s.h.
Basic concepts of cavity preparation, material placement.

082:226 Operative Dentistry Seminar II 1 s.h.
Direct resin systems, bonding technology; their use in dental esthetic treatment.

082:227 Operative Dentistry Seminar III 1 s.h.
Use of indirect techniques in bonded esthetic restorations.

082:228 Operative Dentistry Seminar IV 1 s.h.
Principles for health professions educators.

Research Program

082:230 Operative Dentistry Research I	3 s.h.
Thesis topic selection, committee selection, literature review.	
082:231 Operative Dentistry Research II	2 s.h.
Thesis protocol, research.	
082:232 Operative Dentistry Research III	3 s.h.
Thesis research, data gathering, writing.	
082:233 Operative Dentistry Research IV	3 s.h.
Thesis completion, defense.	
082:234 Selected Applications of Operative Dentistry	arr.
Advanced techniques.	

Clinical Studies

082:240 Operative Dentistry Advanced Clinic I	arr.
Materials, techniques; restoration procedures on a mannequin.	
082:241 Operative Dentistry Advanced Clinic II	arr.
Patient treatment in operative clinic; basic operative procedures.	
082:242 Operative Dentistry Advanced Clinic III	arr.
Patient treatment in operative clinic; direct-bonded esthetic restorative procedures.	
082:243 Operative Dentistry Advanced Clinic IV	arr.
Patient treatment in operative clinic; advanced esthetic restorative procedures.	
082:244 Operative Dentistry Advanced Clinic V	arr.
Patient treatment in operative clinic; advanced esthetic restorative procedures.	
082:245 Clinical Demonstrating	arr.
Teaching undergraduate dental students in laboratory, clinic.	
082:300 Operative Dentistry Certificate Program	0 s.h.
Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in operative dentistry.	

Oral and Maxillofacial Surgery

Head: Kirk L. Fridrich

Assistant head: Richard G. Burton

Director, graduate studies: Teresa A. Morgan

Professors: Richard G. Burton, Kirk L. Fridrich, Daniel Lew

Professors emeriti: Merle Hale, John Montgomery

Associate professor: William J. Synan

Associate professor emeritus: Sherwood Wolfson

Assistant professors: Teresa A. Morgan, Bruce E. Partnoy

Graduate degree: M.S. in Oral and Maxillofacial Surgery

Web site: <http://www.uihealthcare/depts/hospitaldentistry/index.html>

The Department of Oral and Maxillofacial Surgery combines clinical and didactic training to fit the individual interests, abilities, and development of students. Its predoctoral program is based in the College of Dentistry, with some clinical assignments in the oral and maxillofacial surgery division at University of Iowa Hospitals and Clinics. Graduate study is based primarily in the residency training program at University of Iowa Hospitals and Clinics.

Professional Program

The professional curriculum is designed to develop a foundation of professional knowledge, coupled with surgical skills, that will enable D.D.S. students to diagnose and manage surgical problems related to general dentistry practice. The program emphasizes high ethical standards and development of good surgical concepts and judgment.

The clinical portion of the curriculum allows students to develop surgical skills and apply the theoretical knowledge acquired in the didactic courses. The theory and application of anesthesia-analgesia, intravenous sedation, and nitrous oxide analgesia techniques are presented through didactic and clinical experiences.

Graduate Programs

Residency Program

The residency program in oral and maxillofacial surgery combines clinical and didactic training to

prepare dentists for specialty practice. Every effort is made to adapt the program to the individual interests, abilities, and development of students, but it is essential that all students meet certain fundamental requirements.

The recommendations of the Council on Dental Education of the American Dental Association, the Committee on Graduate Training of the American Society of Oral and Maxillofacial Surgeons, and the American Board of Oral and Maxillofacial Surgery have been considered carefully in planning the structure and scope of training.

The residency period covers four years of hospital training, providing an orientation to hospital procedures, integration of basic and clinical sciences, acquisition of surgery principles, and familiarization with varied aspects of health services.

Competence in clinical oral and maxillofacial surgery requires knowledge of the basic medical sciences related to the specialty. So in addition to hospital and clinical training, residents take advanced course work in subjects such as applied pharmacology, surgical anatomy, pathology, physiology, and microbiology. They also review closely related disciplines such as roentgenology, anesthesiology, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the opportunity for clinical and operating room experience are important aspects of residency training.

Residents gain clinical training in anesthesiology through an assigned rotation in the Department of Anesthesiology. Previous advanced training in physical diagnosis, physiology, pharmacology, and pathology take on greater clinical significance, and increased responsibility in the operating room as first assistant and surgeon further develops surgical judgment and skills.

Development and implementation of a research project under staff supervision enhance the value of the residency training.

Senior residents may be given responsibility for major oral and maxillofacial surgical cases during rotations at University of Iowa Hospitals and Clinics and at the Veterans Affairs Iowa City Health Care System. Each fourth-year resident is

assigned to a rotation as a clinical and didactic coordinator and assumes responsibility to qualify for examination by the American Board of Oral and Maxillofacial Surgery.

Master of Science

The M.S. program is a four-year course of integrated didactic and clinical study, including a research project and preparation of a thesis. Students complete M.S. requirements during residency.

Admission

Students begin the four-year program only on July 1. Applicants are selected through a postdoctoral dental matching program sponsored by the American Association of Oral and Maxillofacial Surgeons. The application deadline for the match in oral and maxillofacial surgery is September 1 for admission the following July. Appointments are made after the match results are revealed and the staff elects to take official action. Appointments are offered on or before February 1 for the following July.

Applicants must have graduated from an accredited college of dentistry, should be in the upper one-third of their graduating class, must be licensed to practice dentistry in the United States, and must take the Graduate Record Examination (GRE) General Test. Applicants must meet the admission requirements of the Graduate College.

They must submit an application for graduate study in oral and maxillofacial surgery; an applicant appraisal form from the applicant's references; transcripts; and letters of recommendation from the dean of the dental college from which the applicant graduated, and from two professional references.

Once applicants have been matched, they must submit Graduate College admission forms by March 1 for admission in July. To obtain forms, contact the Office of Admissions or visit its web site.

Facilities

The University of Iowa Health Sciences Campus has outstanding basic and clinical science departments that stimulate and support scholarly research and superior clinical practice. The University of Iowa Hospitals and Clinics, the College of Dentistry, and the Roy J. and Lucille A. Carver College of Medicine provide appropriate environments for residency training in oral and

maxillofacial surgery, as does the Veterans Affairs Iowa City Health Care System.

Courses

For D.D.S. Students

- 087:115 Anesthesia and Pain Control I** 1 s.h.
Principles, techniques of complete medical history, head and neck examination, cardiovascular and respiratory examination; neuroanatomical, psychophysiological aspects of pain; pharmacologic action and techniques for using local anesthetics.
- 087:130 Basic Oral and Maxillofacial Surgery** 2 s.h.
Principles; indications, contraindications for extractions; evaluation of patient's related medical history; techniques of extraction, minor oral surgery procedures.
- 087:145 Anesthesia and Pain Control II** 1 s.h.
Theory, application, instrumentation of nitrous oxide sedation; emphasis on cardiovascular, respiratory physiology; evaluation of patients, practical techniques for nitrous oxide sedation.
- 087:155 Advanced Oral and Maxillofacial Surgery** 1 s.h.
History, examination, diagnosis, treatment of diseases and traumatic injuries of oral cavity.
- 087:160 Clinical Oral and Maxillofacial Surgery** arr.
Clinical experience at the College of Dentistry, University of Iowa Hospitals and Clinics, Veterans Affairs Iowa City Health Care System.

For Graduate Students

- 087:201 Hospital Procedures** 1 s.h.
Hospital rules, regulations; patient, department records; information concerning hospitalized patients.
- 087:202 Basic Science Review** 4 s.h.
Head, neck anatomy; dissection; bacteriology, pathology.
- 087:207 Surgical Anatomy** 1 s.h.
Head, neck structures in major oral surgery procedures; emphasis on maxillofacial problems, surgical emergencies; may include animal surgery.
- 087:208 Pain and Anxiety Control** 1-3 s.h.
Nitrous oxide; intravenous, oral, intramuscular anxiety and pain control; pharmacology of agents; complications, their management.
- 087:209 Principles of Anesthesia** 2 s.h.
General anesthesia; agents and their effects on respiratory, cardiovascular systems; literature.
- 087:211 Literature Seminars and Journal Club** 1 s.h.
- 087:212 Surgical Case Reports** 1 s.h.
- 087:214 Roentgen Interpretation** 2 s.h.
Theory, technique.
- 087:215 Physical Diagnosis** 2 s.h.
- 087:218 Oral Pathology Conference** 1 s.h.
Current clinical specimens.
- 087:225 Oral and Maxillofacial Surgery Seminar I** 1 s.h.
- 087:226 Oral and Maxillofacial Surgery Seminar II** 1 s.h.
- 087:227 Oral and Maxillofacial Surgery Seminar III** 1 s.h.

087:230 Oral and Maxillofacial Surgery Research I 2 s.h.

Thesis topic and review committee selection, literature review.

087:231 Oral and Maxillofacial Surgery Research II 3 s.h.

Thesis protocol, research.

087:232 Oral and Maxillofacial Surgery Research III 3 s.h.

Thesis research complete; data gathering.

087:233 Oral and Maxillofacial Surgery Thesis 3 s.h.

Thesis and defense; comprehensive examination.

087:240 Clinical Oral and Maxillofacial Surgery I arr.

Specialty and technical seminars, patient treatment; clinical practice on assigned patient problems.

087:241 Clinical Oral and Maxillofacial Surgery II arr.

Specialty and technical seminars, patient treatment; clinical practice on assigned patient problems.

Oral Pathology, Radiology, and Medicine

Head: Steven D. Vincent

Professors: Michael W. Finkelstein, Axel Ruprecht, Christopher A. Squier, Steven D. Vincent, Philip W. Wertz

Professors emeriti: Harold L. Hammond, William J. Hausler

Adjunct professors: Eva Dahl, Thomas P. Williams

Adjunct professor emeritus: Daniel L. Hall

Clinical professor: John W. Hellstein

Associate professor: Karen A. Baker

Associate professors (clinical): Ronald D. Elvers, Cindy L. Marek, Carrie McKnight, Patricia K. Meredith

Assistant professor: Zoya B. Kurago

Assistant professor emeritus: Francis H. Sippy

Assistant professors (clinical): Ruth D. Spieker, Sherry R. Timmons

Adjunct assistant professors: Marcello G.P. Cavalcanti, George C. Kienzie, John A. Maxwell, Dennis Rose, Daniel S. Sarasin

Graduate degree: M.S. in Stomatology

Graduate nondegree programs: Certificate in Oral and Maxillofacial Pathology, Certificate in Oral and Maxillofacial Radiology

Web site: <http://www.dentistry.uiowa.edu>

Professional Program

The department teaches D.D.S. and other health care students about diseases that manifest in and about the oral cavity. Students learn about the clinical, radiographic, laboratory, histopathologic, and therapeutic features of these diseases as well as their etiology and natural history. They also study identification of systemic diseases through physical evaluation of patients.

Graduate Programs

Master of Science

Stomatology is the science of structure, function, and disease of the oral cavity. Study methods include examination of related histories, evaluation of clinical signs and symptoms, and use of biochemical, microscopic, and radiologic procedures to establish a diagnosis and plan for therapeutic management.

The postdoctoral programs are diverse and flexible. Two educational tracks, emphasizing oral and maxillofacial pathology or oral and maxillofacial radiology, allow postdoctoral

students to obtain advanced clinical, didactic, and research-related education while pursuing a Master of Science in stomatology.

Students also may choose to apply for acceptance to the college's graduate degree programs in oral science (see Oral Science in the Catalog).

Oral and Maxillofacial Pathology Emphasis

MASTER OF SCIENCE

Dental school graduates seeking the M.S. in stomatology with oral and maxillofacial pathology emphasis pursue comprehensive study of basic biologic and health sciences in preparation for teaching and research. A minimum of 30 s.h. of satisfactory graduate credit is required. Candidates for the M.S. prepare and submit a thesis based on the results of research conducted during their course of study.

CERTIFICATE AND MASTER OF SCIENCE

The program leading to a Certificate in Oral and Maxillofacial Pathology and an M.S. in stomatology with oral pathology emphasis combines the minimum requirements of both programs. Completion time usually is 36 to 48 months. The educational requirements of the certificate program meet the requirements for the preparation of dental specialists set by the Commission on Dental Education of the American Dental Association and the American Board of Oral and Maxillofacial Pathology.

Oral and Maxillofacial Radiology Emphasis

MASTER OF SCIENCE

Dental school graduates seeking the M.S. in stomatology with oral and maxillofacial radiology emphasis pursue comprehensive study of basic biologic and health sciences in preparation for teaching and research. A minimum of 30 s.h. of satisfactory graduate credit is required. Candidates for the M.S. prepare and submit a thesis based on the results of research conducted during their course of study.

CERTIFICATE AND MASTER OF SCIENCE

The program leading to a Certificate in Oral and Maxillofacial Radiology and an M.S. in stomatology with oral and maxillofacial radiology emphasis combines the minimum requirements of both programs. Completion time usually is 36 to 48 months. The educational requirements of the certificate program meet the requirements for preparation of dental specialists set by the Commission on Dental Education of the American Dental Association and the American Board of Oral and Maxillofacial Radiology.

Program of Study

Students in all four programs must complete the core courses and the basic science and departmental courses appropriate to their track ("Additional Courses").

CORE COURSES

068:199 Basic Otolaryngologic Science	arr.
069:205 Medical Pathology I	5 s.h.
069:206 Medical Pathology II	5 s.h.
086:200 Stomatology Literature Review	arr.
086:226 Physical, Laboratory, and Historical Features of Disease	arr.
086:230 Research in Oral Pathology, Radiology, and Medicine	arr.
086:242 Clinical Oral and Maxillofacial Radiology	arr.
111:202 Research Protocol Seminar	2 s.h.
111:212 Statistical Methods for Dental Research	3 s.h.
151:210 Dental Sciences Research Methodology	2 s.h.

ADDITIONAL COURSES

Oral and Maxillofacial Pathology Track

086:225 Manifestations of Oral and Paraoral Disease	arr.
086:227 Surgical Oral Pathology	1 s.h.
086:240 Histopathology	1 s.h.
086:241 Hospital Oral Pathology, Radiology, and Medicine	arr.
151:220 Pathophysiology of Skin and Oral Mucosa	2 s.h.
151:230 Pathophysiology of Salivary Glands and Saliva	2 s.h.
151:275 Oral Microbiology and Immunology	2 s.h.
151:280 Advanced Dental Therapeutics	1 s.h.

Oral and Maxillofacial Radiology Track

077:103 Radiation Biology	4 s.h.
077:211 Medical Physics	4 s.h.
077:308 Research: Special Topics	arr.

086:243 Practical Oral and Maxillofacial Radiology	arr.
086:244 Technical Oral and Maxillofacial Radiology	arr.
086:245 Head and Neck Radiology	arr.

Admission

Applicants must have successfully completed an accredited program leading to the D.D.S. or D.M.D., or a foreign equivalent, and must meet the admission requirements of the Graduate College. They must have a cumulative g.p.a. of at least 3.00 (or foreign equivalent) to be considered for admission.

All applicants must take the Graduate Record Examination (GRE) General Test. International applicants whose first language is not English must present a satisfactory score on the Test of English as a Foreign Language (TOEFL).

The department's faculty makes final decisions on acceptance of applicants who meet the requirements for admission. A personal interview may be required.

Facilities

Facilities reserved for the Department of Oral Pathology, Radiology, and Medicine include a radiology special procedures area, an interpretation room, seminar rooms, a surgical oral pathology laboratory, and a clinical pathology laboratory.

In addition, the College of Dentistry has joint-use research laboratories that are well equipped and staffed for conducting research involving histology, histochemistry, materials technology, radiobiology, ultrastructure, and electron probe analysis and quantification.

Courses

For D.D.S. Students

086:120 Fundamentals of Oral Radiology	1 s.h.
Methods of clinical, radiographic examination, record keeping; correlation of basic, clinical sciences.	
086:135 Oral Pathology	4 s.h.
Diseases involving orofacial organs.	
086:145 Introduction to Clinical Oral Radiology	1 s.h.
Principles, techniques of diagnosis, radiology, clinical pathology in clinical practice.	
086:155 Systemic Disease Manifestations	1 s.h.
Clinical medicine for dental students; basic information for patient evaluation.	

086:160 Clinical Oral Diagnosis 1 s.h.
Diagnosis of orofacial diseases by clinical, laboratory, radiographic and treatment planning methods; clinical case analysis.

086:161 Clinical Oral Radiology arr.
Making and processing intraoral, extraoral radiographs; principles of radiographic interpretation.

086:165 Clinical Oral Pathology 1 s.h.
Oral and maxillofacial diseases: integration of the clinical, historical, radiographic features; therapeutic management.

086:246 Craniofacial Radiology arr.
Hospital-based rotation in diagnostic radiology; exposure to interpretive sessions on ultrasound, CT, MRI, nuclear medicine.

086:256 Advanced Oral Pathology arr.
Diseases involving orofacial organs; emphasis on bibliographic research, biodynamic analysis of pathologic processes, diagnostic interpretation; content adapted to student interests. Prerequisite: consent of instructor.

086:300 Oral Pathology Certificate Program 0 s.h.
Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in oral and maxillofacial pathology.

086:301 Oral Radiology Certificate Program 0 s.h.
Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in oral and maxillofacial radiology.

For Graduate Students

086:200 Stomatology Literature Review arr.
Current literature in oral and maxillofacial pathology and radiology; presentation of graduate student research; development of lectures or seminars for D.D.S. or graduate students, or continuing education for peers and practicing dentists.

086:225 Manifestations of Oral and Paraoral Disease arr.
Clinical experience in diagnosing, managing patients.

086:226 Physical, Laboratory, and Historical Features of Disease arr.
Head and neck diseases, abnormalities.

086:227 Surgical Oral Pathology 1 s.h.
Experience in day-to-day operations of surgical oral pathology laboratory; advanced training in histopathologic diagnosis of oral and maxillofacial diseases. Repeatable. Prerequisite: consent of instructor. Pre- or corequisite: 086:240.

086:228 Introduction to Surgical Oral Pathology 1 s.h.
Day-to-day operations of surgical oral pathology laboratory; histopathologic diagnosis of oral and maxillofacial diseases. Repeatable. Prerequisite: consent of instructor.

086:230 Research in Oral Pathology, Radiology, and Medicine arr.
Includes thesis preparation.

086:238 Introduction to Histopathology 1 s.h.
Case studies; histopathologic diagnosis of diseases that affect oral and maxillofacial region. Repeatable. Prerequisite: consent of instructor.

086:240 Histopathology 1 s.h.
Case studies; advanced training in histopathologic diagnosis of diseases that affect oral and maxillofacial region. Repeatable. Prerequisite: consent of instructor. Pre- or corequisite: 089:202.

086:241 Hospital Oral Pathology, Radiology, and Medicine arr.
Management of patient consultations, diagnosis, therapy at a hospital-based dental service.

086:242 Clinical Oral and Maxillofacial Radiology arr.
Radiologic manifestations of diseases; emphasis on craniofacial complex.

086:243 Practical Oral and Maxillofacial Radiology arr.
Clinic participation; supervision of dental and dental hygiene students, review of their cases; participation in clinical radiology conferences, laboratory exercises.

086:244 Technical Oral and Maxillofacial Radiology arr.
Experience with technical maintenance of darkroom, clinical equipment; troubleshooting under supervision of radiology staff.

086:245 Head and Neck Radiology arr.
Hospital-based rotation in diagnostic radiology with participation in interpretation sessions; CT, MRI, nuclear medicine, ultrasound.

Oral Science

Director: Christopher Squier
Graduate degrees: M.S., Ph.D. in Oral Science
Web site: <http://www.dentistry.uiowa.edu>

Graduate Programs

The College of Dentistry offers programs of study leading to the Master of Science and the Doctor of Philosophy in oral science. Both programs require that students complete courses from a core curriculum and conduct independent research leading to a thesis. They are intended to prepare graduates for careers in teaching and research.

Master of Science

The M.S. in oral science requires 30 s.h. of graduate work, including a minimum of 21 s.h. of course work, independent research leading to a dissertation, and a final examination. M.S. students must spend at least two years of full-time residence (primarily in research labs or seeing clinic patients at the Dental Science Building). Students also involved in an advanced clinical program of two years' duration should complete the M.S. and certificate programs by the end of a third or fourth year of study.

Students pursuing the M.S. also must be enrolled in a clinical training program offered by a College of Dentistry department.

Doctor of Philosophy

The Ph.D. in oral science is awarded upon completion of advanced course work and original research that culminates in successful defense of a dissertation. Students must earn a minimum of 72 s.h. of graduate credit, pass a comprehensive examination, prepare and gain approval of a research prospectus, and complete and successfully defend a dissertation that describes the results of the research. Completion of the program usually requires at least four years of full-time study.

Admission

Applicants to the M.S. and Ph.D. programs must hold a dental degree and must meet the admission requirements of the Graduate College. They should have a cumulative g.p.a. of at least 3.00; they must take the Graduate Record Examination (GRE) General Test with a combined score of at least 1600 for all three components (verbal, quantitative, and analytical) and a score of at least 500 for any individual component. These requirements are not absolute, but they carry considerable weight in the admission process. Applicants whose first language is not English must score at least 550 (paper-based) or 213 (computer-based) on the Test of English as a Foreign Language (TOEFL); they also may be asked to take the Test of Spoken English.

Programs normally begin July 1 each year.

Applicants to the Ph.D. program are asked to submit a statement describing past research experience and current research interests, and stating how completion of the Ph.D. program fits their career goals.

A personal interview may be requested for either program.

Courses

- 151:200 Seminars in Dental Research** 1 s.h.
- 151:210 Dental Sciences Research Methodology** 2 s.h.
Practical, experimental procedures in dental research; literature and design; writing of research protocols.
- 151:215 Research Design in Dentistry** 2 s.h.
Types of studies used in dentistry; design validity; sampling methodologies; major descriptive and experimental designs used in dental research; application of statistical tests to these designs.
- 151:220 Pathophysiology of Skin and Oral Mucosa** 2 s.h.
Biology of skin, oral mucosa; changes in behavior of the tissues in a variety of physiological, pathological conditions. Offered fall semesters of odd years. Prerequisite: 151:210.
- 151:230 Pathophysiology of Salivary Glands and Saliva** 2 s.h.
Innervation, structure, function of glands; their secretions in health and disease, their role in oral environment. Offered spring semesters of odd years. Prerequisite: 151:210.
- 151:240 Pathophysiology of the Pulp-Dentin Complex** arr.
Biology of tissue; emphasis on pathological changes. Offered spring semesters of even years. Prerequisite: 151:210.

151:250 Current Concepts of Cariology 2 s.h.

Etiology of dental caries; pathogenesis, development of preventive measures. Offered spring semesters of odd years. Prerequisite: 151:210.

151:260 Bone and Tooth Support Structure and Implants 2 s.h.

Biology of bone and periodontal structures; biologic basis for therapeutic use of dental implants.

151:275 Oral Microbiology and Immunology 2 s.h.

Principles of microbiology and immunology, aspects of microbial community development in the oral cavity, basic concepts of host/parasite interactions related to development of oral diseases; biological, immunological, and clinical manifestations induced by major oral pathogens. Prerequisites: microbiology, biochemistry, and biology. Recommended: immunology.

151:280 Advanced Dental Therapeutics 1 s.h.

Antimicrobial, analgesic, related therapies; emphasis on drug/drug interactions, dental implications of chronic cardiovascular and central nervous system medications. Offered fall semesters.

151:600 Research in Oral Science arr.

Thesis research. Prerequisite: oral science M.S. or Ph.D. candidacy.

Orthodontics

Head: Thomas E. Southard

Professors: Samir E. Bishara, John S. Casco, Karin A. Southard, Thomas E. Southard, Robert N. Staley

Professors emeriti: Richard M. Jacobs, William Olin

Associate professor: Andrew C. Lidral

Graduate degree: M.S. in Orthodontics

Graduate nondegree program: Certificate in Orthodontics

Web site: <http://www.dentistry.uiowa.edu>

Professional Program

The professional program in orthodontics prepares general practitioners of dentistry to competently recognize, diagnose, and treat limited malocclusions of the teeth.

Lecture courses guide D.D.S. students in learning basic concepts of dental and facial growth, as well as treatment-oriented subject matter. In a laboratory course, students take and evaluate diagnostic records and fabricate treatment appliances. The department supervises a volunteer program for clinical treatment of selected patients.

Graduate Program

The goal of the graduate program in orthodontics is to educate competent individuals to practice orthodontics and dentofacial orthopedics. The program's objectives are to provide students with an in-depth education in biological and biomechanical principles related to orthodontics; to teach students to diagnose, plan, and deliver comprehensive orthodontic health care service; and to develop students' research and service skills.

Satisfactory completion of 24 months of intensive study, including lecture courses, seminars, clinical practicum, and a research paper, qualifies students to receive a Certificate in Orthodontics. Students who satisfactorily complete a thesis based on an original research project qualify for an M.S. in addition to the certificate.

Opportunities are available for research and independent study in the department, and there are special facilities for research in biomechanics and craniofacial growth. Interaction with other departments provides learning and research

opportunities in surgical orthodontics, cleft lip and palate treatment, speech pathology, animal experimentation, and human growth.

Admission

Applicants must have a D.D.S. or equivalent and must meet the admission requirements of the Graduate College. Application deadline is September 1 for entry the following July 1. Applicants are required to come to the University for interviews with department faculty.

Courses

For D.D.S. Students

089:115 Growth and Development 1 s.h.
Normal human growth and development; emphasis on craniofacial region.

089:135 Orthodontic Laboratory 1 s.h.
Limited care case diagnosis and treatment.

089:136 Orthodontic Treatment 1 s.h.
From patient management to use of appliances for correcting some malocclusions in the general practitioner's office.

089:170 Orthodontic Clinic arr.
Experience in diagnosis, treatment planning implementation; work with patients who have malocclusions appropriate for treatment by undergraduate students; record taking; diagnosis and treatment; may include appointments during summer months.

For Graduate Students

089:200 Control Theory and Craniofacial Morphogenetic Systems 1 s.h.

089:201 Orthodontic Theory: Diagnosis and Treatment Plan 2 s.h.
Diagnosis, treatment planning implementation.

089:202 Diagnosis and Treatment Planning 2 s.h.
Literature concerning orthodontic diagnosis; treatment of particular problems; case histories of patients treated in graduate clinic.

089:203 Advanced Orthodontic Technique arr.
Skills for treatment of disfiguring malocclusions; use of edgewise biomechanical therapy; laboratory focus on typondont exercises.

089:204 Biomechanics arr.

089:205 Facial Growth 1-2 s.h.
Theories, processes; use of accepted facial growth concepts in treatment of individuals with malocclusions during active growth period.

089:207 Case Analysis	arr.
Literature on diagnosis, treatment of mixed dentition patients; case histories of patients treated by serial extraction procedure.	
089:209 Orthodontic Practicum	arr.
Clinical practice.	
089:210 Orthodontic Seminar	arr.
Evaluation, discussion, criticism, defense of diagnostic and treatment approaches to orthodontic cases that need, are undergoing, or have completed orthodontic treatment.	
089:211 Problems: Orthodontics	arr.
089:212 Research: Orthodontics	arr.
089:215 Orthodontic Journal Club	arr.
Current biological, technical publications.	
089:216 Practice Management	arr.
Business management of orthodontic practice; solo practice, associateship, partnership, practice corporation.	
089:217 Cephalometrics	arr.
Use of skull X-ray (lateral and/or postero-anterior) in formulating orthodontic diagnosis, treatment plans for malocclusions; cephalometrics as a tool for craniofacial structure research.	
089:220 Craniofacial Anatomy	arr.
Literature on anatomy, phylogeny, ontogenesis, physiology of craniofacial structures.	
089:221 Surgical Orthodontic Seminar	1 s.h.
Evaluation, discussion, criticism, defense of diagnostic and treatment approaches to orthodontic cases that need, are undergoing, or have completed surgical-orthodontic treatment.	
089:300 Orthodontic Certificate Program	0 s.h.
Clinical and didactic education toward eligibility for board certification in orthodontics.	
089:400 Dental Treatment of Maxillofacial Deformities	2 s.h.
089:401 Seminar: Maxillofacial Rehabilitation	1 s.h.

Pediatric Dentistry

Interim head: Cynthia K. Christensen

Professors: Stephen J. Goepferd, David C. Johnsen, James S. Wefel

Professors emeriti: Clemens A. Full, Arthur J. Nowak, Jimmy R. Pinkham, Jerry D. Walker

Adjunct professor: Rhys B. Jones

Associate professors: Michael J. Kanellis, Kaaren G. Vargas

Clinical associate professor: Cynthia K. Christensen

Assistant professor: Karin Weber-Gasparoni

Clinical assistant professor: Richard M. Burke, Jr.

Adjunct clinical assistant professors: Alex Brandtner, Pollyanne Iben, Steve Kelly, Matt Kubovich, Michael Mathews, Thomas Maurice, Edward Rick, Michael Stufflebeam

Adjunct clinical instructor: Dennis Kral

Assistant-in-instruction: M. Catherine Skotowski

Graduate degree: M.S. in Dental Public Health

Graduate nondegree program: Certificate in Pediatric Dentistry

Web site: <http://www.dentistry.uiowa.edu/public/clinics/pedo/pedsgp.html>

The Department of Pediatric Dentistry instructs D.D.S. and graduate students in the prevention and treatment of dental diseases in children. Instruction combines didactic, laboratory, and clinical experiences and gives special consideration to reviewing current literature and managing dental problems of children with special health care needs. It also emphasizes efficient treatment through proper use of dental auxiliary personnel and record management.

Professional Program

All third-year D.D.S. students participate in a clerkship, which includes a lecture course and a clinical course. During their fourth year, they treat patients in the department's outreach clinics.

Graduate Program

Graduate study in pediatric dentistry leads to a Certificate in Pediatric Dentistry (two-year program) or a certificate and a Master of Science in dental public health (three-year program). Both programs give special emphasis to preparation for certification by the American Board of Pediatric Dentistry. In addition, the three-year program in dental public health prepares students for

certification by The American Board of Dental Public Health. Both programs are fully accredited by the Commission on Dental Accreditation of the American Dental Association.

Students are trained in all phases of pediatric dentistry and have career choices in practice, education, or research. Special emphasis is placed on development of leadership skills and strategies for serving vulnerable populations.

Approximately 50 percent of the program is devoted to advanced clinical activity, 30 percent to didactic courses and practice teaching, and 20 percent to original research. The program includes a core of didactic, clinical, and research-oriented courses supplemented by electives determined by students' individual interests. Development of a minor subject area is recommended.

Close associations with the Department of Pediatrics in the Roy J. and Lucille A. Carver College of Medicine, the Center for Disabilities and Development, and University of Iowa Hospitals and Clinics permit emphasis on oral rehabilitation under general anesthesia, instruction in physical diagnosis, and management of children with developmental disabilities.

Admission

Prospective students apply through the American Dental Education Association PASS program (<http://www.adea.org/pass>).

Applicants must meet the admission requirements of the Graduate College.

Financial Support

Stipends for residents in the three-year program are available to qualified students through a grant from the Office for Maternal and Child Health, Bureau of Community Health Services, Department of Health and Human Services. Stipends for the two-year program are provided by other federal sources.

Research Opportunities

Clinical and laboratory research projects have financial support from federal agencies and other sources. Major research areas include cariology, dental materials, dentistry for persons with special health care needs, growth and development, fluoride therapy, child behavior management, prevention, and access to care.

Faculty

Faculty members hold numerous national and state offices, committee memberships, consultantships, and honors in professional organizations. They serve as reviewers for professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health science personnel. Eight of the department's professors are diplomates of the American Board of Pediatric Dentistry.

Courses

For D.D.S. Students

090:140 Pediatric Dentistry Diagnosis and Treatment 3 s.h.

Growth and development, behavior management, diagnostic-preventive-restorative techniques for pediatric patients.

090:160 Clinical Pediatric Dentistry arr.

Comprehensive clinical management of pediatric patients.

090:165 Clinical Seminar in Pediatric Dentistry 1 s.h.

Patient management, case histories, treatment philosophies, issues in contemporary dentistry for children.

For Graduate Students

090:220 Social, Cultural, and Public Health Issues in Pediatric Dentistry 1 s.h.

090:300 Pediatric Dentistry Certificate Program 0 s.h.

Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in pediatric dentistry.

Periodontics

Head: Georgia K. Johnson

Professors: Kim Brogden, Lewis Humbert, Georgia K. Johnson

Professors emeriti: William R. Grigsby, Frank J. Kohout, Phillip A. Lainson, William C. Rubright

Associate professor: Janet M. Guthmiller

Associate professors emeriti: Paul J. Collins, Benny F. Hawkins

Assistant professor: Ali Fakhry

Assistant clinical professors: Steven H. Clark, Steven H. Cooper

Adjunct clinical assistant professors: Guy Bilek, James Fili, Ann Romanowski, Frank A. Wingrove, Karen Wolf

Assistant-in-instruction: Nancy A. Slach

Graduate degree: M.S. in Oral Science

Graduate nondegree program: Certificate in Periodontics

Web site: <http://www.dentistry.uiowa.edu>

Professional Program

The professional periodontal program for D.D.S. students combines didactic, laboratory, and clinical experience and applies the biological concepts of periodontology to the comprehensive clinical management of patients who have periodontal diseases.

Graduate Programs

Master of Science

Graduate students can pursue an M.S. in oral science in conjunction with the Certificate in Periodontics.

The program requires a minimum of 36 months of full-time study, including satisfactory completion of required and elective courses, preparation and defense of an acceptable thesis based on original research, and satisfactory completion of comprehensive written and oral examinations.

Certificate

The program leading to a Certificate in Periodontics provides a sound foundation for the clinical practice of periodontics. It meets all requirements of the Commission on Dental Accreditation of the American Dental Association

for advanced dental education programs in periodontics. It also meets eligibility requirements for certification by the American Board of Periodontology.

The program requires 36 months of full-time study, including satisfactory completion of required and elective courses, satisfactory completion of comprehensive written and oral examinations, and an acceptable literature review or research paper.

Opportunities are provided for experience in clinical and basic research.

Admission

Applicants to graduate study in periodontics must have a D.D.S. or equivalent and must meet the admission requirements of the Graduate College. National Dental Board Examination scores, if available, are required. Interviews are encouraged but not mandatory.

Financial Support

Applicants must be financially prepared for uninterrupted studies.

Facilities

The department has 20 modern, well-equipped operatories devoted exclusively to periodontics. Hospital experience is available to students in the nearby University of Iowa Hospitals and Clinics and the Veterans Affairs Iowa City Health Care System.

Research facilities include collegiate laboratories in histology, microscopy, biomaterials, quantitation, tissue culture, molecular biology and biochemistry, and microbiology, as well as animal facilities. These collegiate facilities are in addition to those available by arrangement with University of Iowa Hospitals and Clinics, Eckstein Medical Research Building, Medical Laboratories, and the Veterans Affairs Iowa City Health Care System.

Courses

For D.D.S. Students

092:140 Periodontic Methods I 2 s.h.
Normal periodontium, gingivitis, periodontitis, diagnosis, prognosis, treatment planning.

092:141 Periodontic Methods II 1 s.h.
Initial phase of periodontal therapy, treatment of acute periodontal problems, overview of surgical procedures.

092:160 Periodontics arr.
Comprehensive clinical management of periodontal patients.

092:165 Periodontology 1-2 s.h.
Comprehensive concepts of periodontology, clinical management of patients.

For Graduate Students

092:207 Practice Teaching in Periodontics arr.
Experience in lecturing, directing seminars, clinical teaching.

092:208 Recent Advances in Periodontics arr.

092:210 Periodontology Pathology Seminar arr.
Differential diagnosis, histopathology of oral lesions often encountered in clinical practice.

092:212 Applied Oral Microbiology arr.
Microbiology applied to oral health problems.

092:225 Periodontology Literature Review I arr.

092:226 Periodontology Literature Review II arr.

092:227 Periodontology Literature Review III arr.

092:228 Periodontology Literature Review IV arr.

092:300 Periodontic Certificate Program 0 s.h.
Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in periodontics.

Preventive and Community Dentistry

Head: Raymond A. Kuthy

Professors: Peter C. Damiano, Deborah V. Dawson, Jed S. Hand, Raymond A. Kuthy, Steven M. Levy, Elaine M. Smith

Professors emeriti: Henrietta L. Logan, Nelson S. Logan

Adjunct professor: Rhys B. Jones

Associate professors: Jane M. Chalmers, Marsha A. Cunningham, Kay D. Mescher, John J. Warren, Derek H. Willard

Associate professors emeriti: Howard M. Field, Hermine McLeran, Lawrence C. Peterson, Jamie Sharp, Roger Simpson

Clinical associate professor: Howard J. Cowen

Assistant professors: Teresa A. Marshall, Michelle R. McQuistan

Adjunct assistant professors: Julie Eichenburger-Gilmore, Fang Qian

Clinical assistant professors: Helen Sharp, Erin Lacey Spector

Visiting assistant professor: John Wells

Adjunct lecturer: Betsy Momany

Graduate degree: M.S. in Dental Public Health

Web site: <http://www.dentistry.uiowa.edu>

Professional Program

Programs in preventive, community, and geriatric dentistry are designed to increase D.D.S. students' awareness of preventive dental practices, aspects of dental practices affected by community factors, and care of compromised adult patients.

Community dentistry programs give students opportunities to interact with health care teams and the public in Iowa and worldwide. The department conducts off-site community programs statewide, nationwide, and worldwide. It also operates the Special Care Clinic, which is housed in the Dental Science Building.

Using the community dentistry programs as the classroom, D.D.S. students observe and participate in a variety of activities that nurture their awareness of the societal obligations they must assume in order to become effective practitioners.

Graduate Program

The Master of Science program prepares dentists and dental hygienists to be specialists in dental public health. It has a research emphasis and

requires a research project culminating in the completion and defense of a thesis.

The program, designed to be completed in two academic years of full-time study, requires a minimum of 40 s.h. of course work. Successful dentist graduates meet the educational requirements for eligibility for the certifying examination of the American Board of Dental Public Health.

Applicants must meet the admission requirements of the Graduate College.

Courses

For D.D.S. Students

111:116 Fundamentals of Clinical Dentistry 1 s.h.

Identification of health and disease in the mouth; practical methods of disease control, philosophy of preventive dentistry; patient assessment, clinical diagnosis.

111:117 Cariology and Preventive Therapies 2 s.h.

Multifactorial etiology of dental caries; support data for use of fluorides, sealants, antimicrobials, and plaque control mechanisms in control, prevention of caries. Prerequisite: 111:116.

111:118 Preventive Dentistry, Communication, and Patient Care 3 s.h.

Patient oral assessment, communication, patient management skills; oral hygiene instruction for collegiate recall patients; skills in instrumentation for detection, removal of calculus deposits. Prerequisite: 111:117.

111:145 Clinical Preventive Dentistry 0, 2 s.h.

Experience providing complete prophylaxis and preventive services for college patients; development of communication skills in a clinic setting. Prerequisite: 111:118.

111:160 The Practice of Dentistry in the Community I 1-2 s.h.

Dental public health, history of dentistry, dental personnel, organized dentistry, professional issues, evaluation of scientific research.

111:161 The Practice of Dentistry in the Community II 1-2 s.h.

Factors that affect profession, practice of dentistry: legal and malpractice issues, supply and demand, types and practice organization, financing and quality of care.

111:185 Broadlawn Medical Center arr.

Experience providing dental care to low-income patients in a metropolitan hospital-based clinic; community-related assignments, on-call assignments in hospital, emergency department; student team experience in Des Moines.

111:186 Colorado Migrant Program arr.

Experience providing primary dental care and outreach services to a migrant population; broad understanding of needs, resources for migrant, low-socioeconomic populations.

- 111:187 Community Health Care: Davenport** arr.
Experience providing dental care at medical-dental ambulatory health care facility serving Scott County; eight-operator dental clinic.
- 111:188 St. Lukes—Dental Health Center** arr.
Experience providing clinical and outreach services for low-income children and adults with developmental disabilities at St. Luke's Hospital, Cedar Rapids; operative and behavioral dental problems, hospital protocol, special needs of low-socioeconomic clients.
- 111:189 Geriatrics and Special Needs Program** arr.
Experience in Special Care Clinic and Geriatric Mobile Dental Unit; comprehensive care for medically, physically, cognitively compromised adults, including frail elderly nursing home residents with portable equipment, other underserved populations.
- 111:191 Private Practice Preceptorship** arr.
Development of skills and knowledge necessary for day-to-day practice of dentistry; experience at selected preceptor sites in Iowa.
- 111:193 Veterans Administration Medical Center: Knoxville** arr.
Experience providing dental care to inpatient and outpatient veterans in a 400-bed neuropsychiatric and geriatric hospital; observation of other hospital departments, such as physical therapy, rehabilitative medicine, psychiatry.
- 111:194 Special Field Clinic** arr.
Extramural experiences developed according to student needs, extramural opportunities. Prerequisite: department approval.
- 111:196 Siouxland Community Health Center** arr.
Experience providing dental care at medical/dental ambulatory health care facility.
- 111:208 Field Experience in Dental Public Health** arr.
Arranged with public and voluntary health agencies according to students' and agencies' needs.
- 111:211 Thesis: Dental Public Health** arr.
Protocol preparation; data collection, analysis, organization; writing, defense of research.
- 111:212 Statistical Methods for Dental Research** 3 s.h.
Descriptive methods, elementary probability, distributions, populations and samples, methods for analyzing percentage data and paired and unpaired measurement data, regression, correlation and analysis of variance.
- 111:214 Dental Care Policy and Financing** 2 s.h.
Dental financing and policy issues: payment mechanisms for health care service providers, third-party prepayment plans, salaried and public-financed programs, Medicaid and Medicare programs, dental insurance systems, and care of underserved.
- 111:215 Introduction to Statistical Computing** 2 s.h.
Use of statistical packages on a personal computer for data management and analysis.
- 111:217 Teaching Methods and Evaluation** 2 s.h.
Philosophies of dental education, teaching methodologies, evaluation; focus on learning to write educational objectives, writing and analyzing exam items.
- 111:218 Clinical Teaching Practicum: Preventive Dentistry** arr.
Teaching experience in preventive dentistry clinic setting with first-year dental students; outcomes focused on methods in clinical teaching, evaluation, and remediation.
- 111:230 Geriatric Care I** 2 s.h.
Aging in humans, with emphasis on oral cavity; issues and problems of oral health care in older adults.
- 111:231 Geriatric Care II** 2 s.h.
Issues and problems related to oral health care in older adults, especially the frail or functionally dependent.
- 111:200 Introduction to Dental Public Health** 2 s.h.
Science, philosophy, practice of dental public health.
- 111:201 Literature Review Methods: Dental Public Health** 2 s.h.
Concepts and process of literature review, particularly in area of student's interest.
- 111:202 Research Protocol Seminar** 2 s.h.
Development of a master's thesis protocol; identification of thesis topic, review of relevant literature, outline of potential research methods.
- 111:203 Independent Study: Dental Public Health** arr.
Prerequisite: approval of faculty supervisor.
- 111:204 Principles of Oral Epidemiology** arr.
Retrospective, prospective, cohort study designs; validity and reliability; distribution and determinants of oral diseases—caries, periodontal diseases, oral cancer, malocclusion, fluorosis, HIV infection, tooth loss, edentulism.
- 111:205 Administration of Public Dental Programs** 2 s.h.
Application of general management concepts; practical aspects of planning, financing, staffing, implementing, operating, evaluating dental public health programs at federal, state, local levels.
- 111:206 Preventive Programs in Dental Public Health** 2 s.h.
Prevention, control methods for major dental conditions, primarily dental caries, periodontal diseases; clinical efficacy, cost-effectiveness; development of comprehensive preventive oral health plan for a community.

For Graduate Students

Prosthodontics

Head: Galen B. Schneider

Professors: Steven A. Aquilino, Ronald L. Ettinger, Clark M. Stanford,

Professors emeriti: William E. LaVelle, Forrest R. Scandrett, Max L. Smith, Keith E. Thayer

Clinical professor: Robert L. Schneider

Associate professors: Gerard Byrne, James M.S. Clancy, Terry L. Lindquist, Galen B. Schneider, Dennis J. Weir

Associate professor emeritus: Thaxter H. Miller

Adjunct associate professor: Michael J. Lattner

Clinical associate professor: Robert J. Luebke

Assistant professor: David G. Gratton

Adjunct assistant professors: David R. Fritz, John W. Helscher

Clinical assistant professors: Lawrence R. Huber, Jeffrey C. Markt

Adjunct instructors: Frederick R. Drexler, Maria T. Locher-Claus

Graduate degree: M.S. in Oral Science

Graduate nondegree program: Certificate in Prosthodontics

Web site: <http://www.dentistry.uiowa.edu>

Prosthodontics is the dentistry specialty involving crowns, fixed partial dentures (bridges), removable partial dentures, complete dentures, maxillofacial prostheses, and implant prostheses.

Professional Program

The professional program provides D.D.S. students with the basic principles, practices, and concepts of prosthodontics required for the practice of general dentistry, through laboratory projects and treatment of patients with differing prosthodontic needs.

Graduate Programs

The department offers a Master of Science in oral science and a Certificate in Prosthodontics. The primary purpose of the M.S. program is to train and prepare dentists for careers in prosthodontic education and/or research. The certificate program is designed primarily for individuals who want to prepare for private practice in prosthodontics. Both programs require 34 months of study and satisfy the educational requirements for eligibility to take the American Board of Prosthodontics examination.

Master of Science

Students who wish to pursue a Master of Science enroll through the Graduate College. They must meet all the requirements for the master's degree as outlined in the Manual of Rules and Regulations of the Graduate College.

Students complete a core curriculum, which includes basic sciences, research methodology, and a thesis based on the student's original research, with the aid of an advisor and thesis committee. In addition, students are required to satisfactorily complete an oral and/or written examination on their thesis and on prosthodontics.

Certificate

The certificate program may provide more clinical experience than the M.S. program and does not require a thesis. Students must complete a core curriculum, which includes basic sciences, research methodology, and clinical practice—fixed, removable, maxillofacial, implant prosthodontics, and occlusion.

Admission

Applicants to either program must meet the admission requirements of the Graduate College. In addition, applicants must hold a D.D.S. or D.M.D. or a foreign equivalent. An interview may be requested. Both programs usually begin July 1. Application deadline is September 1 for the following July.

Courses

For D.D.S. Students

084:122 Occlusion and Complete Dentures

Lecture

2 s.h.

Basic principles and clinical application of occlusion; basic principles, clinical steps, and laboratory procedures necessary for fabrication of complete dentures.

084:123 Occlusion and Complete Dentures Lab

2 s.h.

Laboratory exercises illustrating the principles of occlusion; projects simulating the clinical and laboratory steps in complete denture fabrication.

084:140 Fixed Prosthodontic Lecture I 2 s.h.

Basic biomechanical principles of fixed prosthodontics; metal, single-unit, multiple-unit fixed prostheses; diagnosis and treatment planning for the partially edentulous patient, including occlusion and esthetic concerns.

084:141 Fixed Prosthodontic Patient Simulation I 2 s.h.

Laboratory exercises in fabrication of single-unit metal, provisional restorations; preparations for fabrication of a three-unit fixed partial denture.

084:142 Fixed Prosthodontic Lecture II 2 s.h.

Basic biomechanical principles of fixed prosthodontics; multiple-unit fixed prostheses, porcelain-fused-to-metal fixed prostheses; student diagnosis and treatment planning for the partially edentulous patient, including occlusion and esthetic concerns.

084:143 Fixed Prosthodontic Patient Simulation II 3 s.h.

Laboratory exercises in fabrication of a three-unit fixed partial denture and porcelain-fused-to-metal crown; provisional restorations for posterior and anterior teeth.

084:144 Removable Prosthodontic Technique Lecture 2 s.h.

Technical procedures for fabrication of complete and removable partial dentures; definitions, materials, and techniques for construction of removable prostheses; diagnosis and treatment planning necessary for the partially and totally edentulous patient to receive a removable prosthesis.

084:145 Removable Prosthodontic Technique Laboratory 2 s.h.

Laboratory exercises in fabrication of complete and removable partial dentures, implant overdenture radiographic and surgical guides, surveyed fixed prostheses.

084:146 Introduction to Implant Dentistry 2 s.h.

Fundamental principles of osseointegration, diagnosis and treatment planning, surgical and prosthodontic protocols, laboratory communications introduced through patient simulation.

084:160 Prosthodontic Clinic arr.

Experience supplemented by individual supervision, demonstration.

084:165 Prosthodontic Seminar 2 s.h.

Knowledge in biological, basic sciences and technique applied to clinical fixed and removable prosthodontics procedures.

084:225 Complete Denture Literature Review 1 s.h.

Complete denture prosthodontics; assigned readings, discussion of related research.

084:226 RPD Literature Review 1 s.h.

Removable partial denture prosthodontics; assigned readings, discussion of related research.

084:231 Thesis Preparation: Prosthodontics 3 s.h.

Thesis preparation, defense.

084:300 Prosthodontic Certificate Program 0 s.h.

Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in prosthodontics.

For Graduate Students

084:220 Fixed Prosthodontics Literature Review I 1 s.h.

Fixed prosthodontic procedures; assigned readings, discussion of related research.

084:221 Fixed Prosthodontics Literature Review II 1 s.h.

Porcelain-fused-to-metal and ceramic restorations, color science and esthetics; assigned readings, discussion of related research.

084:222 Implant Literature Review 1 s.h.

Implant prosthodontics; assigned readings, discussion of related research.

084:223 Occlusion Seminar 1 s.h.

Occlusion and the temporomandibular system; assigned readings and discussion of related research.

084:224 Graduate Restorative Materials 2 s.h.

Dental materials science: mechanical, physical, and chemical properties of restorative materials; selection and manipulation. Same as 082:224.

College of Education

Counseling, Rehabilitation, and Student Development.	566
Educational Policy and Leadership Studies	580
Psychological and Quantitative Foundations	590
Teaching and Learning.	602

Dean: Sandra Bowman Damico
Associate dean, academic affairs and graduate programs: David Bills
Associate dean, teacher education and student services: Linda Fielding
Director, Belin-Blank Center for Gifted Education: Nicholas Colangelo
Director, Center for Advanced Studies in Measurement and Assessment: Robert Brennan
Director, Center for Evaluation and Assessment: Donald Yarbrough
Codirectors, Center for Research on Undergraduate Education: Ernest Pascarella, Elizabeth Whitt
Director, Educational Placement Office: Rebecca Anthony
Director, Iowa Testing Programs: Stephen Dunbar
Degrees: B.A., B.S. (undergraduate degrees granted through College of Liberal Arts and Sciences); M.A.T., M.A., M.S., Ed.S., Ph.D.
Nondegree programs: Minor in Educational Psychology, Minor in Human Resources
Web site: <http://www.education.uiowa.edu>

The nation's first university-level professorial chair in education was established at The University of Iowa in 1872. The department became the School of Education in 1907; and the College of Education, structured largely as it is today, was founded in 1913. Since then, the college's growth has mirrored the growth of the University.

Over the years, College of Education faculty members have been leaders in a variety of educational fields. Particularly noteworthy have been their contributions in the fields of educational testing and measurement. These contributions helped lay the foundation for today's testing and measurement industry, making Iowa City one of the best-known centers for this educational specialty.

The college has four departments: Counseling, Rehabilitation, and Student Development; Educational Policy and Leadership Studies; Psychological and Quantitative Foundations; and Teaching and Learning.

Teacher Education Programs

The College of Education at The University of Iowa offers two major teacher preparation programs based on baccalaureate degrees. Elementary education is a College of Liberal Arts and Sciences major leading to either a Bachelor of Arts or a Bachelor of Science degree. The secondary education programs combine a specific liberal arts and sciences academic major with teacher preparation course work leading to a Bachelor of Arts or a Bachelor of Science degree.

The college also provides numerous specialized elementary and secondary teaching endorsement programs.

Preparation for special education teaching is offered primarily at the graduate level. In addition, an undergraduate instructional strategist program is available for elementary education students admitted to this program. A limited number of undergraduate special

education courses are open to all students who are interested in this area, to those from other Teacher Education Programs, and to those planning to pursue graduate degrees in special education.

Undergraduate students admitted to a Teacher Education Program (TEP) must complete all College of Liberal Arts and Sciences General Education Program requirements for the Bachelor of Arts or Bachelor of Science. The quantitative or formal reasoning component must be satisfied with a college-level mathematics course.

The Office of Teacher Education and Student Services provides information on Teacher Education Programs; offers assistance with admission, student field experiences, and teacher licensure/certification; and serves as a liaison with other University units and external agencies. For more information, visit the office's web site (<http://www.education.uiowa.edu/tess>).

Undergraduate Admission to Teacher Education Programs

Undergraduate applicants to The University of Iowa who wish to become teachers indicate their interest in the elementary major or a specific secondary-level teaching endorsement program on their application for admission. This results in an "Elementary Interest" (7EP) or a "Secondary Interest" (7SP) notation on the student's official records. Eligible transfer students are automatically sent TEP application materials from the Office of Admissions when they are admitted to the University. All others must obtain application materials from the Office of Teacher Education and Student Services in the College of Education.

Acceptance to a Teacher Education Program is prerequisite to registration for most College of Education undergraduate courses.

Application Deadlines

Application deadlines for all Teacher Education Programs are as follows.

Summer session and fall semester: March 15

Spring semester: October 15

Late applications are not accepted.

General Requirements

Admission to Teacher Education Programs is competitive. Admission requirements may vary

by program area. Faculty members in each program area review and select students to be admitted to their program. In order to be considered for admission to a Teacher Education Program, an undergraduate student must satisfy the following:

admission to The University of Iowa;

completion of 40 s.h. of college-level work before application to the Teacher Education Program;

a g.p.a. of at least 2.70 on all college course work as well as course work completed at The University of Iowa;

application for admission to a Teacher Education Program (includes a criminal check waiver);

submission of PRAXIS I test scores that meet the minimum score requirements; and

verification of having completed a 10-hour voluntary experience in a K-12 regular classroom setting.

Honors in Education

The College of Education Honors Opportunity Program is open to sophomores, juniors, and seniors who have maintained a g.p.a. of at least 3.50. Students with lower grade-point averages who have demonstrated research potential also may be accepted based on the recommendations of faculty members and the education honors advisor. Honors Opportunities Program students must take 07X:100 Honors Seminar in Education and 07X:101 Senior Honors Project. Successful completion of the program results in an honors designation on the diploma. The Honors Opportunities Program is housed in and administered by the Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development.

Postbaccalaureate or Graduate Admission

Students who have completed a baccalaureate degree may be admitted to a teacher preparation program in one of two ways. They may apply to the Graduate College and state their objective as "certification only," or they may apply for a master's degree objective, either a Master of Arts in Teaching (M.A.T), or in selected majors, a Master of Arts (M.A.). Students who choose to pursue a graduate-level teacher preparation program must satisfy the following:

eligibility for admission to the Graduate College;

submission of an official Graduate Record Examination (GRE) General Test score report, with scores that meet the minimum score requirements; and

a g.p.a. of at least 3.00 on all previous college course work.

They also must apply to the appropriate Teacher Education Program, following the graduate admission procedure, and must meet the general requirements for graduate admission; see Graduate and Professional Admissions on the Office of Admissions web site (<http://www.uiowa.edu/admissions>).

Students may apply to the College of Liberal Arts and Sciences as postbaccalaureate students with senior standing. Students who choose this option must apply to the appropriate Teacher Education Program, following the undergraduate admissions procedure, and must meet the general requirements for undergraduate admission; see Undergraduate Admissions on the Office of Admissions web site (<http://www.uiowa.edu/admissions>).

Application deadlines for graduate and postbaccalaureate students with senior standing are March 15 and October 15.

Student Teaching

The final phase of the Teacher Education Program is the professional semester, devoted to supervised student teaching and directed observation in a variety of situations. Faculty members, professional staff, and advanced graduate students who are experienced teachers serve as supervisors.

Periodic seminars provide for discussion and evaluation of student teachers' experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with advance approval.

To be admitted to the student teaching semester, students must submit a separate application to the Office of Teacher Education and Student Services in the College of Education. All course work in education, for the major, and for the degree must be completed before the student teaching semester. Applications are submitted during the calendar year before the student teaching semester. The deadline is November 15 for students planning to student teach the following fall semester and February 15 for students planning to student teach the following spring semester.

Admission to student teaching requires program area faculty approval as well as verification of

satisfactory progress in meeting both College of Education professionalism standards and program area standards, which are set at the time of admission to the TEP. In some programs, standards are higher than the college's required g.p.a. of at least 2.70. Students should consult with their advisors regarding specific requirements for the program areas.

For more information, contact the Office of Student Field Experiences.

Waivers

Students who have completed courses that they want to substitute for program requirements should consult with their advisors.

Urban Student Teaching

Students who want to advance their educational interests through student teaching in an urban setting may apply through the Office of Student Field Experiences. The urban districts include Clark County, Nevada (Las Vegas area); Chicago Public Schools; Adams County School District 14 (Denver area); Aldine, Texas (Houston area); and Rialto, California (Los Angeles area). These options are open to all education majors who meet the requirements established for these student teaching sites. For more information about this and other programs, contact the Office of Student Field Experiences.

International Student Teaching

International student teaching experiences are available primarily through the Foundation for International Education. Sites include Australia; China; Costa Rica; England and Wales; India; Ireland; Kenya; New Zealand; Scotland; Russian Federation; and Spain.

Interested students must meet the regular requirements for student teaching and must have the approval of their advisor and the appropriate program coordinator. In most locations, students are assisted with housing by the on-site coordinator.

International assignments are for seven to eight weeks. Secondary education students complete an eight-week assignment in a stateside placement followed by an eight-week assignment in an international placement. Secondary education students in some program areas (for instance, English education) are required to complete a full semester of student teaching in the United States before student teaching at an international site. Elementary education students complete a seven-week assignment in a stateside

placement followed by a seven-week assignment in an international placement.

For more information about international student teaching opportunities, contact the Office of Teacher Education and Student Services.

State Requirements

All students seeking an Iowa teaching license must complete a course in human relations and mainstreaming for exceptional learners. These requirements can be met by completing 07B:180 Human Relations for the Classroom Teacher and 07U:100 Foundations of Special Education. Human relations courses offered through community colleges are not accepted. In the State of Iowa, applicants must be at least 21 years old to be granted a teaching license. Applicants who have been found guilty of a felony are barred from receiving an Iowa teaching license. Appeals may be filed directly with the Iowa Board of Educational Examiners.

Teacher Licensure/ Certification Services

The Iowa Board of Educational Examiners issues teacher, support service, and administrator licenses on the recommendation of Iowa colleges and universities whose programs have been approved by the Iowa Department of Education. All University of Iowa preparation programs have Iowa Department of Education approval.

Licensure/certification requirements across the nation are subject to change. Students who plan to seek employment in a state other than Iowa should make every effort to be informed about current requirements in that state. Many states require some type of competency testing. Generally, students who apply out-of-state should first secure Iowa licensure.

To be recommended by The University of Iowa, applicants must complete all requirements of the appropriate approved program. A minimum of 20 s.h. of course work applied to meet program requirements must be earned at The University of Iowa. Fingerprinting is required for all new applicants for Iowa licensure; the State of Iowa has outlined specific procedures for the fingerprinting process.

The College of Education Office of Teacher Education and Student Services provides Iowa application forms, fingerprinting procedures, and licensure/certification assistance to all students

completing approved programs offered by the college. It also provides assistance to individuals interested in adding endorsements to their Iowa license based on completion of State of Iowa minimum licensure requirements.

Graduate Programs

Graduate study in the College of Education is guided by the policies of the Graduate College, with additional requirements set by College of Education faculty members. Graduate students in education register in the Graduate College and receive their degrees from that college. See the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Graduate programs are available in the following areas of study.

Counseling, Rehabilitation, and Student Development

M.A., Ph.D.
Counselor Education and Supervision—Ph.D.
Rehabilitation Counseling—M.A., Ph.D.
School Counseling—M.A.
Student Affairs Administration and Research—Ph.D.
Student Development in Postsecondary Education—M.A.

Teaching and Learning

M.A.T., M.A., M.S., Ph.D.
Art Education—Ph.D.
Curriculum and Supervision—M.A., Ph.D.
Developmental Reading—M.A.
Elementary Education—M.A., Ph.D.
English Education—M.A.T., M.A.
Foreign Language Education—M.A.T., M.A.
Foreign Language and English as a Second Language—Ph.D.
Language, Literacy, and Culture—Ph.D.
Mathematics Education—M.A., Ph.D.
Science Education—M.S., M.A.T., Ph.D.
Social Studies Education—M.A., Ph.D.
Special Education—M.A., Ph.D.

Educational Policy and Leadership Studies

M.A., Ed.S., Ph.D.
Educational Administration—M.A., Ed.S., Ph.D.
Higher Education—M.A., Ed.S., Ph.D.
Social Foundations of Education—M.A., Ph.D.
Special Education Administration—Ed.S.
Student Affairs Administration and Research—Ph.D.

Psychological and Quantitative Foundations

M.A., Ed.S., Ph.D.

Counseling Psychology—Ph.D.

Educational Measurement and Statistics—M.A., Ph.D.

Educational Psychology—M.A., Ph.D.

School Psychology—Ed.S., Ph.D.

Master of Arts in Teaching

The M.A.T. program is designed for academically superior liberal arts and sciences graduates who completed few or no professional education courses in their undergraduate program. It is a nonthesis program with requirements that range from 45 to 67 s.h. See Teaching and Learning in the Catalog.

The program leads to a master's degree and licensure as a secondary teacher in the fields of English, foreign languages, and science education. Admission to the program requires a g.p.a. of at least 3.00 in undergraduate course work. The program includes 18 s.h. of graduate course work in the student's teaching field. Students must complete a minimum of 20 s.h. of graduate work in education to satisfy licensure requirements.

A Master of Arts program with a secondary education major in social studies leads to initial teacher licensure. See "M.A. in Social Studies Education"/"Program B Requirements" in the Teaching and Learning section of the Catalog.

Master of Arts

The College of Education offers an M.A. with or without thesis. The nonthesis program usually provides more specialized course work than does the thesis program. Although the nonthesis program is not necessarily a terminal program, students who expect to continue their studies in a doctoral program are urged to select the M.A. thesis program since it offers more experience in research procedures. Students who complete a nonthesis M.A. and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their advisor or department during the early part of their doctoral program. For information about programs that offer a thesis option, see the program descriptions in College of Education department sections of the Catalog.

Course credit earned more than 10 years before the session in which the degree is to be conferred do not count toward requirements for any master's degree. Students must earn at least 24 s.h. in University of Iowa courses after formal

admission to a master's degree, and they must complete at least 8 s.h. on campus.

Master of Science

Thesis and nonthesis programs are available for M.S. students in science education. The degree requirements are similar to those for the Master of Arts.

Specialist in Education

The Ed.S. is granted upon completion of a prescribed two-year postbaccalaureate program designed for students preparing for professional work in fields such as administration and supervision, and special services. Of the minimum 60 s.h. required for the degree, 28 s.h. must be in the specialization area; the rest may be earned in cognate fields, supervised experience, research, and elective courses. The research must culminate in a written report.

Other requirements for the Ed.S. are the same as for the master's degree, except that the Ed.S. requires students to complete 15 s.h. of resident work on campus in one 12-month period or in two summer sessions. Course work completed 10 years before the final examination must be evaluated to determine the amount of credit that may be accepted toward program requirements.

Doctor of Philosophy

The Ph.D. is the most advanced academic degree. It is conferred upon students who have demonstrated superior scholarship and mastery of research skills in course work as well as in the preparation and defense of a dissertation.

Professional Improvement

Students are admitted to professional improvement status in a College of Education department rather than to degree candidacy. This option is appropriate only for persons who wish to update their knowledge or who are temporarily undecided about career plans. Students should file a change of status stating a specific program objective at the earliest opportunity.

Extramural Education

Through the Division of Continuing Education, selected College of Education courses are offered at off-campus sites and hours outside the traditional schedule. If taken after formal

admission to a specific program, some of these courses may be applied to meet residency requirements for degrees.

Special regulations govern such course work. Students should obtain prior approval from their program advisor before registering in extramural courses. Students not regularly admitted to The University of Iowa also may register in extramural courses, but credit earned before admission does not count toward residency requirements.

College of Education Minors

The College of Education offers two minors, one in educational psychology and one in human relations, for students who wish to be better informed about education. The minors may help support students' future career objectives and help students prepare to be better informed as parents, as taxpayers, or as future members of local boards of education. Contact the Office of Teacher Education and Student Services for more information about the minors.

Support Units, Other Resources

Teacher Education and Student Services

The Office of Teacher Education and Student Services assists students, faculty, staff, and the general public in graduate and undergraduate admission, Graduate College examinations, student field experiences, and teacher licensure/certification. It also serves as a liaison with other University units, including the Graduate College, the College of Liberal Arts and Sciences, the Office of Admissions, and the Office of the Registrar, and with external agencies, including the Iowa Department of Education, out-of-state teacher licensure/certification departments, and school district personnel in Iowa and outside of the state.

A variety of application and information materials are available at the office and on the office's web site (<http://www.education.uiowa.edu/tess>).

Education Technology Center

The Education Technology Center (ETC) provides computer services to College of Education faculty, staff, and students. The ETC

offers technical assistance to faculty and staff and maintains all computers in the college. Students use ETC lab facilities to work on assignments and to conduct research. The center maintains four student computer labs, three of which are suitable for a classroom environment.

The Education Technology Center provides a variety of application software and World Wide Web and multimedia production tools. Faculty, staff, and students may check out digital cameras, computer projectors, wireless laptops, and other AV equipment. The ETC also provides assistive technologies for College of Education students with disabilities.

The ETC's ePortfolio Support Center guides faculty and students on the creation of electronic portfolios. Center staff consult with faculty on identifying and linking classroom work to adopted College of Education standards. They also help students produce and upload compliant web-based ePortfolios.

The ETC partners with the University's Information Technology Services to maintain a video lab facility used for professional video production. ETC staff members help faculty members produce online course materials and support staff members who maintain the college's web site. ETC also manages the Iowa Communications Network fiber-optic classroom located in the College of Education.

Assistive Technology Education and Research Center

The Iowa Center for Assistive Technology Education and Research (ICATER) helps to ensure equal access and opportunities for persons with disabilities by advancing assistive technology through research, education, and service. The center collaborates with University and community programs to provide technical assistance that enhances the services and resources available to educators, service providers, and persons with disabilities. It also sponsors workshops and education programs. The center's assistive technology laboratory is available for student use, demonstrations, consultations, and research.

Libraries

The University's Main Library and the Psychology Library provide books, periodicals, reference works, videos, ERIC microfiche, tests, and a reserved book room for students and faculty.

Curriculum Resources Laboratory

The Curriculum Resources Laboratory provides classroom materials for students and faculty members interested in early childhood, elementary, secondary, and special education. The laboratory offers a large collection of instructional materials, all of which can be checked out. The collection includes books for children and young adults, K-12 textbooks, curriculum guides and activity books, and nonprint materials such as videocassettes, CD-ROMs, audiocassettes, games, pictures, kits, and manipulatives.

Educational Placement

The Educational Placement Office helps students and alumni pursuing careers in teaching, research, and education leadership. The office's professional staff is available for individual conferences with students to critique a résumé or curriculum vitae, discuss job search strategies, or assist with other career matters. Workshops, seminars, and special programs related to educational employment and the job search are offered regularly. University of Iowa students and alumni can establish a placement file consisting of letters of recommendation to be submitted to potential employers in support of employment applications.

Current information about services and career resources is available through the office's web site (<http://www.education.uiowa.edu/edplac>). The site provides links to information about employment opportunities in schools, colleges, and related organizations. It also provides job search assistance, including curriculum vitae, résumé, and letter writing tips and samples; preparation for the job search; sample interview questions; portfolio examples; and employer advice for educators seeking jobs in K-12 environments, college and university settings, and in international locations.

Advanced Measurement and Assessment Studies Center

The Center for Advanced Studies in Measurement and Assessment (CASMA) pursues interdisciplinary research initiatives that advance the methods and practice of educational measurement and assessment.

CASMA's aim is to be a premier interdisciplinary center that performs, promotes, fosters, and

disseminates high-quality research in measurement and assessment. CASMA devotes considerable resources to development of open-source computer programs for equating scores on tests.

Every other year CASMA co-sponsors a national conference on current challenges in educational testing. Periodically, the center's staff produces research reports that are available on CASMA's web site (<http://www.education.uiowa.edu/casma>). Recent reports have discussed topics in generalizability theory, institutional selectivity in undergraduate education, revolutions and evolutions in educational testing, decision consistency with complex assessments, and equating models.

Evaluation and Assessment Center

The Center for Evaluation and Assessment conducts a wide variety of project and program evaluations in collaboration with University faculty members and with school systems, universities, and other organizations throughout Iowa and nationwide.

The center's mission is to improve the quality of evaluation theory and practice; provide high-quality skill-development and training activities for graduate students; contribute to research on program evaluation and outcomes assessment; and provide high-quality services to clients in need of program evaluations, evaluation consultation or technical assistance, and outcomes assessment consultation.

The Center for Evaluation and Assessment has conducted program and project evaluations in a broad range of areas, including minority recruitment and retention; small enterprise development; delivery of social and human services, pre-K-12 curriculum and teacher professional development in science, math, history, and literacy; impact of public policies on K-12 education; and postsecondary curriculum and professional training in engineering, technology, and health care.

Research on Undergraduate Education Center

The Center for Research on Undergraduate Education (CRUE) is dedicated to the study of undergraduate education in America, from how academic and social experiences affect students to the methods schools use to improve students' chances for success in the classroom and beyond

graduation. CRUE brings a methodologically balanced approach to the study of undergraduate education.

Iowa Testing Programs

Iowa Testing Programs provides assessment expertise to schools in the State of Iowa. Its faculty and staff develop standardized educational tests, such as the widely used Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools. Iowa Testing Programs also conducts research studies in educational measurement and evaluation, publishes the results of these studies, sponsors lectures and symposia, provides consulting services to school systems, and provides training experience for graduate students in measurement and statistics.

Belin-Blank Center for Gifted Education

The Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development conducts research, training, and service in gifted education. It also gathers and disseminates information on the education of gifted students.

The center's programs and services include the Belin-Blank Fellowship Program in Gifted Education; the Honors Opportunity Program; Invent Iowa; the Henry B. and Jocelyn Wallace National Research Symposium on Talent Development; family counseling; consultation; educational assessment; practicum and internship experiences; course work in gifted education (including state endorsement); academic talent searches for students in grades 2-9; and a number of precollege programs for gifted students in grades 2-12. The center also administers the Iowa Online Advanced Placement Academy.

The Belin-Blank center administers two University-level student programs: the Iowa Talent Project, developed for minority students from gifted programs in Des Moines, Iowa, and the National Academy of Arts, Sciences, and Engineering, a highly selective early-entrance program for students who have completed their junior year in high school.

The center also provides practicum and internship experiences for undergraduate and graduate students and coordinates course work for the Iowa Talented and Gifted Endorsement.

The Belin-Blank center is located in the Blank Honors Center.

For more information, contact the Belin-Blank Center for Gifted Education and Talent Development or visit its web site (<http://www.education.uiowa.edu/belinblank>).

Research Support

The College of Education dean's office, through the Grant and Research Services Center (GRSC), provides grant and research-related support services for the college's faculty, staff, and students. GRSC staff members help identify internal and external funding sources, prepare and submit grant proposals and application materials, provide grant accounting services, and help in the preparation of applications for Human Subjects/Institutional Research Board review. The college also provides limited funds for faculty research, professional development, and travel.

Cooperating Schools Program

The Cooperating Schools Program (CSP) is a University-wide service that facilitates placement of research projects and service-learning projects conducted by faculty, staff, and students in public schools throughout Iowa. The program provides information to help researchers obtain permission to conduct research in Iowa schools. The Cooperating Schools Program was instituted at the request of school administrators charged with the responsibility of approving research projects in their schools.

Financial Support

Students interested in employment opportunities in the college's support units and special resources should contact the director of each facility and indicate their interests, their academic and experience records, and their career or degree goals at The University of Iowa. Some assistantships are listed in a reference available from the Office of Teacher Education and Student Services.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships as well as for fellowships and related employment opportunities. Inquiries should be addressed to the chair of the department or the director of the program in which the student believes he or she can provide service or achieve an outstanding academic record. Assistantship appointments are usually, but not always, made by the program area.

Special Graduate Assistantships in Education

The Iowa Testing Programs provides funds to support a limited number of special graduate assistantships in education, in which students do research work under the direction of a faculty member of their choice. Students must be enrolled for at least 6 s.h. but not more than 12 s.h. per semester; assistantships are for the academic year and are renewable for a limited number of years. Students admitted to or pursuing any advanced degree program offered by the College of Education are eligible to apply, provided they are committed to a professional career in the United States.

Candidates must submit transcripts of all completed college work (undergraduate and graduate), recommendation forms specific to the assistantship, and scores on the Graduate Record Examination (GRE) General Test. For assistantship application forms, contact the Iowa Testing Programs director. Application deadline is late February.

Student Financial Aid

Several scholarships are available to students for their student teaching semester. The scholarships are based on need, grade-point average, and future plans for teaching.

Scholarships are available each year for experienced teachers who are working toward licensure or an advanced degree in educational administration. The scholarships are based on the student's record as an effective teacher and promise as a school administrator; students must have completed four years of teaching experience and must be planning to work as elementary or secondary administrators.

Scholarships and awards are based on available funding.

For more information, see College of Education Scholarships and Awards on the college's web site (<http://www.education.uiowa.edu/scholarships>). For application forms, contact the administrative assistant in the College of Education Office of the Dean.

College of Education Awards

Awards are presented to outstanding students in the College of Education at a spring semester ceremony.

The Duane D. Anderson Scholarship is awarded to a transfer student from an Iowa

community college who is enrolled in a College of Education program. The award is based on promise and need.

The Jack Bagford Elementary Education Award is presented to an outstanding elementary education student who is an Iowa resident. The student should be scheduled to do student teaching the academic year following the award.

The David and Connie Belin Honors Award is for graduating seniors in the Teacher Education Program who have completed all requirements for the Honors Opportunity Program.

The Blommers-Hieronimus-Feldt Fellowship is awarded to a doctoral student in the field of educational measurement and statistics; nominees must have completed at least one full year in the graduate program at The University of Iowa. The award is based on academic performance in graduate course work and professional promise in measurement and statistics; it supplements the recipient's teaching or research assistantship each year until graduation, to a maximum of three years.

Barry Bratton Award for Achievement in Design of Instructional Processes is given to an outstanding student who has completed course work that reflects a commitment to the systematic design and improvement of instructional processes and materials.

The Debra Clausen Memorial Award is given to a qualified undergraduate or graduate student who will work at the Center for Disabilities and Development to evaluate and develop learning programs for students with mental disabilities, including Down Syndrome.

The T. Anne Cleary Psychological Research Scholarship is awarded to an outstanding doctoral student engaged in research on the psychological or quantitative foundations of education. The award may be presented to one international student and one permanent resident of the United States each year.

The John Leonard Davies Memorial Award is given to an outstanding graduate student majoring in education whose specialization is adult and continuing education.

The Harvey H. Davis Award is given to an outstanding candidate for an advanced degree in higher education or educational administration, particularly a student interested in the financing of education.

The Terry Ganshaw Memorial Award is given to an outstanding Ph.D. student in college student personnel.

The Albert Hood Promising Scholar Award is given to an outstanding student in the student development program in postsecondary education who is in the process of developing a prospectus for master's or doctoral research. The award is based on academic performance, quality of the research proposal, the research's likely impact, and the student's service to the program and the University.

The Howard R. Jones Achievement Award is given to an outstanding graduate student who has made a noteworthy scholarly presentation at a national professional conference or has published a significant scholarly article in a reputable professional journal or other substantial printed work.

Loetscher Science Education Scholarship is awarded to a student in secondary science education, with preference given to those pursuing a chemistry emphasis.

The Perry Eugene McClenahan Award is given to the outstanding candidate for an advanced degree in educational administration.

The Leonard A. Miller Memorial Award is given to an outstanding first-year M.A. student majoring in rehabilitation counseling.

Minority Student Award is given to an outstanding College of Education undergraduate or graduate minority student who works with equity issues in the college and has made positive contributions to the life of the college.

The Melvin R. Novick Award is presented to a third- or fourth-year student enrolled in the doctoral program in educational measurement and statistics who has shown outstanding academic performance and promise of the highest level of achievement in research in this field.

Paul Opstad Scholarship is awarded to a graduate student in the College of Education whose career or scholarly interests focus on the concerns and needs of international students. The scholarship is based on academic performance and commitment to working with international students.

Guy and Gladys Peterson Award is given to an outstanding student who has been admitted to and has completed at least 12 s.h. of course work in the Teacher Education Program.

Pi Lambda Theta Awards—Senior, M.A., and Ph.D. levels are given to outstanding students of high scholarship who show promise in the professional areas of research, teaching, or writing and who exhibit striking personal qualities.

The Betty Piercy Scholarship Award is given to an outstanding student in reading who is expected to benefit the field in some direct way.

The John E. Quinn Memorial Scholarship is awarded to an outstanding undergraduate liberal arts student from eastern Iowa who has been admitted to the Teacher Education Program and is pursuing secondary school teaching licensure in history.

The Rolland Ray Dissertation Fellowship is awarded to a doctoral student in the Department of Teaching and Learning whose dissertation addresses the measurement of educational objectives.

The Lloyd Smith Scholarship is awarded to an outstanding student in elementary social studies.

The Franklin Stone International Student Award is given to an outstanding international student pursuing a Ph.D. in education.

The James and Coretta Stroud Fellowship for Doctoral Study in Educational Psychology, Measurement, or Statistics is awarded to an outstanding graduate student in the Department of Psychological and Quantitative Foundations who is entering the dissertation phase of study.

The Edgar M. and Evelyn Benzler Tanruther Scholarship is awarded to an outstanding graduate student in elementary education.

The U-High Innovative Developments in Education Award is given to students who have completed or will complete student teaching during the school year. The award is based on outstanding performance as a student teacher, particularly for innovation and creativity shown during the experience.

The Erwin and Louise Wasta International Scholarship is awarded to an international student enrolled in a College of Education program. The award is based on promise and need.

For more information, see College of Education Scholarships and Awards on the College's web site (<http://www.education.uiowa.edu/scholarships>).

Faculty

All tenure-track faculty members hold earned doctorates in their teaching fields, and many have had teaching or administrative experience in the public schools. Several hold joint appointments in the College of Liberal Arts and Sciences.

Interdepartmental Courses

07X:100 Honors Seminar in Education 1 s.h.
Research in education and related professions in collaboration with a College of Education faculty member of student's choice; preparation for senior honors project.

07X:101 Senior Honors Project 1-2 s.h.
Collaboration with a faculty member on research project; written report. Prerequisite: 07X:100.

Counseling, Rehabilitation, and Student Development

Chair: Dennis R. Maki

Professors: Nicholas Colangelo, Dennis Harper, Dennis R. Maki, Leslie Margolin, Ernest Pascarella, Vilija Tarvydas, Elizabeth J. Whitt

Professors emeriti: Richard Dustin, Albert B. Hood, David A. Jepsen

Associate professors: Debora Liddell, Tarrell Portman, Sarah Saunders, John Wadsworth

Associate professors emeriti: William A. Matthes, Ralph R. Roberts Jr.

Assistant professors: David Duys, Sherry Watt, Susannah Wood

Adjunct assistant professors: David Grady, Barbara O'Rourke, Johnnie Sims

Adjunct lecturers: Leanne Eichinger, Valerie Garr, Sarah Hansen, Carlos Serrato, Orville Townsend

Graduate degrees: M.A., Ph.D.

Web site: <http://www.education.uiowa.edu/crsd>

The Department of Counseling, Rehabilitation, and Student Development generates and disseminates knowledge, develops skills, and promotes attitudes about effective professional practices that foster human development across the life span. The department prepares practitioners and scholars primarily at the graduate level, through degree programs in counselor education and supervision, rehabilitation counseling, rehabilitation counselor education, school counseling, and student affairs. It also offers basic courses in interviewing and interpersonal skills for students in other professional and graduate programs, as well as for undergraduates who pursue the College of Education minor in human relations. See "College of Education Minors" in the College of Education section of the Catalog.

Graduate Programs

The department offers graduate degrees in student affairs, rehabilitation counseling, school counseling, and counselor education. Prospective students must meet admission requirements for the individual programs as well as the department's general admission requirements (see "Admission" later in this section).

Upon completing a degree in the department, students are evaluated and are expected to have awareness, knowledge, and skills in these areas:

- current definitions, professional standards, and appropriate professional practices regarding multiculturalism;

- what it means to be a multiculturally competent helping professional;

- integration of feedback into practice and professionalism in interpersonal interactions;

- personal limitations and strengths that could ultimately support or harm a client or student;

- a personal plan for future practice in the field regarding multicultural relationships.

Student Affairs

The department offers a Master of Arts in student development in postsecondary education and a Doctor of Philosophy in student affairs administration and research.

M.A. in Student Development in Postsecondary Education

The Master of Arts emphasizes theory and practice. It prepares students for a wide variety of entry- and mid-level positions in colleges and universities, including admissions and orientation, student activities, career planning, academic planning, residence halls, international student programs and advising, and community college counseling. M.A. students are required to pass written comprehensive examinations. A thesis is optional.

The program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

ADMISSION

Applicants who meet the following criteria are given preference for admission: an undergraduate g.p.a. of at least 3.00, significant undergraduate leadership experience, writing ability, and fit with the program.

The admissions committee considers each applicant's entire application portfolio. Personal interviews are encouraged and may be required. All applications must include complete application forms; three letters of reference and/or completed recommendation forms; a written statement of goals, interests, and experiences relevant to graduate study in student development at The University of Iowa; official Graduate Record Exam (GRE) General Test scores; and official transcripts for previous postsecondary course work.

Applications are considered for fall semester and are due by February 1. Applicants who submit their materials by February 1 receive preference for fellowship and assistantship opportunities.

Campus visit days, held each March and/or April, give admitted M.A. applicants the opportunity to interview for assistantships and meet current students. Prospective students also may arrange campus visits at other times.

REQUIREMENTS

The M.A. in student development and postsecondary education requires 48 s.h. It is designed for two years of full-time study (9-12 s.h. per semester), although some students study part-time toward the degree.

The curriculum is based on theories of student learning and development; theories of organization and administration; knowledge of higher education contexts; research on college students, student affairs, and higher education; counseling and helping skills; student affairs administration; and connections among research, theories, and practice.

Experiential Components

The program requires a practicum and an internship. This experiential course work provides professional development experiences for the program's students. Practical experiences include developmental work with individual students; program planning, implementation, and evaluation; administration and supervision; exposure to diverse clientele; use of assessment and evaluation tools; familiarity with electronic technologies for communication and teaching; and application of ethical guidelines.

M.A. students must complete at least one eight-hour-per-week practicum in a student services office, usually during the second semester of the first year. An M.A. site supervisor and program faculty members supervise the practicum, which includes a weekly seminar (07C:333 Practicum in Student Services).

After successfully completing the practicum, students are eligible to begin a required internship in an approved student services site. The internship helps students integrate theory and standards into practice and develop a professional identity in the field. Interns must complete 600 clock hours under the supervision of an M.A. supervisor. Most students complete this requirement in half-time graduate assistantships over two semesters during the second year. Regular evaluations are required. Students meet weekly with their classmates and

faculty supervisor in the capstone seminar (07C:363 Capstone Seminar in Student Services).

In addition to practicums and internships on campus, there are field site opportunities at several nearby colleges. Cornell College, Mount Mercy College, Coe College, and Kirkwood Community College are within a 20-mile drive from Iowa City. Grinnell College, Saint Ambrose University, Muscatine Community College, and Iowa Wesleyan College are within a 90-minute drive.

Sample Course Schedule

First year, fall semester:	
07C:221 Theories of Counseling and Human Development Across the Life Span	3 s.h.
07C:278 Applied Microcounseling	3 s.h.
07C:281 Introduction to Computer Technology in the Helping Professions	1 s.h.
07C:330 Introduction to Student Services	3 s.h.
07C:331 College Students and Their Environments	3 s.h.
First year, spring semester:	
07C:203 Career Development	3 s.h.
07C:250 Multiculturalism in the Helping Professions	3 s.h.
07C:333 Practicum in Student Services	3 s.h.
07C:334 College Student Learning and Cognitive Development	3 s.h.
Second year, fall semester:	
07B:206 Research Process and Design	3 s.h.
07C:332 College Student Psychosocial and Identity Development	3 s.h.
07C:335 Administration of Student Services	3 s.h.
07C:363 Capstone Seminar in Student Services	3 s.h.
Second year, spring semester:	
07B:100 Issues and Policies in Higher Education	3 s.h.
07C:363 Capstone Seminar in Student Services	3 s.h.
Electives	3-6 s.h.

Ph.D. in Student Affairs Administration and Research

The interdepartmental Doctor of Philosophy in student affairs administration and research is offered by the Department of Counseling, Rehabilitation, and Student Development and the Department of Educational Policy and Leadership Studies. The program provides in-depth preparation for leadership positions in student affairs administration, graduate student affairs

preparation programs, and/or research about college students and student affairs practice.

ADMISSION

Applicants who meet the following criteria are given preference for admission: a master’s degree in student personnel, higher education, counselor education, or a related field; an undergraduate or graduate g.p.a. of at least 3.00; significant work experience in student affairs, community organizations, or successful related work; writing ability; and fit with the program.

The admissions committee considers each applicant’s entire application portfolio. Personal interviews are encouraged and may be required. All applications must include complete application forms; three letters of reference and/or completed recommendation forms; a written statement of goals, interests, and experiences relevant to graduate study in student development at The University of Iowa; official Graduate Record Exam (GRE) General Test scores; and official transcripts for previous postsecondary course work.

Applications are considered for fall enrollment. Application deadline is January 1.

REQUIREMENTS

The Ph.D. in student affairs administration and research requires 90 s.h. beyond the bachelor’s degree (approximately 60 s.h. beyond the master’s degree), although a student’s academic and experiential backgrounds, needs, and interests help determine the required credit. Decisions are made case-by-case in collaboration with the student and his or her advisory committee.

Educational foundations covered in the curriculum include college student learning and development, student affairs administration, integrative experiences, research tools, and minor area courses. A nine-hour written comprehensive examination must be completed successfully before the student can be admitted to candidacy for the Ph.D.

Requirements are as follows.

College Student Research Core

Total of 18 s.h.

07C:331 College Students and Their Environments	3 s.h.
07C:334 College Student Learning and Cognitive Development	3 s.h.
07C:336 Impact of College on Students	3 s.h.

07C:431 Seminar: Research on College Students	3 s.h.
Two electives (e.g., 07C:255, 07W:231)	6 s.h.

Administration Core

Total of 21 s.h.

All of these:

07B:216 Finance in Higher Education	3 s.h.
07C:330 Introduction to Student Services	3 s.h.
07C:335 Administration of Student Services	3 s.h.
07C:337 Administration Theory in Student Affairs	3 s.h.
07C:432 Seminar: Student Affairs Practice	3 s.h.
One elective (e.g., 07B:224, 07C:366)	3 s.h.

One of these:

07B:218 The Law and Higher Education	3 s.h.
07B:318 Legal Issues in Student Services	3 s.h.

Integrative Experiences

Total of 3-9 s.h., based on student’s background, needs, goals, and experiences

07C:433 Seminar: Current Issues in Student Affairs	3 s.h.
07C:333 Practicum in Student Services or equivalent experience (maximum of 6 s.h.)	3 s.h.

Research Tools

Total of 21 s.h.

All of these:

One research design course (07B:206 or equivalent)	3 s.h.
07P:243 Intermediate Statistical Methods (or equivalent)	4 s.h.
One qualitative methods course (07C:338 or equivalent)	3 s.h.
07C:461 Practicum in Research	3 s.h.

Two of these advanced quantitative or qualitative methods courses, or other approved research methods courses (total of 6 s.h.):

07P:244 Correlation and Regression	4 s.h.
07P:245 Applied Multivariate Analysis	3 s.h.
113:202 Ethnographic Field Methods	3 s.h.

One of these evaluation or instrument development courses:

07P:257 Educational Measurement and Evaluation	3 s.h.
07P:265 Program Evaluation	3 s.h.

MINOR AREA

Ph.D. students earn 9 s.h. in minor area courses taken outside the College of Education. Disciplines such as sociology, psychology,

anthropology, history, management and organizational studies, and law inform student affairs administration and research and provide deeper and broader understanding of student affairs practice and scholarship. Leaders in student affairs benefit from the varied perspectives that other disciplines can provide.

DISSERTATION

Students must complete a research dissertation, for a total of 12 s.h.

Rehabilitation Counseling

M.A. in Rehabilitation Counseling

The Master of Arts in rehabilitation counseling prepares professional counselors to provide assistance in employment, independent living, and personal or economic development to persons with disabilities and other individuals who encounter barriers in meeting their functional needs. It also prepares professionals in the mental health counseling/psychiatric rehabilitation specialization to obtain licensure as counseling professionals who provide services in community mental health settings.

Rehabilitation counselors work in a variety of settings, including public agencies such as state vocational rehabilitation programs and Veterans Affairs vocational rehabilitation programs; independent living centers; community-based rehabilitation centers and supported employment programs; private for-profit worker's compensation and insurance rehabilitation agencies; and mental health agencies. They provide interventions designed to help persons with disabilities adapt to the demands of their environments. They also prepare the environments to accommodate the individual's needs. Assessment, personal and vocational counseling, development of rehabilitation and treatment plans, case management, service coordination, psychosocial adjustment, job development, placement, and follow-up are typical services that rehabilitation counselors provide.

The M.A. program in rehabilitation counseling is accredited by the Council on Rehabilitation Education (CORE). The program also is accredited in community counseling by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

Graduates of the M.A. program are eligible for certification by the Commission on Rehabilitation Counselor Certification (CRC) and the National

Board for Certified Counselors. By completing the mental health/psychiatric rehabilitation specialization course work, students also complete the courses they must take in order to apply for licensure as mental health professionals.

ADMISSION

No specific undergraduate major area of study is required, but a major in one of the social sciences is considered good preparation for the M.A. in rehabilitation counseling. Applicants should have a good academic record and relevant experience, such as assisting individuals with disabilities. Postbaccalaureate work experience relevant to the field of rehabilitation counseling is preferred. The program encourages applications from persons traditionally underrepresented in the field, particularly those with a disability and/or members of minority or ethnic groups. Applicants also must meet the department's admission requirements (see "Admission" later in this section). A personal interview is required, either in person or by telephone.

Applications for full-time study are accepted for summer session (June) entry. Application deadline for full-time study is April 1 for U.S. applicants, March 1 for international applicants. Applications for part-time study are accepted for fall and spring semesters. Applicants who submit their materials by February 1 receive preference and have maximum access to the Rehabilitation Services Administration Scholars Program.

REQUIREMENTS

The M.A. in rehabilitation counseling requires a minimum of 60 s.h., including a 12 s.h. specialty emphasis area of the student's choice. Full-time students can complete the program in two academic years (four semesters plus two summer sessions, approximately 21 months).

The curriculum blends academic work with supervised clinical experiences. Students take three semesters of practicum concurrently with academic courses. The program concludes with a full-time internship (40 hours per week) during a spring semester. Students are assigned to rehabilitation and community mental health agencies or facilities that meet CORE and CACREP accreditation standards and that have programs or clientele who match the student's interests and educational objectives. Some placements may require background checks.

Supervised practicums, internships, and comprehensive examinations are not offered during summer sessions.

Requirements are as follows.

Department Requirements

07B:206 Research Process and Design	3 s.h.
07C:202 Introduction to Group Counseling	3 s.h.
07C:210 Rehabilitation Client Assessment	3 s.h.
07C:221 Theories of Counseling and Human Development Across the Life Span	3 s.h.
07C:250 Multiculturalism in Helping Professions (or equivalent)	3 s.h.
07C:270 Issues and Ethics in Counseling	3 s.h.
07C:278 Applied Microcounseling	3 s.h.
07C:281 Introduction to Computer Technology in the Helping Professions	1 s.h.
Clinical practice (see “Clinical Practice,” below)	16 s.h.

Program Requirements

07C:241 Introduction to Rehabilitation Counseling and Case Management	3 s.h.
07C:247 Medical Aspects of Disability	3 s.h.
07C:249 Psychiatric Disorders and Interventions	3 s.h.
07C:341 Job Development, Placement, and Follow-Up	3 s.h.
07C:342 Psychosocial and Developmental Aspects	3 s.h.

Clinical Practice

All of these:

07C:348 Prepracticum in Rehabilitation Counseling and Case Management	arr.
07C:349 Practicum in Rehabilitation Counseling and Case Management	3 s.h.
07C:352 Internship in Rehabilitation Counseling and Case Management	12 s.h.

One of these:

07C:350 Advanced Practicum in Rehabilitation Counseling and Case Management	3 s.h.
07C:351 Advanced Practicum in Mental Health and Substance Abuse	3 s.h.

SPECIALIZATION

With their advisor’s approval, students select a specialization area. Specialization areas may include aging and rehabilitation, brain injury rehabilitation, law and disability, mental health/substance abuse counseling, mental health counseling/psychiatric rehabilitation, case management, multiculturalism, assistive technology, and Spanish-English. Students choose 12 s.h. of course work in their area. The specialization must include 9 s.h. of didactic

course work and 3 s.h. of professional practice appropriate to the specialty at the practicum or internship level.

COMPREHENSIVE EXAMINATION

In addition to the departmental comprehensive examination, a three-hour written examination on the process and practice of rehabilitation and community counseling is required. Exams are offered only during fall and spring semesters.

Ph.D. in Rehabilitation Counselor Education

The Doctor of Philosophy in rehabilitation counselor education prepares professionals for leadership roles in rehabilitation counselor education, research, administration, and service delivery systems. It provides rehabilitation counselors the opportunity to master knowledge; clinical, teaching, and supervisory skills; and research competencies at the most advanced levels.

Ph.D. students focus on three areas of advanced development: counselor education and supervision, research, and professional practice. The program is flexible, permitting students to pursue individualized plans of study within the required curriculum. Ph.D. graduates are expected to have sufficient knowledge and skill to teach at colleges and universities, supervise other professionals, and provide clinical services to clients. They also should have competencies to engage in and evaluate theoretical, qualitative, and empirical research.

ADMISSION

Applicants should have a master’s degree in rehabilitation counseling or a related area and a graduate g.p.a. of 3.00 or higher. One year of full-time work experience in rehabilitation or a related field is strongly encouraged. Applicants should include a written statement of purpose for pursuing the Ph.D. in rehabilitation counselor education and personal career objectives, official score on the Graduate Record Exam (GRE) General Test, and three letters of recommendation. A personal interview is required.

Applications are accepted for fall entry. Application deadline is January 1.

REQUIREMENTS

The Ph.D. in rehabilitation counselor education requires a minimum of 90 s.h. of graduate credit. Most students complete their course work in three years and take a fourth year to complete

the dissertation. Students who have not completed a master's degree in rehabilitation counseling must take appropriate masters-level courses or their equivalents. This combination of master's and doctoral course work ensures exposure to vocational rehabilitation as well as to independent living rehabilitation and community-based counseling processes, concepts, programs, and services.

Each student is required to submit a curriculum plan. The rehabilitation counseling faculty reviews each student annually. To continue in the program, students must meet the department's requirements for maintaining candidacy.

Requirements are as follows.

Department Core

07C:255 Advanced Career Development and Counseling (or equivalent)	3 s.h.
07C:353 Advanced Counseling and Psychotherapy	3 s.h.
07C:357 Advanced Group Counseling and Psychotherapy	3 s.h.
07C:400 Seminar: Ethics and Issues in Counseling	3 s.h.

Program Requirements

Students are expected to have completed core rehabilitation counseling requirements during master's degree work (see "M.A. in Rehabilitation Counseling" above). The advisor and program faculty determine which master's-level courses must be taken to correct deficiencies. Students also must complete the following.

07C:360 Advanced Practicum in Counseling	3 s.h.
07C:369 Advanced Seminar in Rehabilitation Counseling and Psychology	3 s.h.
07C:380 Practicum in College Teaching	1-3 s.h.
07C:450 Advanced Social Psychology of Disability	3 s.h.
07C:454 Supervision Theory and Practice	3 s.h.
07C:455 Supervising the Counseling Practicum	3 s.h.
07P:385 Teaching and Learning in Higher Education	3 s.h.

Statistics and Research Design

07C:338 Essentials of Qualitative Inquiry	3 s.h.
07C:460 Seminar: Research in Counseling	3 s.h.
07C:461 Practicum in Research	3 s.h.
07P:243 Intermediate Statistical Methods	4 s.h.
07P:246 Design of Experiments	4 s.h.

One quantitative research methods course chosen from these (at least 3 s.h.):	
07P:244 Correlation and Regression	4 s.h.
07P:245 Applied Multivariate Analysis	3 s.h.
07P:250 Computer Packages for Statistical Analysis	2-3 s.h.
07P:252 Introduction to Multivariate Statistical Methods	3 s.h.

MINOR AREA

Students plan a minor area in collaboration with their major advisor and curriculum plan committee. The minor area must be outside the department. Students select a minimum of 9 s.h. of course work in the minor area, in collaboration with their minor advisor and with the approval of their curriculum plan committee.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three exams that total nine hours. They cover the department core comprehensive (three hours), rehabilitation counseling—theory, practice, and research (three hours), and the minor area (three hours).

DISSERTATION

The dissertation is a major research study planned in collaboration with the student's major advisor. At least two rehabilitation counseling faculty members serve on the dissertation committee; one of them chairs or co-chairs the committee.

07C:493 Ph.D. Thesis	10-15 s.h.
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School Counseling

M.A. in School Counseling

The Master of Arts in school counseling prepares individuals to work effectively as counselors in K-12 school settings. The program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). Successful graduates are eligible for elementary and/or secondary school counselor licensure in Iowa and for national counselor certification by the National Board for Certified Counselors.

ADMISSION

Applicants should have an undergraduate g.p.a. of 3.00 or higher and one year of postbaccalaureate teaching experience or successful experiences with children and/or adolescents. Graduate Record Examination (GRE) General Test scores must be on file at the University during the first semester of admission.

Applications are accepted for summer entry (or fall with permission). Application deadline is March 1 for U.S. applicants; February 1 for international applicants.

REQUIREMENTS

The M.A. in school counseling requires a minimum of 54 s.h. The program emphasizes gifted education. During the first few semesters, students take core cognate courses, including course work on gifted education, and the microcounseling clinical skills laboratory. Then they enter a counseling practicum followed by an internship. Students who enter without teaching licensure are required to take additional course work in education (07E:100 Foundations of Education, 07U:100 Foundations of Special Education, and 07P:200 Educational Psychology or equivalent) to meet school counselor licensure standards. Students are expected to complete at least 100 contact hours in practicum and 600 contact hours in internship activities in an approved school setting, under the supervision of an experienced licensed school counselor and a University faculty supervisor.

Students must complete program and department core courses, except electives, before enrolling in 07C:300 Practicum in School Counseling for the summer session of their last year in the program. Students who are not licensed teachers must complete course work in education before enrolling in the practicum.

Each student's progress is reviewed periodically by the program faculty. Students who have successfully completed all prerequisites for 07C:300 Practicum in School Counseling are reviewed in the spring to assure that they are prepared for the practicum, which is offered only in the summer session. During the fall, students are evaluated to assure their readiness for the internship 07C:321 Internship in Elementary School Counseling or 07C:322 Internship in Secondary School Counseling, which requires assignment in approved schools for the fall and/or spring semesters.

Suggested Plan of Study

The following plan of study suggests classes for six sessions of study. Students who do not have teacher licensure are required to complete at least three additional courses in education before the second year of classes.

First year, summer session:
 07C:137 Introduction to Educating Gifted Students 3 s.h.
 07C:204 School Culture and Classroom Management for School Counselors 2 s.h.

07C:281 Introduction to Computer Technology in the Helping Professions 1 s.h.

First year, fall semester:
 07B:206 Research Process and Design 3 s.h.
 07C:200 Professional School Counselor 3 s.h.
 07C:221 Theories of Counseling and Human Development Across the Life Span 3 s.h.
 07C:250 Multiculturalism in Helping Professions 3 s.h.

First year, spring semester:
 07C:202 Introduction to Group Counseling 3 s.h.
 07C:203 Career Development 3 s.h.
 07C:223 Counseling Gifted and Talented Students 3 s.h.
 07C:278 Applied Microcounseling 3 s.h.

Second year, summer session:
 07C:222 Counseling Children and Adolescents in Schools 3 s.h.
 07C:300 Practicum in School Counseling Electives Courses not completed during first year 3 s.h.

Second year, fall semester:
 07C:230 School Counseling Program Leadership and Management 3 s.h.
 07C:254 Action Research I: Assessment/Appraisal 3 s.h.
 07C:321 Internship in Elementary School Counseling (300 hours) 3 s.h.
 07C:322 Internship in Secondary School Counseling (300 hours) 3 s.h.
 07U:140 Characteristics of Disabilities 3 s.h.

Second year, spring semester:
 07C:321-07C:322 Internship in School Counseling—Elementary and Secondary (clinical instruction, 600 hours) 6 s.h.
 07C:256 Action Research II: School-Based Field Research Approved electives 3 s.h. 3 s.h.

COMPREHENSIVE EXAMINATION

All students are required to take comprehensive exams for counseling, rehabilitation, and student development and for school counseling during their final semester of internship.

Counselor Education

Ph.D. in Counselor Education and Supervision

The Doctor of Philosophy in counselor education and supervision prepares students with knowledge and skills basic to counseling,

teaching, consulting, supervising counselors, and doing research. Graduates enter professional work as counselors, counselor supervisors, counselor educators, researchers and/or consultants, or work in other positions requiring expertise in human relations. Students may choose an emphasis in gifted and talented education, school counseling, professional leadership, or student development.

Counselor education and supervision graduates are prepared to teach the knowledge and skills required of professional counselors and to supervise beginning and advanced counselors; perform counseling interventions with individuals and groups; and teach human relations skills in colleges or universities. They provide professional consultation with counseling practitioners and policy makers about counseling program development and evaluation. They also may perform research that contributes to knowledge about counseling, supervision, and counselor education.

The program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). The American Counseling Association (ACA) and the Association for Counselor Education and Supervision (ACES) are the professional organizations most related to program activities.

ADMISSION

In addition to the department’s admission requirements (see “Admission” later in this section), Ph.D. applicants must provide evidence of successful experience in counseling or a closely related profession. Applicants without experience may be admitted if their credentials indicate exceptional strengths.

Applications are accepted for fall and spring semesters and summer session. Application deadlines for U.S. citizens are July 15 for fall, December 1 for spring, and April 15 for summer. Deadlines for international applicants are April 15 for fall, October 1 for spring, and March 1 for summer.

REQUIREMENTS

The Ph.D. in counselor education and supervision requires 96 s.h. of graduate study. Students complete required courses in counseling and in research tools and applications, an optional emphasis area, and a minor outside the department. They also take comprehensive examinations and complete a dissertation.

Required Courses

07C:255 Advanced Career Development and Counseling (or equivalent)	3 s.h.
07C:347 Home/School/Community: System Interventions	3 s.h.
07C:353 Advanced Counseling and Psychotherapy	3 s.h.
07C:357 Advanced Group Counseling and Psychotherapy	3 s.h.
07C:360 Advanced Practicum in Counseling	3 s.h.
07C:380 Practicum in College Teaching	3 s.h.
07C:400 Seminar: Ethics and Issues in Counseling	3 s.h.
07C:451 Advanced Multiculturalism	3 s.h.
07C:454 Supervision Theory and Practice	3 s.h.
07C:455 Supervising the Counseling Practicum	3 s.h.
07C:457 Seminar: Professional Orientation to Counselor Education and Supervision	3 s.h.
07C:458 Seminar: Current Issues and Trends in Counselor Education and Supervision	3 s.h.
07C:459 Seminar: Leadership and Advocacy in Counselor Education and Supervision	3 s.h.
07C:465 Internship in Counselor Education (at least 240 hours)	3 s.h.
07P:385 Teaching and Learning in Higher Education	3 s.h.
At least one course in human development	3 s.h.
At least one advanced course in psychological or educational measurement	3 s.h.

Research Tools and Applications

The following are minimum requirements. Students are expected to master research tools and applications beyond the minimum requirements in order to develop research skills consistent with their professional goals.

07C:338 Essentials of Qualitative Inquiry	3 s.h.
07C:394 M.A. Equivalency Research (for students without an approved M.A./M.S. thesis)	1-3 s.h.
07C:460 Seminar: Research in Counseling	3 s.h.
07C:493 Ph.D. Thesis	10-15 s.h.
07P:243 Intermediate Statistical Methods	4 s.h.
At least one course in quantitative research methods chosen from these (at least 3 s.h.):	
07P:244 Correlation and Regression	4 s.h.
07P:245 Applied Multivariate Analysis	3 s.h.
07P:246 Design of Experiments	4 s.h.

07P:250 Computer Packages for Statistical Analysis	2-3 s.h.
07P:252 Introduction to Multivariate Statistical Methods	3 s.h.

Minor Area

Students take a series of courses (typically a minimum of three) in an area of study outside the Department of Counseling, Rehabilitation, and Student Development. They select course work in collaboration with their minor area advisor, a faculty member from the area, and with approval of the curriculum plan committee.

Master's Thesis Equivalency

Students must satisfy the program's requirements. They must complete an M.A. thesis equivalency within 30 s.h. or 24 months after entering the program, and before taking the comprehensive examination.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three 3-hour exams and an oral defense, including a department comprehensive exam, a counselor education and supervision program comprehensive exam, and an exam on the minor area. The comprehensive exam may be taken during the student's final semester of course work.

DISSERTATION

The major research project culminating in the doctoral thesis may be on any topic related to counseling and counselor education. The thesis advisor and the examining committee approve the topic and procedures at a formal prospectus meeting. The final oral examination on the thesis is conducted by the examining committee. Students usually earn 10 s.h. for dissertation work, but in some instances they may earn up to 15 s.h.

Admission

All M.A. and Ph.D. applicants must submit the following:

- a completed graduate application form;
- copies of official transcripts of all previous undergraduate and graduate college work;
- official report of Graduate Record Examination (GRE) General Test verbal and quantitative scores;
- a statement of the applicant's reasons for seeking an advanced degree in the department, including a statement of personal career objectives;

three current letters of recommendation from persons in a position to assess both the applicant's prospects for completing either the M.A. or Ph.D., and his or her commitment to the profession.

The department may request a personal or telephone interview.

The following admission standards are considered for individual program admission decisions.

M.A. applicants should have an undergraduate g.p.a. of at least 3.00.

Ph.D. applicants should have an undergraduate g.p.a. of at least 3.00, or if they hold a graduate degree, a graduate g.p.a. of at least 3.00.

Typically, doctoral students are not admitted unless they have completed a master's degree in counseling or a related field. Relevant work experiences are important. Students who are accepted without a related master's degree must complete core master's-level course work before taking advanced Ph.D. courses. Required remedial courses and experiences are determined in consultation with the advisor and are included in a student's curriculum plan.

Visit the Department of Counseling, Rehabilitation, and Student Development web site for details about admission and program requirements.

INTERNATIONAL APPLICANTS

International applicants must score at least 550 (paper-based) or at least 213 (computer-based) on the Test of English as a foreign language (TOEFL). The department may require applicants with lower TOEFL scores to complete University of Iowa course work in English language fluency. TOEFL scores must be submitted with the application for admission.

Final Decision, Special Requirements

The criteria listed above are minimum standards for admission. Final admission decisions are made by faculty committees. Some programs may have special admission requirements due to licensure/certification standards. Special admission requirements are listed with individual program information.

Conditional Admission

Applicants who do not meet the requirements for regular admission may be admitted on conditional status if the faculty determines that

they show strengths and promise warranting conditional admission. Applicants admitted on conditional status must satisfy the following requirements in order to achieve regular status.

M.A. students admitted on conditional status must complete at least 12 s.h. of core courses (approved by an advisor) over two consecutive sessions and earn a cumulative g.p.a. of at least 3.00.

Ph.D. students admitted on conditional status must complete at least 12 s.h. of core courses (approved by an advisor) over two consecutive sessions and earn a cumulative g.p.a. of at least 3.00.

Maintaining Candidacy

All graduate students must meet the following standards in order to maintain their candidacy for a degree:

- maintain a g.p.a. of at least 3.00;
- successfully complete a practicum, internship, or equivalent professional experience;
- maintain professional behavior consistent with the American Counseling Association code of ethics and any additional code of professional ethics adhered to in any agency in which the student completes a practicum or internship;
- demonstrate progress toward the degree through successful completion of semester hours specified in the curriculum plan and active registration each session (exceptions may be approved by the advisor).

Each student's academic and professional progress is reviewed annually. A written report is provided to the student and a copy is placed in his or her department file.

Probational Status

M.A. and Ph.D. students who earn a cumulative g.p.a. lower than 3.00 are placed on probational status and are notified in writing. Students on probational status have two consecutive sessions to raise their grade-point average to the established standard. If that requirement is not met, the student may be removed from the program. Each student is allowed one probational status during his or her program of study.

Application

For application materials, visit the Department of Counseling, Rehabilitation, and Student Development web site.

Applications must be complete before they can be reviewed. Applicants are responsible for providing a complete application dossier; to check on whether an application dossier is complete, contact the College of Education Office of Teacher Education and Student Services. Application forms are available on the web.

Applicants are notified in writing after their applications have been reviewed. Applicants who are accepted must reply in writing in order to maintain their admission status.

Financial Support

Depending on federal funding, graduate training fellowships may be available for M.A. and Ph.D. students entering rehabilitation counseling through the Rehabilitation Services Administration Scholars Program. Many other graduate students in the Department of Counseling, Rehabilitation, and Student Development hold a wide variety of graduate assistantships. For example, many of the University's student service units award part-time assistantships to graduate students in the department. Applicants for assistantships should contact the department or the coordinator of the particular graduate program they plan to enter.

Applicants seeking fellowships or assistantships should complete their applications as early as possible.

Facilities

In addition to the counseling suite on campus, which serves as a laboratory for training, a wide variety of supervised clinical experiences are available in community agencies, schools, and colleges, as well as throughout the University. Internships may be completed in approved sites nationwide.

Courses

07C:030 Belin-Blank Center First-Year Seminar 1 s.h.
Presentations and discussions by University resource experts and Belin-Blank Center staff. Prerequisite: Belin-Blank Center student standing.

07C:081 Making a Vocational-Educational Choice 2 s.h.
Vocational decision-making process, self-evaluation, exploration of the world of work; for students who are uncertain about their educational and vocational goals.

07C:112 Human Sexuality 1-3 s.h.
Physiological and psychological aspects of human sexuality. Same as 042:112, 096:112.

07C:119 Family Issues in Giftedness 1 s.h.
Family dynamics and issues that arise when one or more children are identified as gifted; parent/child, sibling, school/family relationships.

07C:120 Psychology of Giftedness 3 s.h.
Theories of learning, child development, motivation; issues unique to gifted education. Same as 07P:120.

07C:121 Assessment of Giftedness and Academic Talent 3 s.h.
Interpretation of standardized tests and other measurement instruments used to identify academic talent and program effectively for grades K-12; ability, aptitude, achievement tests; current issues in the uses of various instruments. Same as 07P:121.

07C:123 Gender Issues and Giftedness 1 s.h.
Effect of gender on development of giftedness; differential needs of girls, boys; strategies for effective teaching, gender equity.

07C:124 Ethnic and Cultural Issues and Giftedness 1 s.h.
Effect of ethnicity and culture on development of giftedness; special needs of Black, Hispanic, Native American, and Asian gifted students; strategies for identification, programming.

07C:125 Counseling and Psychological Needs of the Gifted 1 s.h.
Psychological aspects of giftedness, counseling techniques appropriate for gifted children, adolescents; socio-emotional concerns, career development, underachievement. Same as 07P:125.

07C:126 Cognitive and Affective Needs of Underachieving Gifted 1 s.h.
Diagnostic strategy for identifying types of underachievement, teaching and counseling interventions appropriate for each. Same as 07P:126.

07C:127 Research and Theory in Talent/Giftedness 1 s.h.
Biennial research symposium. Same as 07P:127.

07C:128 Advanced Leadership Seminar in Gifted Education 1 s.h.
Development of administrative policies and programming based on empirical research; for experienced leaders in gifted education.

07C:129 Creativity: Issues and Applications in Gifted Education 1 s.h.
Theories that underpin contemporary definitions of creativity; instruments developed to measure creativity; activities in the school environment that enhance or inhibit student creativity. Same as 07P:129.

07C:137 Introduction to Educating Gifted Students 3 s.h.
Fundamental issues such as curriculum, counseling, family issues, gender and minority issues. Same as 07U:137.

07C:145 Marriage and Family Interaction 3 s.h.
Contemporary American marriage, family relationships; mate selection.

07C:162 Introduction to Marriage and Family Counseling and Psychotherapy 3 s.h.
Evolution of the family therapy movement and issues related to functional and dysfunctional family systems; significant models of family therapy and specific techniques.

07C:178 Microcounseling 1-3 s.h.
Basic skills of listening, responding, empathy, focus; advanced skills of meaning, confrontation, reframing, directives, action skills.

07C:180 Topical Seminar for Helping Professionals arr.
Topics for the continuing education of counselors and related professionals.

07C:182 Workshop for Helping Professionals 1-2 s.h.
One-week workshop; students choose a topic for community practitioners working with or interested in counseling individuals, groups, families, organizations.

07C:185 Introduction to Substance Abuse 3 s.h.
Theories of addiction and pharmacology of psychoactive drugs; legal, familial, biological, multicultural, historical issues related to substance use and misuse.

07C:187 Introduction to Assistive Technology 3 s.h.
How assistive technology can be used for attainment of goals in education or work. Same as 07U:187.

07C:188 Practicum in Teaching and Curriculum Development in Gifted Education 1-6 s.h.
Experience in developing course materials for classes offered through the Belin Center. Same as 07E:188, 07S:188, 07U:188.

07C:190 Group Processes for Related Professions 3 s.h.
Small-group procedures for personal and organizational development in educational settings; discussions of theoretical and ethical issues, multicultural considerations, and research findings supplemented with demonstrations; participation in a personal growth group.

07C:193 Individual Instruction—Undergraduate arr.
Prerequisite: consent of instructor.

07C:194 Interpersonal Effectiveness 3 s.h.
Paradigms and techniques that enhance interpersonal relationship skills.

07C:199 Counseling for Related Professions 3 s.h.
Counseling theories and techniques; ethical and multicultural considerations; small-group discussions, demonstrations, lectures.

07C:200 Professional School Counselor 3 s.h.
Professional identity of school counselors, K-12 school counseling program delivery systems, legal and ethical issues. Prerequisite: admission to school counseling program or consent of instructor.

07C:202 Introduction to Group Counseling 3 s.h.
Research, theory, ethics, planning, and practice in group counseling; leadership styles and multicultural considerations; group participation. Prerequisites: 07C:221; counseling, rehabilitation, and student development enrollment; and consent of instructor. Corequisite: 07C:278.

07C:203 Career Development 3 s.h.
Preparation for counselors and student affairs professionals; career development concepts and theories, family and work, career counseling goals and objectives, exemplary techniques and materials, career program planning, evaluation procedures. Prerequisite: counseling, rehabilitation, and student development enrollment or consent of instructor.

07C:204 School Culture and Classroom Management for School Counselors 2 s.h.
American public elementary and secondary schools and the school counselor's role; classroom management for school counselors.

07C:210 Rehabilitation Client Assessment 3 s.h.
Process and practice of assessing persons with disabilities for rehabilitation plan development and decision making; multicultural and ethical considerations.

07C:216 Group Leadership in Human Sexuality 0-3 s.h.
Repeatable. Same as 042:216, 096:216.

07C:221 Theories of Counseling and Human Development Across the Life Span 3 s.h.
Philosophical bases, ethical considerations, processes, issues, multicultural and life-span developmental considerations in counseling theories and techniques. Prerequisite: counseling, rehabilitation, and student development M.A. enrollment or consent of instructor.

07C:222 Counseling Children and Adolescents in Schools **3 s.h.**

Theory and practice of school-based counseling interventions; child and adolescent development; prevention; special topics. Prerequisite: 07C:221 or 07C:278 or consent of instructor.

07C:223 Counseling Gifted and Talented Students **3 s.h.**

Learning theories and best practices related to school counseling of gifted and talented students; academic, career, and personal/social development.

07C:230 School Counseling Program Leadership and Management **3 s.h.**

Comprehensive K-12 school counseling program components and structures; program leadership, planning, accountability; behavioral consultation and collaboration; ethical, multicultural, family considerations. Corequisite: 07C:321 or 07C:322.

07C:237 Seminar in Gifted Education **2-3 s.h.**

Teaching and counseling needs of gifted students K-12; intensive 10-day residential program. Prerequisites: work as teacher with Belin Fellowship and consent of instructor.

07C:238 Advanced Seminar in Gifted Education **1 s.h.**

Supervisory, administrative, and research issues; fellowships for seminar participants. Prerequisites: 07C:237 and consent of instructor.

07C:241 Introduction to Rehabilitation Counseling and Case Management **3 s.h.**

Historical, philosophical, legislative, societal, and multicultural overview of rehabilitation process and practice in community-based settings; roles of rehabilitation professionals, nature of rehabilitation agencies, resources, contemporary issues and ethics.

07C:247 Medical Aspects of Disability **3 s.h.**

Medical evaluation as part of the rehabilitation process; body systems, medical terminology, medical description of disabilities; functional limitations; projection of potential for rehabilitation applied to planning and placement.

07C:248 Diagnosis and Treatment Planning for Psychiatric Rehabilitation **3 s.h.**

Psychiatric conditions, their diagnostic criteria, treatment planning considerations; medical and psychiatric rehabilitation models, interrelationship in providing services to persons with psychiatric disabilities; functional assessment and client-driven rehabilitation planning for community reintegration. Prerequisite: counseling, rehabilitation, and student development enrollment or consent of instructor.

07C:249 Psychiatric Disorders and Interventions **3 s.h.**

Graduate-level course covering the description, classification, and theoretical perspectives related to psychiatric disorders; models of intervention in community-based settings.

07C:250 Multiculturalism in Helping Professions **3 s.h.**

Theory and application of multicultural competency in the helping professions; ethical treatment of clients in the context of a multiculturally diverse society; knowledge, skill, self-awareness components relevant for helping practitioners.

07C:254 Action Research I: Assessment/Appraisal **3 s.h.**

Didactic experiences related to individual and group assessment and appraisal; for school professionals.

07C:255 Advanced Career Development and Counseling **3 s.h.**

Major concepts and research evidence about life-span vocational behavior; theories of vocational choice, adjustment, development in a multicultural world.

07C:256 Action Research II: School-Based Field Research **3 s.h.**

Field-based research experiences in school settings; students conceptualize, design, conduct, and articulate school-based research findings. Prerequisite: 07C:254 or consent of instructor.

07C:262 Marriage and Family Counseling and Psychotherapy **3 s.h.**

Introduction to counseling theory, ethics, and techniques as applied to problems of marriage and the family over the life span; multicultural considerations. Prerequisites: advanced graduate standing and consent of instructor. Recommended: 07C:178 and 07C:221.

07C:263 Consultation Theory and Practice **2-3 s.h.**

Analysis of various consultation models, such as behavioral and mental health; ethical and multicultural considerations. Same as 07P:263.

07C:270 Issues and Ethics in Counseling **3 s.h.**

Ethical standards and decision making; current issues; ethical, legal, and multicultural considerations for counseling in agencies and schools; emphasis on professional practice.

07C:278 Applied Microcounseling **3 s.h.**

Development of basic and advanced counseling skills; preparation for work in education and community settings.

07C:280 Topical Seminar in CRSD **arr.**

Special topics dealing with contemporary problems of concern to counselors in specific settings. Repeatable.

07C:281 Introduction to Computer Technology in the Helping Professions **1 s.h.**

Prerequisite: counseling, rehabilitation, and student development M.A. enrollment or consent of instructor.

07C:293 Individual Instruction—Graduate **arr.**

Prerequisite: consent of instructor.

07C:300 Practicum in School Counseling **3 s.h.**

Supervised experience counseling and consulting in elementary and secondary school settings. Prerequisite: completion of school counseling core courses.

07C:311 Practicum in Counseling and Psychological Services for Gifted Students **1-6 s.h.**

For graduate students who have had course work in counseling education, counseling psychology, school psychology, educational psychology, or related fields. Prerequisites: 07C:178 or equivalent and consent of instructor. Same as 07P:311.

07C:321 Internship in Elementary School Counseling **3 s.h.**

Supervised placement in an elementary school setting; performance of tasks, responsibilities of an elementary school counselor. Prerequisites: 07C:300, all required school counseling courses, and consent of instructor.

07C:322 Internship in Secondary School Counseling **3 s.h.**

Supervised placement in a secondary school setting; performance of tasks, responsibilities of a secondary school counselor. Prerequisites: 07C:300, all required school counseling courses, and consent of instructor.

07C:330 Introduction to Student Services **3 s.h.**

Foundations of student affairs work; overview of institutional cultures, legal issues, ethical principles, standards of practice in student affairs.

07C:331 College Students and Their Environments **2-3 s.h.**

Characteristics of college students and issues they face; students' institutional, social, cultural environments; impact of environments on student learning, development.

07C:332 College Student Psychosocial and Identity Development **3 s.h.**

Theoretical models of psychosocial and identity development in college students; applications to student affairs work. Prerequisite: 07C:331 or equivalent.

- 07C:333 Practicum in Student Services** arr.
Supervised experience in college student service agencies. Repeatable.
- 07C:334 College Student Learning and Cognitive Development** 3 s.h.
Learning and development in college students; theoretical models of learning, cognitive development, moral development; applications to student affairs work. Prerequisite: 07C:331 or equivalent.
- 07C:335 Administration of Student Services** 3 s.h.
Administrative structures and processes, contexts and principles of effective student services practice, research and assessment in student services. Prerequisite: 07C:330 or equivalent.
- 07C:336 Impact of College on Students** 3 s.h.
Introduction to literature; career and economic returns, values and attitudes, learning and cognitive development, assessment and methodological issues of studying college outcomes. Prerequisite: 07B:206 or equivalent or consent of instructor.
- 07C:337 Administration Theory in Student Affairs** 3 s.h.
Issues and problems in student affairs administration; theories of organization, administration, leadership. Prerequisite: 07C:335 or consent of instructor, and enrollment in student affairs administration and research Ph.D. program.
- 07C:338 Essentials of Qualitative Inquiry** 3 s.h.
Principles, processes of qualitative research in education; methods of design, data collection and analysis, interpretation, trustworthiness. Prerequisites: Ph.D. enrollment, introductory research course, and consent of instructor.
- 07C:341 Job Development, Placement, and Follow-up** 3 s.h.
Obtaining appropriate jobs for individuals with disabilities who have received rehabilitation services; client, counselor, employer, job specifications. Prerequisite: consent of instructor.
- 07C:342 Psychosocial and Developmental Aspects** 3 s.h.
Dynamics of adjustment and coping for persons with chronic illness or those with disabilities through the life span; somatopsychological, psychosocial, and developmental perspectives on disability.
- 07C:347 Home/School/Community: System Interventions** 3 s.h.
Interventions used by school and support system personnel; focus on work with parents, siblings. Same as 07P:347.
- 07C:348 Prepracticum in Rehabilitation Counseling and Case Management** arr.
Counseling laboratory to promote knowledge, skills, and awareness of effective and ethical counseling methods, and fundamentals of case management. Prerequisites: 07C:221 and 07C:278.
- 07C:349 Practicum in Rehabilitation Counseling and Case Management** arr.
Experience in a community agency serving individuals with disabilities, supervised by agency and University personnel. Prerequisite: 07C:348.
- 07C:350 Advanced Practicum in Rehabilitation Counseling and Case Management** 3 s.h.
Experience to enhance competency in agencies and with persons represented in the student's specialty area. Prerequisite: 07C:349.
- 07C:351 Advanced Practicum in Mental Health and Substance Abuse** 3 s.h.
Supervised experience counseling clients with substance-related and/or mental health problems; practical application of theory and ethics through individual, group, family, community counseling. Prerequisites: 07C:349 and consent of instructor.
- 07C:352 Internship in Rehabilitation Counseling and Case Management** arr.
Full-time clinical experience in rehabilitation settings; training in wide range of rehabilitation activities, under supervision of certified rehabilitation counselor (CRC). Prerequisite: 07C:350 or 07C:351.
- 07C:353 Advanced Counseling and Psychotherapy** 3 s.h.
Theories, techniques, and ethics of counseling clients with personal and interpersonal problems; ethical and multicultural considerations. Prerequisite: consent of instructor.
- 07C:357 Advanced Group Counseling and Psychotherapy** 3 s.h.
Theories and techniques of group counseling and psychotherapy; integration of theory, experience, and research in group counseling; ethical and multicultural considerations. Prerequisite: consent of instructor.
- 07C:360 Advanced Practicum in Counseling** arr.
Supervised practice in counseling; intensive analysis of counselor ethics, styles, methods. Advanced graduate standing in counselor education and consent of instructor required. Prerequisites: 07C:221 or equivalent, counseling introductory practicum, and Ph.D. enrollment.
- 07C:363 Capstone Seminar in Student Services** 3 s.h.
Synthesis, integration, and application of prior course work on college students and their environments, student learning and development, student affairs administration, counseling and helping skills; focus on program development and implementation, environmental and needs assessment, program evaluation, student group advising, transition to professional student affairs roles; internship supervision; for advanced M.A. students in student development in postsecondary education. Repeatable. Prerequisites: 07C:250, 07C:333, and consent of instructor.
- 07C:369 Advanced Seminar in Rehabilitation Counseling and Psychology** 3 s.h.
Philosophy, theory, research base, practice of rehabilitation counseling, psychology; ethical and multicultural considerations; relationship to disability studies; psychological aspects of disability, client assessment, history, systems, contemporary issues.
- 07C:380 Practicum in College Teaching** arr.
Supervised college teaching experience in counselor education courses; teaching in collaboration with faculty, observation and critiques of teaching, participation in course planning and evaluation procedures; ethical and multicultural considerations. Prerequisites: graduate standing and consent of instructor.
- 07C:393 M.A. Thesis** arr.
Prerequisite: consent of instructor.
- 07C:394 M.A. Equivalency Research** 1-3 s.h.
Preparation for comprehensive examination. Prerequisite: consent of instructor.
- 07C:400 Seminar: Ethics and Issues in Counseling** 3 s.h.
Ethical, professional, and contemporary issues in counseling practice, education, and research. Prerequisite: counseling, rehabilitation, and student development Ph.D. enrollment or consent of instructor.
- 07C:431 Seminar: Research on College Students** 3 s.h.
College student learning and development, outcomes, persistence. Prerequisites: 07C:336 or consent of instructor, and enrollment in student affairs administration and research Ph.D. program.
- 07C:432 Seminar: Student Affairs Practice** 3 s.h.
Institutional cultures, student affairs leadership, organizational structures. Prerequisites: 07C:335 or consent of instructor, and enrollment in student affairs administration and research Ph.D. program.

07C:433 Seminar: Current Issues in Student Affairs 3 s.h.

Critical and current issues in student affairs professional practice.
Prerequisites: 07C:335 or consent of instructor, and enrollment in student affairs administration and research Ph.D. program.

07C:450 Advanced Social Psychology of Disability 3 s.h.

Disability issues from individual and societal perspectives; psychosocial aspects of disability and disability studies; seminar.
Prerequisite: Ph.D. enrollment.

07C:451 Advanced Multiculturalism 3 s.h.

Impact of culture, race, ethnicity, and intersections of identity on counseling in higher education and student affairs settings.
Prerequisite: 07C:250 or consent of instructor.

07C:454 Supervision Theory and Practice 3 s.h.

Conceptual models, ethics, multicultural considerations, research, and program design for counselor supervision and consultation.

07C:455 Supervising the Counseling Practicum arr.

Supervision of students enrolled in counseling practicum.
Prerequisite: consent of instructor. Pre- or corequisite: 07C:454 or equivalent.

**07C:456 Seminar Research in Rehabilitation
Counselor Education 3 s.h.**

Opportunity to acquire skills in varied aspects of research and scholarly work.

**07C:457 Seminar: Professional Orientation to
Counselor Education and Supervision 3 s.h.**

Professional orientation issues in counselor education and supervision; related documents, bylaws, professional expectations.

**07C:458 Seminar: Current Issues and Trends in
Counselor Education and Supervision 3 s.h.**

Recent trends, including debates and findings in literature related to best practices for the profession.

**07C:459 Seminar: Leadership and Advocacy in
Counselor Education and Supervision 3 s.h.**

Leadership principles and theories, including applications to counselor education; student leadership potential and skills explored through self-reflective model.

07C:460 Seminar: Research in Counseling 3 s.h.

Methods, examples, ethics, multicultural issues, problems of counseling research. Prerequisite: Ph.D. enrollment or consent of instructor.

07C:461 Practicum in Research arr.

Experience designing and implementing research relevant to student's plan of study, under supervision of counseling, rehabilitation, and student development faculty member. Repeatable. Prerequisite: consent of instructor.

07C:465 Internship in Counselor Education 1-3 s.h.

Supervised experience in professional counseling, counselor supervision, consultation, teaching counseling; field placement and seminar. Prerequisite: consent of instructor.

07C:493 Ph.D. Thesis arr.

Prerequisite: consent of instructor.

Educational Policy and Leadership Studies

Chair: Larry D. Bartlett

Program coordinator, educational administration: Marcus J. Haack

Program coordinator, higher education: Christine A. Ogren

Program coordinator, social foundations of education: Scott F. McNabb

Professors: Larry D. Bartlett, David B. Bills, Sandra B. Damico, Lelia B. Helms, Alan B. Henkin, Ernest T. Pascarella, Michael B. Paulsen, Elizabeth J. Whitt

Professors emeriti: George A. Chambers, Walter J. Foley, Jerry N. Kuhn, Bradley M. Loomer, H. Bradley Sagen

Associate professors: Christine L. McCarthy, Scott F. McNabb, Christine A. Ogren, Chet S. Rzonca, Katrina Sanders Cassell, Carolyn L. Wanat, Donald B. Yarbrough

Associate professors emeriti: William E. Duffy, Robert E. Engel, Ray A. Muston, Sara C. Wolfson

Clinical associate professors: Marcus J. Haack, Susan M. Lagos Lavenz

Assistant professor: Paul Umbach

Adjunct assistant professors: Jerald W. Dallam, Martha Milani, Dorothy M. Persson

Adjunct assistant professors emeriti:

Wendell C. Boersma, Charles M. Mason

Adjunct clinical assistant professors: John R. Bacon, Kathryn J. Coe, Kathleen M. Erusha, William J. Freeburg, Nancy H. Gardner, Karla Grant McClure, Richard Grimoskas, Jeffrey M. Gustason, Christopher L. Habben, Robert L. Hoyt, Lisa Kieffer Haverkamp, John A. Krumbholz, Brian H. Lehman, Tina F. Monroe, Sara L. Oswald, Nancy G. Row, K. Terry Sherer, Gregg Shultz

Graduate degrees: M.A., Ed.S., Ph.D.

Web site: <http://www.education.uiowa.edu/epl/>

The Department of Educational Policy and Leadership Studies offers programs that prepare administrators, professional personnel, teachers, and researchers in the fields of educational administration, higher education, and social foundations. The academic programs in the department reflect this diversity of purpose.

Graduate Programs

The department offers an M.A., Ed.S., and Ph.D. in educational administration; an Ed.S. in special education administration; an M.A. and Ph.D. in social foundations of education; and an M.A., Ed.S., and Ph.D. in higher education. Each degree program is described below, with information about degree requirements and application for admission.

Applicants for admission to University of Iowa graduate degree programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Educational Administration

Study in educational administration prepares individuals for leadership positions. The department offers the M.A., Ed.S., or Ph.D. in educational administration as well as administrative licensure. It also offers joint programs with other College of Education departments and with other colleges at the University.

Licensure

To be eligible for recommendation by The University of Iowa for licensure in Iowa as a principal or superintendent, students must complete the appropriate program. The specific requirements for each program are available from the Department of Educational Policy and Leadership Studies and the Office of Teacher Education and Student Services.

Students who hold an M.A. must satisfy all core requirements and must complete at The University of Iowa the minimum semester-hour program for each licensure level they seek. Because each administrative licensure has specific requirements, candidates are required to plan their program with their advisor's approval.

M.A. in Educational Administration

The Master of Arts in educational administration prepares individuals for appointments as school principals and office administrators, and for positions in area education agencies and state departments of education. It is a nonthesis program that requires a minimum of 36 s.h.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Admission decisions are made through a faculty review process. Factors considered include recommendations, grade-point average, Graduate

Record Examination (GRE) General Test scores, an aptitude survey, an essay demonstrating writing ability, and other evidence of academic ability and professional promise.

CORE REQUIREMENTS

With the aid of an advisor, each M.A. student prepares a plan of study that includes the following core requirements.

07B:201 Foundations of School Administration	3 s.h.
07B:236 Administration of Students with Special Needs	3 s.h.
07B:242 Research for Effective School Leaders	3 s.h.
07B:260 Contemporary Management Strategies for the K-12 Principal	3 s.h.
07B:285 School and Community Relationships	3 s.h.
07B:298 Legal Aspects of School Personnel	3 s.h.
07B:381 Analysis and Appraisal of Curriculum	3 s.h.
07B:383 Supervision and Evaluation	3 s.h.
07E:187 Philosophy and Administration of Early Childhood Programs	3 s.h.

For Iowa licensure as a principal, students must meet the human relations requirement of the State of Iowa. Students must complete the core requirements listed above and required clinical courses (07B:401, 07B:402, and 07B:403). Candidates may choose electives approved by the advisor.

COMPREHENSIVE EXAMINATION

The M.A. comprehensive examination consists of either two 3-hour examinations, one in educational administration and one in a specialized area in either educational administration or a related field; or one 3-hour examination and a presentation of the student's ePortfolio. Students must be registered in the Graduate College during their comprehensive examination semester if they plan to graduate at the end of that semester.

Ed.S. in Educational Administration

The Educational Specialist in educational administration prepares candidates for administrative appointments in school districts, area education agencies, state departments of education, and the U.S. Department of Education. It also helps school administrators upgrade their administrative skills to the level of superintendent of schools. Students seeking

licensure plan a program approved by an advisor to meet State of Iowa licensure requirements.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Admission decisions are made through a faculty review process. Factors considered include recommendations, grade-point average, Graduate Record Examination (GRE) General Test scores, and other evidence of academic ability and professional promise.

CORE REQUIREMENTS

07B:224 Organizational Theory and Administrative Behavior	3 s.h.
or	
07B:297 Administrative Leadership Theory	3 s.h.
07B:291 Administration of Educational Programs and Personnel	3 s.h.
07B:294 Politics and Economics of Financing Public Education	3 s.h.
07B:299 Legal Aspects of School Administration	2-3 s.h.
07B:395 Educational Specialist Research	arr.

PROGRAM EMPHASIS

Students must complete their remaining minimum required semester hours (minus electives) in one of the following emphasis areas. Courses listed for each emphasis area are required.

Elementary School Administration

07P:150 Introduction to Educational Measurement	3 s.h.
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Secondary School Administration

07P:150 Introduction to Educational Measurement	3 s.h.
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General School Administration

07B:205 Collective Bargaining in Education	3 s.h.
07B:295 Financial Management of Local School Systems	3 s.h.
07B:404 Central Administration Clinical	1-3 s.h.
07P:143 Introduction to Statistical Methods	3 s.h.

ELECTIVES

Students choose electives to complete the 62 s.h. required for the Ed.S. They may choose electives for specialization in fields such as staff personnel, business affairs, instruction, theory, legal aspects, curriculum, and information systems.

RESEARCH

All Ed.S. students must complete a formal research paper (4 s.h.) that deals with a specific problem in school administration or instruction.

COMPREHENSIVE EXAMINATION

The Ed.S. comprehensive examination consists of two 3-hour examinations: one in educational administration and the other in a specialized area of educational administration or a related field. Students must be registered in the Graduate College during their comprehensive examination semester if they plan to graduate at the end of that semester.

Ed.S. in Special Education Administration

The Education Specialist program in special education administration is offered jointly with the Department of Teaching and Learning.

The program provides sufficient training and experience to enable graduates to obtain entry-level positions in special education administration. The career focus of the program is on middle management positions such as supervisor and assistant director. The program requires a minimum of 62 s.h. Successful completion qualifies the student for Iowa licensure as a special education supervisor (State of Iowa Endorsement 233, 238) or special education director (State of Iowa Endorsement 239). It also qualifies the student for general administration licensure (State of Iowa Endorsement 171).

Admission to the program is limited by available resources. Three to five new students are admitted each year. Applicants must meet the admission requirements of the Graduate College. They must hold a master's degree, licensure in area of teaching exceptional children, qualification for a consultant's endorsement, and classroom teaching experience or an equivalent.

Ph.D. in Educational Administration

The Doctor of Philosophy in educational administration prepares students for leadership positions at all levels of education and administrative practice (school administration, college and university teaching and research). The program is flexible, with individually designed study plans that include course work in related disciplines and research pursuits. Integration of theory and practice is emphasized.

Ph.D. students are expected to achieve competence in educational program planning, finance and governance, leadership theory, evaluation, and research methodologies that include statistical methods. They also must gain expertise in areas of specialized program and personnel policy analysis.

Course content includes prerequisites, a core of common competencies, at least one specialization in the administrative field, cognate study outside the college, research skill development, and a research dissertation.

Common specialization areas are general administration, elementary school administration, secondary school administration, systems analysis and research, school finance, curriculum, legal aspects, theory, and school personnel. Students must demonstrate proficiency in two research tool areas.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Admission decisions are made through a faculty review process. The program admits a maximum of 10 students each fall semester or preceding summer session. Admission is based on several factors, including recommendations from college or university faculty that speak to the candidate's scholarship and potential for academic success; cumulative grade-point average; Graduate Record Examination (GRE) General Test scores; and a written statement addressing one of several topics (personal philosophy of education, steps in the professionalization of teaching, current educational issues and their administrative impact, or the role of administration in educational organizations).

Admission is for summer or fall entry; application deadline is December 1. Applicants are notified of admission decisions by February 15.

CORE COURSES

Core courses provide the background necessary for further study, including research in specialized areas. They also develop competencies common to the functional areas of school administration. The four core courses integrate planning of educational personnel programs, analysis of the politics and economics of governance and the financing of public education, evaluation of administrative leadership theories, and options in research methodology and quantitative analysis.

Each core course carries 3 s.h. of credit, is open only to Ed.S. and Ph.D. students, and requires

the development and practice of interaction, reading, and writing skills.

Seminars designed primarily for doctoral candidates are offered to supplement each functional core area. Student scholarship is reflected in writing, reading, and research in doctoral seminars.

COGNATES

Students who specialize in administration must complete a 9 s.h. cognate outside the College of Education with the advisor’s approval.

COMPREHENSIVE EXAMINATION

Ph.D. students must satisfactorily complete a six-hour comprehensive examination in the six common areas of educational administration and a three-hour examination based on the student’s specialization areas and approved by the student’s advisor and the department chair. To be eligible to take the Ph.D. comprehensive examination, students must be completing or must have completed the doctoral core courses and the research tool requirements. Students must be registered in the Graduate College during their comprehensive examination semester. They may not register for more than 3 s.h. of Ph.D. thesis credit that semester, and they may not earn dissertation credit before that semester. No Ph.D. comprehensive examinations are held during summer sessions.

Students pursuing doctoral programs in areas other than educational administration who want to use some aspect of the educational administration program as a concentration area for a comprehensive examination should consult with an advisor in the Department of Educational Policy and Leadership Studies early in their program of study.

Any specialization area open to doctoral students in educational administration is open to other doctoral students who meet the necessary prerequisites for specific courses. Students should complete approximately 12 s.h. in one specialization area before requesting a comprehensive examination. If the student decides to use a field within educational administration as a related comprehensive area, he or she should plan to complete approximately 18 s.h. of diversified course work in educational administration.

RESEARCH DISSERTATION

All students must write a formal dissertation prospectus and submit it for approval first by their advisor and then by their doctoral

committee. The student and advisor determine when the prospectus is complete. The prospectus committee meets to make a final evaluation of the prospectus and to decide whether to grant the student approval to proceed. Dissertation prospectus meetings are not held during summer sessions.

Students must accumulate 10 s.h. of dissertation research credit. The doctoral program culminates with final oral defense of the dissertation. Students usually take the examination within a month of their anticipated graduation. They must be registered at The University of Iowa during the session in which they graduate.

RESIDENCY

Each doctoral student must successfully complete two semesters (minimum of 9 s.h. on campus) to fulfill the residency requirement. The following sample Ph.D. program requires a minimum of 90 s.h. and assumes that students enter with an M.A. and 32 s.h. of graduate credit.

Core Requirements

07B:206 Research Process and Design	3 s.h.
or	
07B:370 Quantitative Methods for Policy Analysis	3 s.h.
07B:224 Organizational Theory and Administrative Behavior	3 s.h.
or	
07B:297 Administrative Leadership Theory	3 s.h.
07B:291 Administration of Educational Programs and Personnel	3 s.h.
07B:294 Politics and Economics of Financing Public Education	3 s.h.

Other Required Courses

Cognate courses selected with approval of advisor	9 s.h.
Research design and/or statistics and/or qualitative research	6 s.h.
Thesis	10 s.h.
Electives chosen to permit specialization (typically two or more doctoral seminars and 12 s.h. or more in a special area)	

Social Foundations of Education

Social foundations of education is an interdisciplinary program designed to enhance students’ ability to analyze the influence of social, historical, and philosophical forces on the formal educational enterprise. Major areas of

specialization are comparative/international education, history of education, philosophy of education, policy studies, and sociology of education.

Applicants must meet the admission requirements of the Graduate College. A personal interview with one or more members of the social foundations faculty may be required. An undergraduate and/or graduate emphasis in philosophy, the humanities, or the social sciences is strongly recommended. Students must maintain an overall g.p.a. of at least 3.00 to remain in the program.

M.A. in Social Foundations of Education

The Master of Arts in social foundations of education requires a minimum of 18 s.h. in social foundations, which should include at least two courses each in three of the five areas of specialization. The remainder of the required 32 s.h. of course work must be in a concentration area appropriate to the student's career and academic goals. For example, students interested in philosophy of education usually take courses offered by the Department of Philosophy. Students are not required to write a thesis.

M.A. students must satisfactorily complete a six-hour comprehensive examination covering their three areas of study in the social foundations program and their outside area. The examining committee may elect to hold an oral examination after the exam.

Ph.D. in Social Foundations of Education

The Doctor of Philosophy in social foundations of education requires a minimum of 90 s.h. Students are required to take a minimum of 24 s.h. in social foundations, which must include at least 12 s.h. in the major specialization area and a minimum of 6 s.h. from each of two additional areas. In addition, students must take at least 9 s.h. of related course work in a concentration area.

Approximately one-third to one-half (30-45 s.h.) of each student's program is devoted to in-depth course work in disciplines such as history, philosophy, political science, or sociology. These sequences are individually planned by the student with the aid of his or her advisor and suggestions from the appropriate department(s).

Five required research courses are chosen in accordance with the student's research interests and program. The first must be in quantitative

methodologies (e.g., graduate-level statistics, microcomputing, demographic analysis), the second must be in qualitative analysis (e.g., philosophy of science, philosophy of social science, historiography, qualitative or case study methodologies, foreign language), and the third in either quantitative methodologies or qualitative analysis. All students must successfully complete 07B:155 Critical Thinking and 07B:206 Research Process and Design.

Students usually earn 12-15 s.h. for dissertation research.

COMPREHENSIVE EXAMINATION

Ph.D. students must satisfactorily complete an extensive comprehensive examination, including three examinations. The first is in the major area of study; the second is in the other two concentration areas; and the third is in the outside area of study and is prepared by faculty outside the social foundations program. The exams are followed by an oral examination.

RESEARCH DISSERTATION

All Ph.D. students must write a formal dissertation prospectus and submit it for approval first by their advisor and then by the members of their doctoral committee. Students and their advisors determine when the prospectus is complete.

Students must earn 12 s.h. of dissertation research credit. The doctoral program culminates with a final oral defense of the dissertation. Students must be registered at The University of Iowa during the session in which they graduate.

RESIDENCY

Each doctoral student must successfully complete two semesters (a minimum of 9 s.h. per semester) on campus to fulfill the residency requirement.

Higher Education

Postsecondary and continuing education in the United States represents an extensive and complex set of phenomena. The academic programs in higher education encompass that complexity. Degrees are offered at all levels, with emphasis on both research and practice. Preparation for either teaching or administration is available. The teaching, research, and service activities of the faculty and the work of the graduates of the several degree programs illustrate that education beyond the high school level continues in a variety of ways for all ages and in many different settings.

M.A. in Higher Education

The Master of Arts in higher education prepares students for entry- and mid-level administrative, management, and policy positions in two- and four-year institutions. It is appropriate preparation for positions such as assistant dean, assistant to the president, director, in-service director, and department or program chair in selected areas. It is a nonthesis program.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Admission is based on grade-point average, Graduate Record Examination (GRE) General Test scores, and promise for professional growth. Transcripts, GRE scores, three letters of recommendation, and a statement of educational goals are required.

Applications must be submitted well in advance of the intended semester of admission.

REQUIREMENTS

The M.A. in higher education requires a minimum of 32 s.h. Students take six hours of written examinations based on the core, concentration, and specialization, according to the plan of study developed individually for each student.

Concentration areas in which exams may be written include administrative practices, policy studies, and specializations developed in consultation with the advisor. Students majoring in another field who want to complete a related field in higher education and to be eligible to write a related-field examination should consult with a higher education faculty member early in their study. Plans of study are developed individually.

Ed.S. in Higher Education

The Educational Specialist in higher education provides advanced graduate study in administration, policy studies, and specializations developed in consultation with the advisor. The Ed.S. also may be awarded upon completion of a joint program of graduate work in higher education and an academic field, or upon completion of a higher education sequence following a master's degree program.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Admission is based on grade-point average, GRE General Test scores, and promise for professional growth.

Transcripts, GRE scores, three letters of recommendation, and a statement of educational goals are required.

Applications must be submitted well in advance of the intended semester of admission.

REQUIREMENTS

The Ed.S. in higher education requires 60 s.h. The program of study must include at least 18 s.h. in professional education and related fields, including an appropriate structured internship determined in consultation with the advisor; at least 28 s.h. in the student's specialization area and 10 s.h. of electives, all approved by the advisor; and 4 s.h. of research credit in 07B:395 Educational Specialist Research.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of two 3-hour written exams: one covering the field of higher education and one covering the student's concentration area. The written exams may be followed by an oral exam.

RELATED FIELD

Students majoring in another field who want to complete a related field in higher education should consult with a higher education faculty member early in their study. Plans of study are developed individually.

TEACHING INTERNSHIP (JOINT ED.S. PROGRAM)

Program participants teach half-time for a full semester at a cooperating community college under the supervision of an experienced faculty member in that college and with field supervision from The University of Iowa. Interns participate in the academic life of the host community college, and they often gather data for their Ed.S. research project during the internship. Participants must be willing to travel to a community college and reside there for the one-semester program.

Ph.D. in Higher Education

The Doctor of Philosophy in higher education is designed for students interested in serving as administrators, specialists, researchers, or faculty members in postsecondary institutions or related public or private agencies. The program offers concentrations in administration, policy studies, and specializations designed in consultation with the advisor.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Admission is based on grade-point average, GRE General Test scores, and promise for professional growth. Transcripts, GRE General Test scores, three letters of recommendation, and a statement of educational goals are required.

Ph.D. applicants are considered for admission as completed application materials are received. Admission is for fall or spring entry.

REQUIREMENTS

The Ph.D. in higher education requires 90 s.h. beyond the bachelor's degree. Each student must complete a series of core courses (22-24 s.h.) and 16-24 s.h. in a concentration area of his or her choice. Students also earn at least 12 s.h. in a related field or up to 30 s.h. in a minor, a requirement that may be met by appropriate previous M.A. course work that complements the student's concentration area. The dissertation (12-15 s.h.) involves research related to the concentration area.

These four components—core, concentration, minor and/or related fields, and dissertation research—constitute a major part of the typical doctoral program and give students the opportunity to specialize in one or more areas of interest.

In addition, students are required to develop research skills appropriate to their dissertation project. Students may take supplementary course work outside the department related to their program of study.

COMPREHENSIVE EXAMINATION

The Ph.D. comprehensive examination covers the field of higher education and the candidate's mastery of research skills appropriate to his or her proposed dissertation topic.

Before taking the comprehensive exam, each Ph.D. student prepares a qualifying paper. The paper is a preliminary research proposal that demonstrates the student's ability to identify a scholarly study topic, formulate a conceptual framework for addressing the topic based on relevant scholarly literature, and set forth a detailed research methodology. The qualifying paper may constitute a preliminary draft of the first three chapters of the dissertation proposal.

Student Affairs Administration and Research

The Doctor of Philosophy in student affairs administration and research provides in-depth preparation for leadership positions in student affairs administration, graduate student affairs preparation programs, and research on college students and student affairs practice. The Ph.D. is offered jointly by the Department of Counseling, Rehabilitation, and Student Development and the Department of Educational Policy and Leadership Studies. For more information, see Counseling, Rehabilitation, and Student Development in the Catalog.

Courses

07B:100 Issues and Policies in Higher Education 3 s.h.
Development of the idea of a university; selected functions, issues, policies of American higher education.

07B:101 Professional Seminar: Social Foundations 1 s.h.
Introduction to the five disciplinary components of social foundations; professional development of social foundations scholars; workshop on dissertation, other student-authored scholarly papers.

07B:102 History of American Education 2-3 s.h.
American educational history, with emphasis on conflicting historical interpretations of pivotal events and educational movements; contemporary reform efforts examined in historical perspective.

07B:104 Education in the Third World 2-3 s.h.
Educational implications of various development issues, including role of media, and multinational corporations and foreign aid; educational dilemmas currently facing Third World governments.

07B:110 Administration and Policy in Gifted Education 1 s.h.
Policy, administrative, evaluation issues in developing and maintaining gifted programs in a school setting; participants develop gifted program and policies for a school; for school executives and coordinators of gifted programs.

07B:111 Evaluation of Gifted Programs 1 s.h.
Fundamentals of program evaluation essential for exemplary gifted programs.

07B:113 Staff Development for Gifted Programs 1 s.h.
Planning, content, and delivery of staff development regarding gifted students and their needs.

07B:118 Introduction to the Law of Student Services 3 s.h.
Overview of law related to student services: basic legal processes, case law for understanding and working with legal issues; for practitioners in postsecondary settings.

07B:120 Teaching in a Culturally Diverse Society 2-3 s.h.
Issues in education and individual educators' own practice related to increasing cultural, racial, and linguistic diversity; challenges, concerns.

07B:123 History of Ethnic/Minority Education 2-3 s.h.
Educational histories of American ethnic and minority groups; comprehensive understanding of American educational history, context for contemporary educational policy discussions.

- 07B:126 Twentieth-Century Educational Movements** 2-3 s.h.
 Current educational policy debates concerning diversity and equity, historical roots of these policies; historical context for 20th-century equal education opportunity movements.
- 07B:130 Educational Sociology** 2-3 s.h.
 Macrosociological perspective of role of education in social systems; impact of formal education on social stratification, social mobility, economic achievement in the United States and selected countries.
- 07B:134 Education and the World of Work** 2-3 s.h.
 Relationship between education and work in individual and organizational behavior, and between educational and economic systems; economics, psychology, sociology, education.
- 07B:150 Gender and Education** 3 s.h.
 Relationships between the construct of gender and the educational process, gender as a basis of social differentiation, gender and school performance, and gender and educational policy.
- 07B:153 American Contribution to Educational Philosophy** 2 s.h.
 American philosophy and its influence on American public education.
- 07B:154 Education, Race, and Ethnicity** 2-3 s.h.
 Role of education in ethnic and racial stratification in the United States and other nations; influence of variations in family structure, stratification patterns, institutional constraints in formation of educational aspirations and achievement levels. GE: cultural diversity.
- 07B:155 Critical Thinking** 3 s.h.
 Formal and informal logic and probabilistic reasoning; focus on construction and critical analysis of arguments; introduction for students planning research in social foundations.
- 07B:156 Philosophies of Education** 2, 3, 5 s.h.
 Principal educational philosophers and philosophies that have influenced Western education; emphasis on how philosophical ideas and conflicts have shaped the educational scene.
- 07B:157 Ethics in Education** 3 s.h.
 Major theories of the nature of ethical action and of value judgment; theoretical accounts related to the practical decision making contexts of teaching.
- 07B:158 John Dewey and Education** 2-3 s.h.
 Dewey's philosophy of "instrumentalism," with emphasis on his theories of knowledge, valuation, aesthetics, especially as applied to educational theory and practice.
- 07B:165 Introduction to Program and Project Evaluation** 3 s.h.
 Models, designs, and data collection techniques that guide program evaluation; current issues, controversies. Same as 07P:165.
- 07B:171 The Community College** 2-3 s.h.
 Character of community college as a postsecondary institution; functions, students, faculty, control, financing, administration, historical evolution.
- 07B:175 Introduction to the Economics of Education** 3 s.h.
 Economic perspective on the education industry and its educational processes; relationships between education and the economy.
- 07B:176 Demographic Techniques for Educational Research** 3 s.h.
 Basic demographic concepts, techniques, resources; life table analysis, enrollment projections, demographic measurement, shift-share analysis.
- 07B:180 Human Relations for the Classroom Teacher** 3 s.h.
 Influence of social factors such as discrimination, diversity, equity, racism, sexism, and ethnic and socioeconomic pluralism on American schools and classrooms; for teacher education candidates. GE: cultural diversity.
- 07B:190 Introduction to Postsecondary Teaching** 2 s.h.
 Current trends and topics in postsecondary occupational education: instruction evaluation, legislation, licensure, curriculum development, professionalism.
- 07B:191 Community College Teaching Internship** arr.
 Full academic term of supervised one-half-time teaching at a community college; concurrent assignment to gain knowledge of institution policies and procedures; role of professional associations.
- 07B:195 Research in Cross-Cultural Settings** 3 s.h.
 Cultural, psychological, logistical issues in conducting research in foreign settings; development of a research plan, recent debates in ethnographic research literature.
- 07B:200 Educational Leadership Technology** 1 s.h.
 Foundation and skill practice in technology tasks relevant to educational leadership; experience formulating an education leader's ePortfolio.
- 07B:201 Foundations of School Administration** 3 s.h.
 Organization and administration of American public education; principles and concepts of leadership and organizations; socioeconomic, political, and professional factors relating to education and school administration.
- 07B:202 Information Resources** 3 s.h.
 Research strategies, information literacy skills, University of Iowa Libraries and other sources for research.
- 07B:205 Collective Bargaining in Education** 3 s.h.
 Current status of public sector bargaining in the U.S. collective bargaining system viewed through analysis of historical, legal, institutional perspectives; emphasis on union and management structures.
- 07B:206 Research Process and Design** 3 s.h.
 Research process, with emphasis on fundamentals of experimental design, internal and external validity, correlational designs, and statistical inference.
- 07B:208 Teaching of Adults** 3 s.h.
 Problems associated with adults in learning role; recognized variations in teaching techniques for adults.
- 07B:209 Survey Research and Design** 3 s.h.
 Survey design and implementation; writing and evaluation of survey questions; error in survey research; techniques to reduce error; sampling; postcollection processing of survey data. Prerequisite: 07B:206 or 07P:143 or consent of instructor. Same as 07P:209.
- 07B:210 Education and Social Change** 2-3 s.h.
 Role of educational institutions, in connection with political and economic structures, in the process of social change; illumination of theories of social change through case studies of educational systems in both less-developed and industrialized nations. Same as 034:310.
- 07B:212 Individualized Instruction, Supervision** arr.
 Readings, special projects, and/or studies that reflect joint instructor/student interest in area of supervision. Prerequisites: consent of advisor and instructor.
- 07B:213 Individualized Instruction, Finance** arr.
 Readings, special projects, and/or studies that reflect joint instructor/student interest in area of finance. Prerequisites: consent of advisor and instructor.

07B:214 Individualized Instruction, Law arr.

Readings, special projects, and/or studies that reflect joint instructor/student interest in area of law. Prerequisites: consent of advisor and instructor.

07B:216 Finance in Higher Education 2-3 s.h.

Theory, research, policy, and practice related to public and private funding of higher and postsecondary education.

07B:217 Theory and Practice of Leadership 2-3 s.h.

Theory-based literature and critiques of leadership as applied to educational institutions.

07B:218 The Law and Higher Education 3 s.h.

The role of law as it affects postsecondary institutions; analysis of case law in specific areas of concern to administrators, faculty, staff, students.

07B:220 History and Philosophy of Postsecondary Education 3 s.h.

Major themes and developments in American higher education; ideologies, people, movements that have influenced those developments.

07B:222 Introduction to Policy Analysis and Evaluation 3 s.h.

Theoretical and technical approaches to analysis and evaluation of contemporary public policies.

07B:224 Organizational Theory and Administrative Behavior 3 s.h.

Theories and concepts of organizational behavior applied in structural, organizational, administrative contexts of American education.

07B:225 Introduction to Public Policymaking 2-3 s.h.

Overview of public policy making and the tools used to create and deliver policy benefits to constituents.

07B:226 Educational Management 2-3 s.h.

Literature and research on management; emphasis on American education.

07B:228 Policy Design and Implementation 2-3 s.h.

Review of literature, emphasis on policy drafting skills for administration and management in education and other settings.

07B:230 Alternative Models of Schooling 2-3 s.h.

Popular alternatives to K-12 and postsecondary education; homeschooling, boarding schools, charter schools, magnet schools; construction of a conceptual framework for understanding alternatives.

07B:236 Administration of Students with Special Needs 3 s.h.

Foundation for and skill practice in tasks performed by directors of special education and others administering to needs of special education students, and economically and socially deprived students; for prospective school administrative personnel. Same as 07U:236.

07B:240 Topics in Education arr.

Seminar for intensive study of one problem, issue, or work field. Repeatable.

07B:242 Research for Effective School Leaders 3 s.h.

Fundamental language of contemporary research; identification and application of basic research components to contemporary educational leadership problems; applicability of research toward effective decision making.

07B:245 The American Professoriate 3 s.h.

Research on college and university faculty members; perspectives on faculty careers, values, beliefs, role in shared governance; tenure process and policies; issues unique to faculty members of color and women faculty members.

07B:260 Contemporary Management Strategies for the K-12 Principal 3 s.h.

Leadership skills and management techniques for daily organization, operation of schools; emphasis on climate, communication, group processes, conflict resolution, curriculum management.

07B:275 Development Policy and Planning in the Third World 3 s.h.

Cross-cultural and interdisciplinary analysis of problems associated with urbanization and development in developing nations. Same as 034:275, 042:275, 044:275, 102:275, 113:275.

07B:285 School and Community Relationships 3 s.h.

Community analysis, politics and education, power groups and influences, school issues and public responses, public relations strategies.

07B:290 Master's Project arr.

Research for the nonthesis program; topic approved by advisor.

07B:291 Administration of Educational Programs and Personnel 3 s.h.

Personnel and program planning examined against statements of educational purpose; interrelationships and internal consistencies of program and staff administration from perspectives of philosophy, psychology, learning theory, sociology, curriculum theory.

07B:293 Individualized Instruction arr.

Readings, special projects, and/or studies that reflect joint instructor/student interest. Prerequisite: consent of instructor.

07B:294 Politics and Economics of Financing Public Education 3 s.h.

Theories, models, research relating to educational governance and finance considered with issues in policy development, analysis, appraisal, planning; their interrelation in American public education.

07B:295 Financial Management of Local School Systems 3 s.h.

School business administration; emphasis on fiscal management, including budgetary procedures, short- and long-range fiscal and facilities planning, management techniques.

07B:297 Administrative Leadership Theory 3 s.h.

Administrative leadership theory drawn from social psychology, sociology, political science, communications, business, and their applications; analysis and formulation of strategies for performing leadership functions in educational administration.

07B:298 Legal Aspects of School Personnel 3 s.h.

Teacher and student: liability, negotiations, rights, privileges, responsibilities of school personnel; principles of law derived from court decisions; constitutional and statutory provisions; for teachers and administrators.

07B:299 Legal Aspects of School Administration 2-3 s.h.

Nonpersonnel concepts in education: organization, property, finance, religion, discrimination, intergovernmental relations; use of constitutional and statutory provisions plus court decisions; primarily for administrators but applicable to teachers.

07B:306 Education in China 2-3 s.h.

Educational development in modern China from social, political, literary perspectives; analysis of post-1949 educational policy shifts.

07B:311 Seminar: Research Topic in Education 2-3 s.h.

Topic submitted by students, faculty. Repeatable.

07B:318 Legal Issues in Student Services 3 s.h.

Analyses of legal issues and their application to design of policies and procedures for student services in postsecondary institutions. Prerequisite: 07B:218.

- 07B:333 Practicum** arr.
 Small-scale research projects; supervised experience in planning, design, management, analysis, reporting of research activities; assignments to current and personal faculty research projects; student assumes major responsibility. Prerequisite: consent of instructor.
- 07B:358 Seminar in the Philosophy of John Dewey** 3 s.h.
 John Dewey and education; extensive reading of the works of Dewey and of contemporary authors who comment on, interpret, or employ Deweyan philosophy. Prerequisite: 07B:158.
- 07B:367 Seminar: Current Issues in Special Education Administration** arr.
 New developments in administration; new content each year. Repeatable. Prerequisites: 07B:236 and consent of instructor.
- 07B:370 Quantitative Methods for Policy Analysis** 3 s.h.
 Methodological strategies of quantitative researchers; secondary data analysis for investigation of educational problems and policies; interpretation of results, communication of policy considerations. Prerequisite: 07P:143 or consent of instructor.
- 07B:373 Qualitative Research Design and Methods** 3 s.h.
 Theory and practice of qualitative research design and methodology; exploratory field experience in collection and analysis of data; individual and focus group interviews, participant observation. Prerequisite: Ph.D. student standing.
- 07B:381 Analysis and Appraisal of Curriculum** 3 s.h.
 Comprehensive investigation of systematic procedures and resources for identifying and evaluating essential features and constituent elements of a given school district's curricular offering; state and federal requirements of the curricular program; for persons in administration, curriculum, and supervision programs or positions.
- 07B:383 Supervision and Evaluation** 3 s.h.
 Data collection and management skills; data-driven leadership; coaching and feedback techniques; teacher quality legislation; research and best practice regarding teacher evaluation, supervision; teaching standards.
- 07B:385 Teaching and Learning in Higher Education** 3 s.h.
 Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as 07P:385, 650:385.
- 07B:395 Educational Specialist Research** arr.
 Individual instruction in the design, research, and writing of a research project of significant quality for upper-level graduate work. Prerequisite: consent of advisor.
- 07B:401 Elementary Leadership Clinical** 1-3 s.h.
 Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.
- 07B:402 Secondary Leadership Clinical** 1-3 s.h.
 Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.
- 07B:403 Special Education Leadership Clinical** 1-3 s.h.
 Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.
- 07B:404 Central Administration Clinical** 1-3 s.h.
 Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.
- 07B:493 Ph.D. Thesis** arr.
 Supervision of research, design, writing of thesis at Ph.D. level provided through individual instruction. Prerequisite: consent of advisor.

Psychological and Quantitative Foundations

Chair: Elizabeth M. Altmaier

Professors: Elizabeth M. Altmaier, Robert Brennan, Stephen B. Dunbar, Stewart W. Ehly, David A. Frisbie, Nancy Ewald Jackson, Michael J. Kolen, David F. Lohman, Johnmarshall Reeve, Thomas R. Rocklin, Walter P. Vispoel, John S. Westefeld

Professors emeriti: Gordon N. Cantor, Leonard S. Feldt, Robert A. Forsyth, Albert N. Hieronymus, Hiram D. Hoover, Henrietta L. Logan, Siegmur Muehl, Lowell A. Schoer, Bill Carl Snider, Lawrence M. Stolorow

Clinical professor: Sam V. Cochran

Associate professors: Stephen M. Alessi, Robert D. Ankenmann, Timothy N. Ansley, Kathryn C. Gerken, William M. Liu, Joyce L. Moore, John Northup, Kathy Schuh, Donald B. Yarbrough

Associate professors emeriti: Lida C. Cochran, Carl S. Davis

Adjunct associate professors: Michele Eliason, E. James Maxey

Clinical associate professors: Mitchell Kelly, Christine G. Novak

Adjunct clinical associate professor: Susan Assouline

Assistant professors: Saba Ali, Kathy Banks, Andrew Ho

Adjunct assistant professors: Audrey S. Bahrlick, Julie Corkery, Richard L. Ferguson, Paul A. Gore, Deborah J. Harris, Candida R. Maurer, Michelle Mengeling, Megan Nipcon, Angela Pitkin, Joel Ringdahl, Richard Roberts, Amy Stockman, Leonard Welsh, Margaret Wong

Lecturer: G. John Achrazoglou

Graduate degrees: M.A., Ed.S., Ph.D.

Web site: <http://www.education.uiowa.edu/pandq>

The Department of Psychological and Quantitative Foundations offers programs in four areas: educational measurement and statistics, counseling psychology, educational psychology, and school psychology. These programs have two general goals: to help students acquire the knowledge and skills necessary to function effectively in settings that require the application of psychological and quantitative principles, and to extend knowledge and understanding of the teaching/learning process as it occurs in a variety of settings. The major emphasis in the M.A. and Ed.S. programs is on the first of these goals; that in the Ph.D. programs is on the second. However, there is some emphasis on both goals in all programs.

Undergraduate Course Work

The department offers an undergraduate minor in the combined areas of educational psychology, measurement, and statistical analysis.

The minor provides an enriched background in educational psychology, educational testing, and research methods in education. Students select a department advisor who helps them choose 15 s.h. of course work, of which 12 s.h. must be in 100-level courses. The minor does not lead to certification as a public school teacher. Contact the Office of Teacher Education and Student Services for more information about the minor.

One of the General Education Program requirements for graduation from the College of Liberal Arts and Sciences is successful completion of a course designed to develop skills in quantitative or formal reasoning; 07P:025 Elementary Statistics and Inference may be used to satisfy this requirement.

Graduate Programs

The Department of Psychological and Quantitative Foundations offers an M.A. and Ph.D. in educational measurement and statistics; a Ph.D. in counseling psychology; an M.A. and Ph.D. in educational psychology; and an Ed.S. and Ph.D. in school psychology. Each program is described below, with information about degree requirements and application for admission.

Applicants for admission to University of Iowa graduate degree programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Educational Measurement and Statistics

M.A. in Educational Measurement and Statistics

The Master of Arts in educational measurement and statistics provides students with basic knowledge of educational measurement and

research methodology. Graduates find employment in large school systems, state departments of education, test publishing organizations, and research centers. The program also is appropriate for students who wish to broaden their knowledge of measurement and research methodology for personal development or professional improvement.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have a combined verbal and quantitative score of at least 1000 on the Graduate Record Examination (GRE) General Test. Completion of at least one college mathematics course and experience as a teacher or researcher are desirable. Applicants who do not meet these requirements but who show offsetting evidence of superior ability may be granted conditional admission.

Applicants must submit a statement of purpose that explains how the educational measurement and statistics program will help them accomplish their educational and vocational goals.

For information about admission dates, contact the educational measurement and statistics program coordinator.

REQUIREMENTS

The M.A. in educational measurement and statistics is available with thesis (minimum of 28 s.h. of course work plus 2-4 s.h. of thesis credit) or without thesis (32 s.h. minimum). All students must complete a core of courses totaling approximately 26 s.h. Included in this core are a graduate-level survey course in educational psychology, elementary and intermediate courses in statistical methods, a course in educational research methodology, and courses in the development and use of evaluation instruments. Students who already have completed equivalent courses at another institution may add more advanced courses to the core.

The six-hour comprehensive examination typically includes three-hour examinations in educational measurement and in applied statistics. With the approval of the M.A. committee, a student may take two-hour examinations in these fields plus a two-hour examination in educational psychology or a substitute area. Three-hour examinations assume a minimum of three courses in the area; two-hour examinations assume a minimum of two courses in the area.

Ph.D. in Educational Measurement and Statistics

The Doctor of Philosophy in educational measurement and statistics prepares students for senior professional positions in educational measurement, evaluation, and statistical methods. Graduates find employment in colleges and universities, state and federal agencies, large public and private school systems, test publishing firms, and research centers.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have a combined verbal and quantitative score of at least 1000 on the Graduate Record Examination (GRE) General Test. They also must hold an M.A. from an accredited institution. At least one year of professional experience in teaching, research, or a related field is desirable. Applicants who expect to concentrate in statistics should have training in college mathematics through differential and integral calculus. Applicants who do not meet these requirements but who show offsetting evidence of superior ability may be granted conditional admission.

Applicants must submit a statement of purpose that explains how the educational measurement and statistics program will help them accomplish their educational and vocational goals.

For information about admission dates, contact the educational measurement and statistics program coordinator.

REQUIREMENTS

The Ph.D. in educational measurement and statistics requires a minimum of 90 s.h., including at least 12 s.h. of thesis credit.

During the first year of graduate study, the student and his or her advisor plan a program of study appropriate for the student's interests and vocational objectives. The typical program involves advanced work in educational measurement, data analysis methods, research methodology, and educational psychology. Work in other departments of the University is encouraged.

Students who concentrate in statistics and intend to teach at the college level take courses in the mathematical theory of statistics. Those who concentrate in educational measurement and evaluation take appropriate courses in curriculum, counseling, or higher education.

All students are required to develop familiarity with computer programming techniques and equipment.

Students who enter the program without completing an M.A. thesis must complete a substitute project before taking the Ph.D. comprehensive examinations.

After completing most of their course work, candidates take the comprehensive examination, which typically consists of three 3-hour written examinations on educational measurement, applied statistics, and program evaluation, or approved substitute areas, such as educational psychology or mathematical statistics, in which the candidate has completed at least 9 s.h. of course work. In place of one written examination, the student's committee may assign a project involving analytical and evaluative skills, or research creativity. The written examinations are followed by an oral examination in which the committee seeks further evidence of the student's command of the three fields. A single decision is made on all aspects of the comprehensive examination.

Counseling Psychology

Ph.D. in Counseling Psychology

The Doctor of Philosophy in counseling psychology was granted full accreditation by the American Psychological Association in 1983. Full accreditation was renewed in 2005.

The program's goal is to prepare counseling psychologists who will promote psychology as a science and contribute to the advancement of the profession. No master's degree is offered in counseling psychology. The faculty endorses a scientist/practitioner model of training and expects students to become competent researchers and proficient practitioners. Graduates find positions in a variety of settings, including higher education, counseling centers, clinics, private practice settings, and hospitals.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Preference is given to applicants who have an undergraduate g.p.a. above 3.00 and a graduate g.p.a. above 3.50; an undergraduate major, minor, or substantial course work in psychology; a combined verbal and quantitative score above 1200 on the Graduate Record Examination (GRE) General Test; and previous research and counseling experience.

Application materials must include a Graduate College application form; official transcripts of all previous college work; an official report of GRE

General Test scores (the GRE advanced test in psychology is recommended but not required); a personal statement outlining career goals and reasons for seeking advanced training in counseling psychology; and three letters of recommendation from individuals qualified to assess the applicant's potential for completing the doctoral program. The faculty encourages applications from minorities, women, and persons from a wide range of backgrounds and academic preparation. The program typically accepts between five and eight students each year.

Admission is for fall entry. Application deadline is January 1. Admissions decisions usually are made by March 15. Applicants are invited to campus for interviews before final selection. All students must study full-time.

REQUIREMENTS

The Ph.D. in counseling psychology requires a minimum of 96 s.h. beyond the bachelor's degree.

Basic Psychology

All students are required to have a thorough grounding in the basic discipline of psychology. This may be achieved through a minimum of 3 s.h. of credit in each of the following four areas: biological bases of behavior, cognitive-affective bases of behavior, social bases of behavior, and history and systems. An additional 6 s.h. are required in the area of individual differences.

Statistics and Research Design

Both of these:

07P:243 Intermediate Statistical Methods	4 s.h.
07P:257 Educational Measurement and Evaluation	3 s.h.

One of these:

07P:244 Correlation and Regression	4 s.h.
07P:246 Design of Experiments	4 s.h.

Counseling Psychology Core

07P:223/07P:225 Introduction to Counseling Psychology Practice/Research I-II	6 s.h.
07P:235 Multicultural Counseling	3 s.h.
07P:305 Psychotherapy I: Dynamic and Phenomenological Approaches	3 s.h.
07P:306 Psychotherapy III: Career Interventions	3 s.h.
07P:309 Personality Assessment	3 s.h.
07P:310 Psychological Assessment (spring)/ Intelligence Assessment (fall)	3 s.h.
07P:312 Psychological Diagnosis	3 s.h.

07P:356 Processes and Outcomes in Counseling and Psychotherapy	3 s.h.
07P:365 Psychotherapy II: Cognitive and Behavioral Approaches	3 s.h.
07P:434 Practicum in Counseling Psychology	3 s.h.
07P:453 Advanced Practicum in Counseling Psychology (repeatable)	1-3 s.h.
07P:465 Issues and Ethics in Professional Psychology	3 s.h.

Students must enroll in practicums to reach a specified level of client contact, supervision, and additional experience hours. The first practicum's site typically is University Counseling Service. Subsequent placements at other sites must have prior approval of the counseling psychology faculty. Students must successfully complete one semester of 07P:434 Practicum in Counseling Psychology before enrolling in 07P:453 Advanced Practicum in Counseling Psychology.

Other Requirements

Elective courses are determined in collaboration with the major advisor.

The dissertation research study is planned in collaboration with the doctoral student's major advisor. Dissertation credit can range from 12 to 15 s.h.

Students spend a calendar year in an internship setting approved by the counseling psychology faculty. The faculty determines student readiness to apply for the internship based on completion of all or almost all required course work, satisfactory progress toward completion of the portfolio requirement, and successful completion of practicum requirements. Internships usually require geographic relocation.

Comprehensive examinations are written in counseling psychology ethics and issues. The comprehensive examination is structured as a component of the portfolio review. For more information, contact the program coordinator.

Students must show appropriate levels of emotional balance and interpersonal skills and act within the American Psychological Association Ethical Principles of Psychologists. For more information, contact the program director.

Educational Psychology

M.A. in Educational Psychology

The Master of Arts in educational psychology is designed to help students become more effective practitioners by enhancing their ability to make

responsible and creative decisions about how to help all of their students learn. By providing a broad historical perspective on instructional approaches that work, it also addresses the emphasis on teachers' accountability for choosing empirically supported approaches.

The M.S. in educational psychology is designed for working educators. Many of the program's courses are offered in late afternoons, evenings, and summers.

Full-time M.A. students are expected to complete the degree in two years or less. Each student's progress is evaluated by the faculty after one academic year (two semesters) of study and during subsequent years. Students who do not make satisfactory progress may be required to withdraw from the program.

ADMISSION

Applicants must meet the admission requirements of the Graduate College, including minimum grade-point average. They must have a combined verbal and quantitative score of at least 1000 on the Graduate Record Examination (GRE) General Test; successful applicants usually score higher. Those who majored in psychology as undergraduates are advised to take the GRE advanced test in psychology. International applicants whose first language is not English must submit acceptable scores on the Test of English as a Foreign Language (TOEFL). Teaching experience is desirable but not required.

Application deadline for fall semester entry is February 1. Review of applications for fall semester begins January 1, when applicants who wish to be considered for fellowships and other awards are screened. Application deadline for spring semester entry is October 1. Late applications might not be considered. Admission decisions are announced approximately one month after the application deadlines.

Applicants who accept admission or financial aid and do not relinquish either one on or before April 15 are committed not to solicit or accept another offer. Offers made by the program after April 15 include the provision that the offer is void if the applicant has accepted and continues to hold a previous offer from another program listed in the American Psychological Association publication *Graduate Study in Psychology and Associated Fields*. This policy is consistent with standards set by the association's Board of Educational Affairs.

REQUIREMENTS

The M.A. in educational psychology requires a minimum of 30 s.h. A thesis is not required. Students develop a program of study in consultation with their advisors.

Students complete a required common core, select educational psychology courses and electives appropriate to their professional goals, and complete a capstone portfolio project. The two core courses, which are taken during the first year, prepare students for the M.A. program. Educational Psychology for Effective Teaching (07P:221) introduces them to a broad sampling of topics in educational psychology (e.g., development, cognition, motivation). Also during the first year, students begin their portfolios, which they continue to build throughout the program and complete during their final M.A. semester.

Full-time M.A. students typically take at least 9 s.h. each semester, with the option of additional summer session work; they usually complete the program in four semesters. Part-time M.A. students take 3-6 s.h. each semester; they usually complete the degree in two or three years.

Students may apply to substitute equivalent course work from another institution or department for required or recommended courses.

Required Core

- 07P:202 Understanding Educational Research 3 s.h.
- 07P:221 Educational Psychology for Effective Teaching 3 s.h.

Educational Psychology Courses

- Five of these:
- 07P:106 Child Development 3 s.h.
 - 07P:111 Motivation 3 s.h.
 - 07P:201 Adapting Instruction to Individual Differences 3 s.h.
 - 07P:203 Learning, Technology, and Effective Teaching 3 s.h.
 - 07P:205 Design of Instruction 3 s.h.
 - 07P:208 Designing Educational Multimedia 3 s.h.
 - 07P:281 Cognitive Theories of Learning 3 s.h.

Electives

Students select two electives (6 s.h.) based on their interests and in consultation with their advisors. Electives typically are chosen from areas outside educational psychology.

Portfolio Project

The program's capstone project is a portfolio. Students enroll in 07P:299 M.A. Project: The Portfolio (3 s.h.) during their final M.A. semester.

The portfolio is a creative and highly individual project. Each student's portfolio reflects his or her own unique learning and synthesis of knowledge. Students begin building the portfolio during their first year, making an entry as they complete each course throughout the M.A. program. Portfolio entries vary widely. For example, the entry for a technology course might include a web site the student developed for the course, while the entry for a development course might detail an intervention program the student constructed to address problems of student aggression.

During enrollment in 07P:299, the student revises and reflects on the portfolio's contents, then presents the portfolio as the culmination of his or her work throughout the program. The portfolio's goal is to show how understanding and practical application of educational psychology can help the student become a more effective educator.

Ph.D. in Educational Psychology

The Doctor of Philosophy in educational psychology is designed to help students master the core content and methods of educational psychology and acquire the depth of knowledge and methodological sophistication necessary for original research that contributes to the discipline.

Ph.D. students are reviewed annually by the faculty. Students must complete a second-year project by the end of their second academic year in the program. Those who do not fulfill this requirement or who otherwise fail to make satisfactory progress may be required to withdraw.

Students who enter the Ph.D. program without having completed an M.A. thesis are required to complete the independent research course sequence and its assigned research project in either their first or second year. Students who have completed an empirical M.A. thesis that is acceptable to the faculty may omit the independent research sequence and second-year project.

ADMISSION

Applicants must meet the admission requirements of the Graduate College, including minimum grade-point average. They must have a combined verbal and quantitative score of at least

1000 on the Graduate Record Examination (GRE) General Test; successful applicants usually score higher. Those who majored in psychology as undergraduates are advised to take the GRE advanced test in psychology. International applicants whose first language is not English must submit acceptable scores on the Test of English as a Foreign Language (TOEFL). Applicants who do not meet all admission requirements may be granted conditional admission on the basis of other evidence, such as high grade-point average, strong academic preparation, and highly supportive recommendations. Conditional admission is rare.

Admission is for fall entry. Application deadline is January 1; late applications might not be considered. Review of applications begins January 1, when applicants who wish to be considered for fellowships and other awards are screened. Admission decisions are announced approximately six weeks after the application deadline.

Applicants who accept admission or financial aid and do not relinquish either one on or before April 15 may not solicit or accept another offer. Offers made by the program after April 15 include the provision that the offer is void if the applicant has accepted and continues to hold a previous offer from another program listed in the American Psychological Association publication *Graduate Study in Psychology and Associated Fields*. This policy is consistent with standards set by the association's Board of Educational Affairs.

REQUIREMENTS

The Ph.D. in educational psychology requires a minimum of 72 s.h. beyond the bachelor's degree. Students develop a plan of study in consultation with their advisors. Some of the required courses listed below encompass substantive areas within educational psychology. Other required courses include a research practicum, in which students assist with and eventually design and carry out original research, and several courses in measurement and statistics.

Some requirements may be waived for students who begin the Ph.D. program with a master's degree or with course work from another program.

Course requirements are as follows.

Required Courses

All of these (or equivalents):	
07P:200 Educational Psychology	3 s.h.
07P:201 Adapting Instruction to Individual Differences	3 s.h.

07P:205 Design of Instruction	3 s.h.
07P:220 Quantitative Educational Research Methodologies	3 s.h.
07P:230 Research in Educational Psychology (taken second year of program)	1-3 s.h.
07P:257 Educational Measurement and Evaluation	3 s.h.
07P:281 Cognitive Theories of Learning	3 s.h.
07P:283 Cognitive Development	3 s.h.
07P:335 Advanced Motivation: Laboratory and Classroom Investigation	3 s.h.
07P:493 Ph.D. Thesis in Psychological and Quantitative Foundations (minimum requirement)	10 s.h.

Recommended Courses

At least four of these:

07P:212 Advanced Life-Span Development	3 s.h.
07P:265 Program Evaluation	3 s.h.
07P:269 Advanced Personality	3 s.h.
07P:270 Cognitive Psychology of Reading	3 s.h.
07P:275 Constructivism and Design of Instruction	3 s.h.

Electives

At least two of these (or equivalents):

07P:243 Intermediate Statistical Methods	4 s.h.
07P:244 Correlation and Regression	4 s.h.
07P:245 Applied Multivariate Analysis	3 s.h.
07P:246 Design of Experiments	4 s.h.
07P:247 Nonparametric Statistical Methods	3 s.h.
07P:252 Introduction to Multivariate Statistical Methods	3 s.h.

Minor Area

Students must complete a minimum of 12 s.h. that constitute a coherent program of course work outside educational psychology and beyond the courses listed above. The minor area may be from a foundation discipline, such as psychology, or in another area of education, such as mathematics education, educational philosophy, or program evaluation. Course work must be at or above the 200-level, may span departments and colleges, and must reflect a plan approved by the student's advisor.

Second-Year Research Project

As part of their participation in 07P:230 Research in Educational Psychology, Ph.D. students are required to complete a research project of modest scope under the direction of a faculty member. They must present the work in both oral and written form to the program's faculty and

students. First-year Ph.D. students may assist second-year students with data collection and other research activities, and students may design and conduct projects in collaboration with other students. The written report must be completed by the end of the student's second academic year in the program. Students may re-enroll in this course beyond their second year.

Students who enter the Ph.D. program holding an M.A. or M.S. with an acceptable empirical thesis are exempt from 07P:230 and the project.

COMPREHENSIVE EXAMINATION

The Ph.D. comprehensive examination emphasizes competence and depth in one or more narrowly defined areas of research and theory. Students choose from three options in consultation with their advisor and with the approval of the examining committee, which is made up of five faculty members and is not necessarily the same as the dissertation committee. The options are a review article, an extended research activity, or a traditional comprehensive examination. For details of each option's requirements, see <http://www.education.uiowa.edu/edpsych/doctoral.htm> or contact the Department of Psychological and Quantitative Foundations.

School Psychology

Ed.S. in School Psychology

The Educational Specialist in school psychology provides course work and supervised field experience in education and psychology, enabling graduates to qualify for Iowa licensure as school psychologists (State of Iowa Endorsement 40).

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Contact the Department of Psychological and Quantitative Foundations for more information about admission to the Ed.S. in school psychology.

REQUIREMENTS

The Ed.S. in school psychology requires a minimum of 60 s.h. (the total depends on students' previous course work). It includes courses in psychological foundations, psychoeducational foundations, school psychology, and research methods. Other requirements include a written comprehensive examination and a research paper prepared in conjunction with 07P:342 Research Project in School Psychology (1-6 s.h.).

Ed.S. in School Psychology via Distance Education

The University of Iowa and the University of Northern Iowa offer an Ed.S. in school psychology that allows students to take courses via distance education at either university. Applicants to the University of Iowa Ed.S. via distance education must meet the admission requirements of the Graduate College. Admission is for fall or spring. Contact the Department of Psychological and Quantitative Foundations for more information.

Ph.D. in School Psychology

The Doctor of Philosophy in school psychology was granted full accreditation by the American Psychological Association in 1992; full accreditation was renewed in 2000. The program's goal is to prepare doctoral-level school psychologists who will promote psychology as a science and contribute to the advancement of the profession. The faculty endorses a scientist/practitioner model of training and expects students to become competent researchers and proficient practitioners.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Preference is given to applicants with an undergraduate major in psychology or education, a g.p.a. above 3.00, and combined verbal and quantitative scores above 1000 on the Graduate Record Examination (GRE) General Test. The faculty also encourages applications from individuals with an M.A. or Ed.S. and experience as psychologists or other human service providers.

Applications must include three letters of interest and goals, and a writing sample. Complete application materials, including transcripts and test scores, must be received by January 1 to be considered for fall semester admission. Admission decisions usually are made by March 15. The program admits from six to eight students each year.

REQUIREMENTS

The Ph.D. in school psychology requires a minimum of 103 s.h. All students are required to have a thorough grounding in the basic discipline of psychology, which may be achieved through earning a minimum of 3 s.h. of credit in each of the following areas: biological bases of behavior; cognitive/affective bases of behavior; social bases of behavior; individual differences, and history and systems.

The plan of study is developed by students and their academic advisors. Students are required to complete a portfolio with examples of their work; write comprehensive examinations; carry out a research project equivalent in scope to an M.A. thesis; participate in an internship; and complete a doctoral dissertation, earning a minimum of 10 s.h. in 07P:493 Ph.D. Thesis in Psychological and Quantitative Foundations.

The following courses constitute the school psychology core.

07P:224 Prepracticum/Professional Seminar in School Psychology	3 s.h.
07P:237 Practicum in School Psychological Service (minimum 150 hours)	3 s.h.
07P:238 Assessment of Learning Difficulties (taken with 07P:237)	3 s.h.
07P:251 Individual Intelligence Testing (taken with 07P:237)	3 s.h.
07P:263 Consultation Theory and Practice (taken with 07P:337)	3 s.h.
07P:313 Psychopathology in Childhood	3 s.h.
07P:315 Psychodiagnostics: Children and Adolescents	3 s.h.
07P:337 Advanced Practicum in School Psychology (minimum 750 hours)	12 s.h.
07P:352 Seminar: Behavioral Assessment and Evaluation	3 s.h.
07P:367 Organizations as Social Systems	3 s.h.
07P:380 Practicum in College Teaching (optional)	1-3 s.h.
07P:390 Supervision of School Psychology Practicum/Internship	1 s.h.
07P:437 Internship in School Psychology (one year full-time or two years half-time, total of 1800 hours)	3 s.h.

Program course work in evaluation is required.

Students must enroll in practicums to reach a specified level of client contact, supervision, and additional experience hours. Placements must have prior approval of the school psychology faculty. Students must successfully complete one semester of 07P:237 Practicum in School Psychological Service before enrolling in 07P:337 Advanced Practicum in School Psychology. Students must adhere to the most recent ethical principles and standards of the American Psychological Association.

Courses

*Students may receive credit for only two of these three courses: 22S:002, 22S:008, and 22S:025 (same as 07P:025). Credit for 22S:002 is given only if the course is taken before 22S:008 or 22S:025 (same as 07P:025).

***07P:025 Elementary Statistics and Inference** 3 s.h.
Graphical techniques for presenting data; descriptive statistics; sampling distribution models; logic of statistical inference; interval estimation procedures; tests of significance; correlation and prediction. GE: quantitative or formal reasoning. Prerequisite: 22M:001 or equivalent. Same as 22S:025.

07P:075 Educational Psychology and Measurement 3 s.h.
Principles and classroom applications of cognitive development, social development, learning, cognition, individual differences, motivation, testing, assessment.

07P:101 Methods of Student Assessment arr.
Development, use, evaluation of student assessment methods; written tests, performance and product assessments, observation, oral questioning, checklists; grading and reporting; administration and use of standardized tests of achievement and other cognitive abilities.

07P:106 Child Development 3 s.h.
Theories and research findings about typical course of child development, differences in development. Prerequisite: junior standing or consent of instructor.

07P:111 Motivation 3 s.h.
Principles of motivation and their application to applied settings, especially to the classroom as teachers try to motivate students.

07P:115 Introduction to Counseling Psychology 3 s.h.
Historical and philosophical foundations of counseling psychology; theories, application, and work of counseling psychologists.

07P:120 Psychology of Giftedness 3 s.h.
Theories of learning, child development, motivation; issues unique to gifted education. Same as 07C:120.

07P:121 Assessment of Giftedness and Academic Talent 3 s.h.
Interpretation of standardized tests and other measurement instruments used to identify academic talent and program effectively for grades K-12; ability, aptitude, achievement tests; current issues in the uses of various instruments. Same as 07C:121.

07P:122 Math/Science Program for High Ability Students 1 s.h.
Unique challenges and opportunities confronted by teachers of high-ability students; theory and practice, development of program outlines for implementation. Same as 07S:122.

07P:125 Counseling and Psychological Needs of the Gifted 1 s.h.
Psychological aspects of giftedness, counseling techniques appropriate for gifted children, adolescents; socio-emotional concerns, career development, underachievement. Same as 07C:125.

07P:126 Cognitive and Affective Needs of Underachieving Gifted 1 s.h.
Diagnostic strategy for identifying types of underachievement, teaching and counseling interventions appropriate for each. Same as 07C:126.

07P:127 Research and Theory in Talent/Giftedness 1 s.h.
Symposium. Same as 07C:127.

07P:128 Neuroscientific Implications for Gifted 1 s.h.
Neurology of behavior and neurodegenerative disease; the psychology of learning and memory, its application to gifted education.

07P:129 Creativity: Issues and Applications in Gifted Education 1 s.h.
Same as 07C:129.

07P:133 The Adolescent and Young Adult 3 s.h.
Psychological, social aspects of adolescence and young adulthood; emphasis on theory, research, practical applications.

- 07P:134 Parent-Teacher Communication** 1-3 s.h.
Realities of working with parents; interpersonal skills; options for parent support services. Same as 07E:134, 07U:134.
- 07P:136 Home/School/Community Partnerships** 3 s.h.
Issues related to collaboration among families, educators, community members in implementing school programs. Same as 07E:136, 07S:136, 07U:136.
- 07P:143 Introduction to Statistical Methods** 3 s.h.
Analysis, interpretation of research data; descriptive statistics; introduction to probability, sampling theory, statistical inference (binomial, normal distribution, t-distribution models); linear correlation, regression. Same as 22S:102.
- 07P:148 Bayesian Statistics** 3 s.h.
Bayesian statistical analysis with focus on applications; comparison of Bayesian and frequentist methods; Bayesian model specification, choice of priors, computational methods; hands-on Bayesian data analysis using appropriate software; interpretation, presentation of analysis results. Prerequisite: 22S:120 or equivalent. Same as 22S:138.
- 07P:150 Introduction to Educational Measurement** 3-4 s.h.
Test development procedures, reliability, validity, item writing, evaluation of item and test characteristics; classroom assessment methods; interpretation of scores from standardized achievement and aptitude tests; no background in statistics assumed.
- 07P:165 Introduction to Program and Project Evaluation** 3 s.h.
Skills and knowledge required for conducting evaluations of products, projects, and programs; recent scholarship on evaluation and project management. Same as 07B:165.
- 07P:193 Special Readings and Projects** arr.
Supervised individual study. Prerequisites: senior standing and consent of instructor.
- 07P:199 Topical Workshop in Psychological and Quantitative Foundations** arr.
School, educational, and counseling psychology and allied disciplines; for professionals and graduate students in education, mental health, social services, related fields. Repeatable.
- 07P:200 Educational Psychology** 3 s.h.
Psychology of the teaching/learning process; developmental concepts, social processes, language and thought; individual differences in abilities and achievements; theory and research on reading, writing, mathematics, thinking, studying.
- 07P:201 Adapting Instruction to Individual Differences** 3 s.h.
Principles of adapting instruction to meet learners' needs; cognitive, personality, and motivational differences that moderate the effectiveness of instructional arrangements; instruction that meets the needs and goals of learners.
- 07P:202 Understanding Educational Research** 3 s.h.
Issues that underlie the validity of educational research; varied approaches to research.
- 07P:203 Learning, Technology, and Effective Teaching** 3 s.h.
Theories and issues in technology's use in learning and teaching; project to design a technology-supported learning solution for an educational problem.
- 07P:205 Design of Instruction** 3 s.h.
Introduction to processes used to design, develop, implement, and evaluate effective instruction; projects.
- 07P:206 Advanced Child Development** 3 s.h.
Theories of social and cognitive development; in-depth study of several current controversies in the field. Prerequisite: 07P:106 or equivalent or consent of instructor.
- 07P:207 Evaluation of Children with ADHD and LD** arr.
Same as 07O:245.
- 07P:208 Designing Educational Multimedia** 3 s.h.
Theory, design, and evaluation of instructional software.
- 07P:209 Survey Research and Design** 3 s.h.
Same as 07B:209.
- 07P:210 Social Psychology of Disability** 3 s.h.
Social psychology of disability; issues in mental/physical disability from individual, societal perspective; advanced research seminar with emphasis on clarifying research; theoretical strategies in psychology of disability. Prerequisites: Ph.D. student standing and consent of instructor. Same as 07O:250.
- 07P:212 Advanced Life-Span Development** 3 s.h.
Selected theories and research in development across the life span, especially from adolescence through late adulthood; focus on relevance for instruction and counseling.
- 07P:215 Web-Based Learning** 3 s.h.
Theory and practice of designing web sites to support or deliver instruction; student team project to create an instructional web site that integrates the theory and principles from class readings. Prerequisites: 07P:208 and consent of instructor.
- 07P:217 Seminar in College Teaching** 1-3 s.h.
Preparation for college teaching; for graduate students planning to teach.
- 07P:220 Quantitative Educational Research Methodologies** 3 s.h.
Procedures for planning, conducting, reporting research; evaluation of current methods in educational research; quantitative methods. Prerequisite: 07P:143.
- 07P:221 Educational Psychology for Effective Teaching** 3 s.h.
How educators use educational psychology theories and research to develop expertise in teaching and learning; cognition, motivation, technology, individual differences.
- 07P:223 Introduction to Counseling Psychology Practice/Research I** 3 s.h.
Historical, theoretical, professional, scientific traditions associated with counseling psychology; professional ethical principles. Prerequisite: consent of instructor.
- 07P:224 Prepracticum/Professional Seminar in School Psychology** 3 s.h.
Preparation for practice; historical look at school psychology; current rules; overview of issues, ethics. Prerequisite: consent of instructor.
- 07P:225 Introduction to Counseling Psychology Practice/Research II** 3 s.h.
Learning and performance of basic helping skills; integration of these skills with counseling theories, broader counseling strategies; laboratory-based. Prerequisite: consent of instructor.
- 07P:230 Research in Educational Psychology** 1-3 s.h.
Experience in conducting or assisting in educational psychology empirical research project; activities from conceptualization through data generation; preparation and presentation of research report. Repeatable. Prerequisite: graduate standing in educational psychology or consent of instructor.
- 07P:234 Advanced Multimedia Design** 3 s.h.
Theory and development of multimedia programs that use video, CD-ROM, computer animation, digital audio; emphasis on team-development of software. Prerequisites: 07W:209 and consent of instructor.
- 07P:235 Multicultural Counseling** 3 s.h.
Theoretical and practical aspects of the cultural adaptation process; implications for interventions in diverse populations; issues. Prerequisite: counseling skills introductory course.

- 07P:237 Practicum in School Psychological Service** arr.
Supervised practicum in psychological and educational evaluation in school settings. Repeatable. Prerequisites: 07P:238, 07P:251, and consent of instructor.
- 07P:238 Assessment of Learning Difficulties** 1-3 s.h.
Same as 07U:238.
- 07P:242 Selected Applications of Statistics** 3 s.h.
Application and interpretation of correlation techniques, chi-square, t- and f-tests, interval estimation, simple cases of analysis of variance. Prerequisite: 07P:143.
- 07P:243 Intermediate Statistical Methods** 4 s.h.
Foundation for more advanced applied courses; logic of statistical inference, chi-square, and other tests of statistical hypotheses; small sample error theory, interval estimates, introduction to analysis of variance, selected nonparametric methods. Prerequisite: 07P:143 or equivalent. Same as 22S:148.
- 07P:244 Correlation and Regression** 4 s.h.
Correlation techniques; selected bivariate procedures, multiple, partial, curvilinear correlation; multiple linear regression; sampling theory applied to regression analysis and correlation coefficients; simple causal models. Prerequisite: 07P:243 or equivalent. Same as 22S:157.
- 07P:245 Applied Multivariate Analysis** 3 s.h.
Multivariate analyses of variance, discriminant analysis, factor analysis; use of multivariate statistical computer packages. Prerequisites: 22S:152 and 22S:158, or equivalents; and facility with matrix algebra. Same as 22S:161.
- 07P:246 Design of Experiments** 4 s.h.
Theory and methods in the planning and statistical analysis of experimental studies; testing of hypotheses about linear contrasts among means in single-factor and multifactor, completely randomized, and repeated measurement designs. Prerequisite: 07P:243 or equivalent. Same as 22S:159.
- 07P:247 Nonparametric Statistical Methods** 3 s.h.
Selected nonparametric methods; one- and two-sample location tests and estimation methods, measures of association, analyses of variance; emphasis on relationships to classical parametric procedures. Prerequisite: 07P:243 or 22S:120 or consent of instructor. Same as 22S:163.
- 07P:249 Factor Analysis and Structural Equation Models** 3 s.h.
Foundations of exploratory and confirmatory factor analysis methods; least squares and maximum likelihood approaches; problems in factor extraction, rotation, interpretation; structural equation models via LISREL; assumptions and limitations of alternative approaches. Prerequisite: 07P:252 or equivalent or consent of instructor.
- 07P:250 Computer Packages for Statistical Analysis** 2-3 s.h.
Computer programs and systems designed to execute statistical analysis (SAS, SPSS, BMDP, and others); lectures on regression techniques, analysis of variance, multivariate techniques; practice in entering data, calling up desired programs, interpreting computer output. Prerequisites: 07P:243 or equivalent, and elementary knowledge of computer programming.
- 07P:251 Individual Intelligence Testing** 3 s.h.
Administration of individual intelligence tests; interpretation of test results; issues in psychological testing; factors that influence performance. Prerequisites: 07P:143 or 07P:150, and consent of instructor.
- 07P:252 Introduction to Multivariate Statistical Methods** 3 s.h.
Selected topics in multivariate analysis, including multivariate significance tests, principal components and factor analysis, discriminant analysis, canonical correlation, multivariate analysis of variance (MANOVA). Prerequisite: 07P:244 or consent of instructor.
- 07P:255 Construction and Use of Evaluation Instruments** 3 s.h.
Design and construction of measures used in educational evaluation: achievement tests, attitude scales, performance measures, questionnaires; emphasis on methods of instrument development and evaluation of instrument characteristics. Prerequisites: 07P:143 and 07P:257, or equivalents.
- 07P:257 Educational Measurement and Evaluation** 3 s.h.
Evaluation and use of standardized tests and inventories in individual and group assessment; analyzing reliability, validity, normative data; interpreting measures of achievement, intelligence, aptitude, interests, attitudes, personality; current issues; for counselors, administrators, teachers, measurement specialists. Corequisite: 07P:143 or equivalent.
- 07P:258 Theory and Technique in Educational Measurement** 3 s.h.
Mathematical foundations, principal results, and applications of classical test theory; perspectives on conditional error variance; binomial error model and applications; introduction to generalizability theory; advanced measurement topics.
- 07P:259 Scaling Methods** 3 s.h.
Unidimensional and multidimensional scaling techniques; introduction to available computer programs for scaling; applications in educational and psychological research. Prerequisite: 07P:252 or equivalent. Recommended: 07P:249.
- 07P:262 Item Response Theory** 3 s.h.
Theoretical foundations and practical applications; mathematical models and estimation techniques; emphasis on current applications and issues in testing; computer estimation programs. Prerequisites: 07P:243 and 07P:257.
- 07P:263 Consultation Theory and Practice** 2-3 s.h.
Same as 07C:263.
- 07P:265 Program Evaluation** 3 s.h.
Theoretical issues and considerations in evaluation of educational and social programs; evaluation design, methodology; metaevaluation; evaluation utilization. Prerequisites: 07P:143, 07P:150, and 07P:165; or consent of instructor.
- 07P:269 Advanced Personality** 3 s.h.
Current research and research methods in the psychology of personality; emphasis on individual differences in personality that have implications for teaching, learning, well-being.
- 07P:270 Cognitive Psychology of Reading** 3-4 s.h.
Theories and models of the reading process, of its development, and of individual and cross-language differences; review of selected research studies from recent, current literature. Prerequisite: consent of instructor.
- 07P:275 Constructivism and Design of Instruction** 3 s.h.
Theoretical foundations of constructivism; application of constructivist principles to the design of instruction.
- 07P:281 Cognitive Theories of Learning** 3 s.h.
Theories of learning and cognition as they relate to education; application of cognitive research to subject matter learning (mathematics, science, reading, writing). Prerequisite: 07P:200 or equivalent.
- 07P:283 Cognitive Development** 3 s.h.
Information-processing, dynamic systems, social-contextual, and neo-Piagetian theories of cognitive development and their educational implications; individual differences in cognitive development.
- 07P:285 Instructional Computer Simulations** 3 s.h.
Theory and development of computer-based simulations, games; research on design characteristics and effectiveness; design, development, evaluation of simulation software by student teams. Prerequisites: 07P:234 and consent of instructor.

- 07P:292 Supervised Research in Educational Psychology** 1-3 s.h.
 Identification of research problems, development of research designs and materials, conducting of research studies; faculty-guided activity or seminars. Prerequisite: consent of instructor.
- 07P:293 Individual Instruction in Psychological and Quantitative Foundations** arr.
 Prerequisite: consent of instructor.
- 07P:299 M.A. Project: The Portfolio** 3 s.h.
 Individual project; reflection, revision, and presentation of portfolio entries to show how the student translates educational psychology content into his or her own effective teaching.
- 07P:301 Human Abilities** 3 s.h.
 Psychology of abilities required by or developed through schooling; theories of cognitive abilities, age, sex, ethnic differences; cultivation of intelligence through schooling. Prerequisite: 07P:143.
- 07P:305 Psychotherapy I: Dynamic and Phenomenological Approaches** 3 s.h.
 Major psychodynamic and existential-phenomenological theories of personality; emphasis on implications for psychotherapy.
- 07P:306 Psychotherapy III: Career Interventions** 3 s.h.
 Foundations of career interventions; emphasis on major assessment instruments (vocational interests, values, abilities/skills, personality) and career counseling processes, skills, techniques.
- 07P:309 Personality Assessment** 3 s.h.
 Standardized and projective techniques for personality assessment; preparation for competent administration and interpretation of varied tests and measures.
- 07P:310 Psychological Assessment** 3 s.h.
 Major objective and projective instruments in normal and abnormal personality measurement; assessment of intellectual functioning, development, academic achievement; emphasis on integrating demographic, interview, and assessment data into client conceptualization. Prerequisite: consent of instructor. Effective spring 2007: **Intelligence Assessment**; Standardized intelligence testing; preparation to administer and interpret intelligence tests for children and adults.
- 07P:311 Practicum in Counseling and Psychological Services for Gifted Students** 1-6 s.h.
 Educational, personal, and family issues. Prerequisites: 07C:178 or equivalent, and consent of instructor. Same as 07C:311.
- 07P:312 Psychological Diagnosis** 3 s.h.
 DSM IV categories, related diagnostic issues. Prerequisite: consent of instructor.
- 07P:313 Psychopathology in Childhood** 3 s.h.
 Current theories regarding the development of psychopathology in children and adolescents; current approaches to treatment for disorders in children and adolescents.
- 07P:315 Psychodiagnostics: Children and Adolescents** 3 s.h.
 Link between personality theory, child and adolescent assessment; interpretation, integration of assessment information; record reviews, interviews, objective tests, projective techniques. Prerequisites: 07P:238 and 07P:251, or equivalents.
- 07P:316 Psychopathology in Childhood** 3 s.h.
 Descriptions and theories regarding development of psychopathology in children and adolescents; current empirically related interventions for specific disorders. Prerequisite: consent of instructor.
- 07P:320 History and Systems of Psychology** 3 s.h.
 Philosophical underpinnings of psychology, early systems in psychology, developments in the 20th century.
- 07P:331 Seminar: Educational Psychology I: Current Topics** arr.
 Intensive investigation of a specific research topic. Prerequisite: consent of instructor.
- 07P:335 Advanced Motivation: Laboratory and Classroom Investigation** 3 s.h.
 Contemporary theories of motivation, with focus on theory and application; in-depth study concentrating on one approach to motivation; student project.
- 07P:337 Advanced Practicum in School Psychology** arr.
 Supervised experience in psychological interventions, consultation, counseling in school and clinic settings. Prerequisites: 07P:237, 07P:238, 07P:251, and consent of instructor.
- 07P:342 Research Project in School Psychology** arr.
 Experience in research facilities on campus; writing research questions, planning a research study, writing a research article. Prerequisite: consent of instructor.
- 07P:345 Seminar in Psychoeducational Interventions I** 3 s.h.
 Interventions used by school and support system personnel to address academic skill deficits among children, adolescents; instructional design and delivery problems associated with deficits.
- 07P:346 Seminar in Psychoeducational Interventions II** 3 s.h.
 Interventions used by school and support system personnel to address behavioral and social/emotional status of children, adolescents.
- 07P:347 Home/School/Community: System Interventions** 3 s.h.
 Interventions used by school and support system personnel; focus on work with parents, siblings. Same as 07C:347.
- 07P:348 Family Interventions** 3 s.h.
 Theoretical and research literature on interventions with families of school-age children; opportunities to engage in intervention activities.
- 07P:350 Seminar in Evaluation** 2-3 s.h.
 In-depth examination of selected topics. Prerequisites: two courses in evaluation, including 07P:265; or consent of instructor.
- 07P:352 Seminar: Behavioral Assessment and Evaluation** 3 s.h.
 Same as 07U:252.
- 07P:354 Seminar: Experimental Approaches in Counseling Research** arr.
 Application of experimental methodology to study of counseling and vocational phenomena. Repeatable. Prerequisite: consent of instructor.
- 07P:355 Seminar: Educational Measurement and Evaluation** arr.
 Critical examination of current issues and problems of the professional worker in the field of educational measurement and evaluation as reflected in research literature, other professional communication media.
- 07P:356 Processes and Outcomes in Counseling and Psychotherapy** 3 s.h.
 Advanced knowledge of the state of process and outcome research on psychotherapeutic procedures. Prerequisites: Ph.D. candidacy in appropriate field and consent of instructor.

07P:358 Equating and Scaling of Educational Tests 3 s.h.

Designs and methods, including linear, equipercentile, and item response theory methods; emphasis on concepts, applications to testing programs, research. Prerequisites: 07P:243 and 07P:257, or consent of instructor.

07P:365 Psychotherapy II: Cognitive and Behavioral Approaches 3 s.h.

Major cognitive and behavioral theories of personality and psychotherapy; emphasis on implications for clinical practice. Prerequisite: consent of instructor.

07P:367 Organizations as Social Systems 3 s.h.

Social aspects of behavior in organizations; behavioral science theory and research on organizations, system change, transformation, leadership.

07P:375 Topics in Educational Measurement and Statistics 1-3 s.h.

Repeatable.

07P:380 Practicum in College Teaching arr.

Supervised college teaching experience in courses related to major academic areas, in collaboration with faculty course instructors.

07P:385 Teaching and Learning in Higher Education 3 s.h.

Current theoretical and empirical literature on teaching and learning in higher education; emphasis on development of effective teaching practice. Same as 07B:385, 650:385.

07P:390 Supervision of School Psychology Practicum/Internship arr.

Experience supervising school psychology practicum or internship students. Prerequisites: Ph.D. student standing and consent of instructor.

07P:393 M.A. Thesis in Psychological and Quantitative Foundations arr.

Prerequisite: consent of instructor.

07P:394 Supervised Research in Counseling Psychology 1-3 s.h.

07P:434 Practicum in Counseling Psychology 3 s.h.

Supervised practice in counseling services. Prerequisites: 07P:223 and 07P:225, or equivalents; and consent of instructor.

07P:437 Internship in School Psychology arr.

Supervised internship for Ph.D. students in school psychology. Prerequisites: completion of required courses and consent of instructor.

07P:450 Practicum in Program Evaluation arr.

Supervised experience in designing and implementing components of program evaluations. Prerequisites: two courses in program evaluation, including 07P:265; and consent of instructor.

07P:453 Advanced Practicum in Counseling Psychology 1-3 s.h.

Supervised work in counseling services. Repeatable. Prerequisites: 07P:434 or equivalent, and consent of instructor.

07P:455 Generalizability Theory 3 s.h.

Analysis of variance methods applied to estimation of components of various types of measurement error variance; basic concepts, mathematical foundations, models, assumptions, designs, applications; relationships with other measurement theories. Prerequisite: 07P:246 or 07P:258 or consent of instructor.

07P:465 Issues and Ethics in Professional Psychology 3 s.h.

Professional ethics; issues in professional practice of psychology.

07P:493 Ph.D. Thesis in Psychological and Quantitative Foundations arr.

Prerequisite: consent of instructor.

Instructional Design and Technology

07W:293 Independent Study: Instructional Design for Majors arr.

07W:493 Ph.D. Thesis in Instructional Design and Technology arr.

Prerequisite: consent of instructor.

Teaching and Learning

Chair: Gary M. Sasso

Professors: Don D. Coffman, Anne DiPardo, Brian Hand, Jo M. Hendrickson, Peter Hlebowitsh, William H. Nibbelink, Edward L. Pizzini, Paul M. Retish, Gary M. Sasso, Bonnie Sunstein, Steve Thunder-McGuire, Rahima C. Wade

Professors emeriti: Jack Bagford, Louise Beltramo, Alan R. Frank, Beatrice A. Furner, John H. Haefner, Susan Hamre-Nietupski, Alfred Healy, Jerry N. Kuhn, Kenneth H. Phillips, Harold L. Schoen, Richard Sheparson, Douglas M. Trank, Robert E. Yager, Marilyn J. Zweng

Associate professors: Alice M. Atkinson, Richard T. Cary, Carolyn Colvin, Michael E. Everson, Bruce Fehn, Linda G. Fielding, Greg Hamot, L. Kathy Heilenman, Geoffrey Hope, Carlos X. Rodriguez, Leslie L. Schrier, Kathryn Whitmore, Rachel Williams

Associate professors emeriti: John W. Conner, George W. Cossman, Richard Elardo, Gary F. Hansen, John Kiraly Jr., David K. Leslie, Archie J. McKinnon, John W. McLure, Louane L. Newsome, Darrell G. Phillips, Jeannette Scahill, Daniel S. Sheldon, John T. Wilson

Clinical associate professors: John D. Dunkhase, Ellen Herman

Assistant professors: Gail Boldt, Devory Mock

Assistant professor emerita: Iva M. Bader

Clinical assistant professors: Pamela Ries, Amy Shoultz

Undergraduate degrees: B.A., B.S. (granted through College of Liberal Arts and Sciences)

Graduate degrees: M.A.T., M.A., M.S., Ph.D.

Web site: <http://www.education.uiowa.edu/teach>

Department of Teaching and Learning programs prepare graduates for positions in public schools, local and state education agencies, clinical settings, and institutions of higher education. All licensure programs are approved by the Iowa Department of Education. Undergraduate students pursuing a major in elementary education must meet the College of Liberal Arts and Sciences requirements for the Bachelor of Arts or Bachelor of Science; see the CLAS Student Academic Handbook.

Teacher Education and Licensure/ Certification

Before taking required professional education courses, undergraduate students must be admitted to the Teacher Education Program (TEP). The application for admission should be submitted to the College of Education Office of

Teacher Education and Student Services.

Deadlines for application are March 15 and October 15 for admission to restricted course work in the following semester. Each program reviews applications and chooses a limited number of students for admission.

In order to be considered for admission, students must have completed a minimum of 40 s.h. of course work with a University of Iowa and cumulative g.p.a. of at least 2.70 at the time of application. For some subject areas, applicants must meet additional criteria. A limited number of applicants are accepted into each Teacher Education Program, so a 2.70 g.p.a. does not ensure admission. Admission decisions are based on grade-point average in the major and other criteria relevant to teaching success.

The application process includes submission of an application form, a writing sample, two letters of recommendation, and an Iowa criminal history check request form. Applicants are required to submit PRAXIS I test scores in mathematics, reading, and writing. Scores from either the PRAXIS computer-based tests (CBT) or the PRAXIS Pre-Professional Skills Tests (PPST) are accepted. Applicants must have a composite score of at least 522, with a minimum score of 170 on any single portion of the test. Applicants must also submit verification of completion of a 10-hour volunteer experience in a K-12 classroom setting.

If at any time after admission a student's University of Iowa and/or cumulative g.p.a. falls below 2.70, he or she is placed on probation for one semester. Students who do not attain a 2.70 g.p.a. during the probationary semester are dropped from the TEP. Students should consult a College of Education advisor in their program area, or the Office of Teacher Education and Student Services for more information on admission criteria.

Graduate students who apply to the Graduate College for a teacher licensure program must apply separately for admission to the Teacher Education Program. Deadlines for application to either program are October 15 or March 15 for admission to restricted course work in the following semester. Graduate and postbaccalaureate students may submit Graduate Record Exam (GRE) General Test scores instead of PRAXIS I scores. A combined verbal and quantitative score of at least 900 is required.

A limited number of applicants are accepted into each Teacher Education Program, so meeting the Graduate College admission requirements does not ensure admission. Admission decisions are based on grade-point average in the undergraduate major and other criteria relevant to teaching. Upon admission to the TEP, students are assigned an education advisor.

Admission to Student Teaching

Admission to the student teaching semester requires a separate application. Applications must be submitted one year before the student teaching semester. Applicants’ credentials and academic and professional progress are reviewed to ensure that the student is qualified for placement in the profession. Verification that the student meets all specific program area requirements is made when the student applies for student teaching.

Consult a College of Education advisor or the Office of Teacher Education and Student Services for information about admission and requirements for student teaching in specific licensure programs.

Elementary Education

The undergraduate elementary education program is designed to prepare students to teach kindergarten through sixth grade.

The College of Liberal Arts and Sciences and elementary education requirements total 113-139 s.h. Students who meet or test out of the General Education Program requirements in rhetoric, foreign language, mathematics, and other areas may be able to satisfy their program requirements in as few as 113 s.h.

FOUNDATION COURSES

These four courses must be completed before methods courses (Block A/B below) are begun.

07E:090 Orientation to Elementary Education	1 s.h.
07E:100 Foundations of Education	3 s.h.
07E:102/07S:102 Technology in the Classroom	2 s.h.
07P:075 Educational Psychology and Measurement	3 s.h.

METHODS COURSES

Block A

Three courses taken concurrently:

07E:123 Reading and Responding to Children’s Literature	2 s.h.
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07E:160 Methods: Elementary School Language Arts	3 s.h.
07E:164 Methods: Elementary School Reading	3 s.h.

Block B

Three courses taken concurrently:

07E:161 Methods: Elementary School Social Studies	3 s.h.
07E:162 Methods: Elementary School Science	3 s.h.
07E:163 Methods: Elementary School Mathematics	3 s.h.

Methods Practicum

Students complete a semester-length practicum and classroom management in their area of specialization after completing the appropriate methods block.

07E:170 Classroom Management	2 s.h.
07E:172 Reading Instruction: Teaching Practicum	4 s.h.
07E:174 Elementary Education: Practicum	4 s.h.

OTHER REQUIREMENTS

07B:180 Human Relations for the Classroom Teacher	3 s.h.
07E:127 Physical Education and Health for Elementary Teachers	2 s.h.
07U:100 Foundations of Special Education	3 s.h.
07E:120 Methods and Materials: Music for the Classroom Teacher	2 s.h.
or	
07E:122 Methods and Materials: Art for the Classroom Teacher	2 s.h.
22M:006 Logic of Arithmetic	3 s.h.
or	
22M:012 Theory of Arithmetic	3 s.h.

AREA OF SPECIALIZATION

Students must complete a minimum of 24 s.h. in one of the following areas of specialization: art, English language arts, ESL, hearing impaired, history, mathematics, music, reading, science, speech communication/theatre, or social science. Courses in the area of specialization may be taken pass/nonpass if they are offered with the pass/nonpass option.

The special education Instructional Strategist I: Mild/Moderate (K-6) area of specialization requires separate admission. Applicants must already be admitted to the elementary education program. Applications for the specialization program are due July 15. Twenty-four students are admitted each year.

Requirement lists for each area of specialization are available from the Department of Teaching and Learning office.

STUDENT TEACHING

Students seeking initial licensure must complete a minimum of 14 s.h. of student teaching.

07E:190 Supervised Teaching in the Elementary School: Interactive Phase 7 s.h.

07E:191 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 7 s.h.

TRANSFER STUDENTS

Before they student teach, transfer students must complete 07E:090; 07E:102; two courses chosen from 07E:123, 07E:160, 07E:161, 07E:162, 07E:163, and 07E:164 at The University of Iowa; and a practicum. Transfer students must follow the normal application procedures. In addition, they are asked to complete a disclosure statement describing all practicum experiences they have taken at other institutions and a release statement allowing the College of Education Office of Teacher Education and Student Services to contact all institutions where they have done professional preparatory work.

ADDING ENDORSEMENTS TO LICENSES

As an addition to the K-6 Iowa endorsement, students may complete requirements for an Iowa subject area endorsement (see “Area of Specialization,” above). This option is not open to students who choose the Strategist I area of specialization.

The University of Iowa also offers an added endorsement in talented and gifted education.

Secondary Education

Undergraduate students seeking secondary school licensure/certification are degree candidates in the College of Liberal Arts and Sciences. They must complete the requirements for the Bachelor of Arts, Bachelor of Science, Bachelor of Music, or Bachelor of Fine Arts degrees; see the CLAS Student Academic Handbook.

Graduate students may be admitted to a program leading to teacher licensure/certification as “certification only” candidates in the Graduate College. They are subject to all Graduate College policies; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Eligible graduate students also may complete initial teacher

licensure/certification requirements by pursuing an M.A.T. in English education, foreign language education, or science education, or an M.A. in social studies (program B).

Licensure/certification requires a major of at least 30 s.h. of course work in a subject area taught in the secondary school. Course requirements for each major are available from the Department of Teaching and Learning office. Candidates for secondary school teaching licensure/certification also may receive approval to teach in additional subject areas by completing an approved program of 12-24 s.h. or more of course work in those areas.

Secondary school teacher preparation programs are provided in the following areas.

- Art
- *Coaching
- English
- *English as a second language
- Foreign languages—Chinese, French, German, Italian, Japanese, Latin, Russian, Spanish
- *Hearing impaired
- *Journalism
- Mathematics
- Music
- *Reading
- Science, including *physical science, biological sciences, chemistry, *general science, physics, earth science, and 9-12 all science
- Social science, including anthropology, economics, geography, history, political science, psychology, and sociology
- *Talented and gifted

*Available as an additional approval area only; a major in one of the other areas is required for licensure.

An Iowa secondary teaching license qualifies holders to teach in grades 7-12. Students planning to teach art or music typically complete a program that prepares them for both elementary- and secondary-level licensure.

Secondary teacher preparation programs in mathematics and foreign language also offer a program that leads to licensure/certification as a subject matter specialist in grades K-6. This K-6 licensure/certification is available only in the same subject area as the secondary certification.

For more information and the name of an advisor, contact the Department of Teaching and Learning.

REQUIREMENTS

Undergraduates working toward licensure/certification to teach in secondary

schools must complete the following requirements, in addition to the requirements of their major. All course work must be completed before student teaching.

One introduction to teaching course	2-3 s.h.
07B:180 Human Relations for the Classroom Teacher	3 s.h.
07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college)	2 s.h.
07P:075 Educational Psychology and Measurement	3 s.h.
07S:100 Foundations of Education	3 s.h.
07S:190 Orientation to Secondary Education (must be taken during student's first semester in the college)	1 s.h.
07S:195 Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college)	1 s.h.
07U:100 Foundations of Special Education	3 s.h.
One or more methods of teaching courses in the major field	3-9 s.h.
One college-level mathematics course (except 22M:001, 22M:002, and 22M:003)	
Student teaching	12 s.h.

For initial licensure in all subject areas, student teaching must be an all-day, full-semester experience. Most students are placed in a district within a 60-mile radius of Iowa City. Placements outside this area require special approval and are considered on an individual basis. Special programs provide experience in districts with diverse populations, including Aldine, Texas (Houston area); Adams County, Colorado (Denver area); Rialto, California; and Clark County, Nevada (Las Vegas area). In most program areas, students also may apply to student teach at international sites for the second half of the semester.

Additional information about options for student teaching and application procedures is available from the Office of Teacher Education and Student Services. Applications for student teaching must be submitted during the calendar year before the student teaching semester. The deadline is November 15 for students planning to student teach the following fall semester and February 15 for students planning to student teach the following spring semester.

TRANSFER STUDENTS

Transfer students must complete 07S:102, 07S:190, 07S:195, appropriate methods classes, a practicum at The University of Iowa, and all course work in the major before they student teach. Transfer students must follow the normal

application procedures. In addition, they are asked to complete a disclosure statement describing all practicum experiences they have taken at other institutions and a release statement allowing the College of Education Office of Teacher Education and Student Services to contact all institutions where they have done professional preparatory work.

Special Education

Students may be admitted to the Graduate College for the purpose of obtaining a master's degree in special education. This degree typically includes certification in an area or areas selected by the student. See "Admission" under "Special Education" below.

Graduate Programs

The Department of Teaching and Learning offers graduate programs in elementary education, secondary education, and special education.

Elementary education programs include M.A. and Ph.D. in elementary education; M.A. in developmental reading; and Ph.D. in language, literacy, and culture.

Secondary education programs include M.A. and Ph.D. in art education; M.A. and Ph.D. in curriculum and supervision; M.A. and M.A.T. in English education; M.A. and M.A.T. in foreign and second languages education; Ph.D. in foreign language and ESL education; a program leading to ESL endorsement; Ph.D. in language, literacy, and culture; M.A. and Ph.D. in mathematics education; M.S. in mathematics with education option; M.A. and Ph.D. in music education; M.A.T., M.S., and Ph.D. in science education; and M.A. and Ph.D. in social studies education.

Special education programs include M.A. and Ph.D. in special education; Ed.S. in special education administration; and a program leading to special education consultant authorization.

Applicants for admission to University of Iowa graduate degree programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Elementary Education

M.A. in Elementary Education

The Master of Arts in elementary education is designed to prepare students to serve as team

leaders, grade level or subject area supervisors, curriculum consultants, or master teachers.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have completed an undergraduate teacher preparation program in either early childhood or elementary education.

REQUIREMENTS

The M.A. in elementary education with thesis requires a minimum of 30 s.h.; the M.A. without thesis requires a minimum of 32 s.h. Students must take 24 s.h. in University of Iowa courses and complete 8 s.h. on campus. Course work completed 10 or more years before admission does not count toward the M.A.

Elementary Education Graduate Core

- All of these (9 s.h.):
- 07B:120 Teaching in a Culturally Diverse Society (or equivalent approved by advisor) 3 s.h.
- 07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Education 3 s.h.
- 07E:300 Design and Organization of Curriculum 3 s.h.

Instructional Cluster

Students take three courses (9 s.h.) that deal with instructional issues in the elementary classroom. The courses are drawn from one or more of the following areas: art education, music education, social studies education, science education, math education, special education, other acknowledged specialization areas. Students must choose courses outside their specialization area.

Specialization

Students take three courses (9 s.h.) in their specialization area, chosen in consultation with their advisor.

Electives

Students choose 6 s.h. of elective course work.

COMPREHENSIVE EXAMINATION

M.A. students are expected to pass a comprehensive exam that covers the course work in the graduate core, course work in the specialization area, and additional course work deemed appropriate by their advisor.

M.A. in Developmental Reading

The Master of Arts in developmental reading prepares graduate students for positions as reading specialists in kindergarten and grades 1-12. The required course work develops the skills, knowledge, and competence needed for supervisory, curricular, and remedial teaching positions in reading. The program also builds a background in reading for students who want to specialize further in the area and eventually to teach and/or conduct research at a college or university.

Successful completion of this program, combined with one year of successful teaching experience that includes teaching reading as a significant part of the responsibility, qualifies the student for certification as a reading specialist.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have an undergraduate g.p.a. of at least 3.00; hold an early childhood, elementary, or secondary school teaching certificate; and show evidence of completing two years of successful teaching experience.

REQUIREMENTS

The M.A. in developmental reading requires a minimum of 33 s.h. with thesis; the M.A. without thesis requires a minimum of 35 s.h. Students must complete the following courses.

- 07E:171 Reading and Writing: Processes and Instruction 3 s.h.
- 07E:264 Early Literacy Development and Instruction 2-3 s.h.
- 07E:265 Reading and Writing Across Intermediate Grades 3 s.h.
- 07E:271 Advanced Reading Clinic Techniques 2-3 s.h.
- 07E:272 Advanced Reading Clinic Practicum 2-3 s.h.
- 07E:308 Seminar: Research and Current Issues (Reading) 3 s.h.
- 07S:194 Methods: High School Reading 2-3 s.h.

One of these:

- 07P:106 Child Development 3 s.h.
- 07P:133 The Adolescent and Young Adult 3 s.h.
- 07P:200 Educational Psychology 3 s.h.

One of these:

- 07P:150 Introduction to Educational Measurement 3 s.h.
- 07U:238 Assessment of Learning Difficulties 3 s.h.

An approved literacy assessment course

One of these:

07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms	3 s.h.
07E:300 Design and Organization of Curriculum	3 s.h.
07S:186 Curriculum Foundations	2-3 s.h.
07S:291 Secondary School Curriculum	2-3 s.h.

One of these:

07B:383 Supervision and Evaluation	3 s.h.
07E:280 Supervision of Instruction and Staff Development	2-3 s.h.
07E:365 Reading Clinic: Supervision	arr.

Thesis (if relevant)—one of these:

07E:393 M.A. Thesis	arr.
07S:393 M.A. Thesis	arr.

Electives

Students, in consultation with their advisor, may select the remaining required semester hours as electives from areas such as curriculum, supervision, language arts, testing and evaluation, linguistics, or speech pathology.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of two 3-hour exams. Each three-hour exam is based on an aspect of reading or literacy. With agreement of the student's advisor and committee, a comprehensive project may be substituted for the written examination in one or both areas.

Ph.D. in Elementary Education

The Doctor of Philosophy in elementary education prepares students for college and university teaching and research positions in elementary education, and for research, curriculum, supervisory, or administrative positions in public school systems and government education agencies.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Application materials should include a statement of purpose explaining the applicant's reasons for pursuing graduate study and describing his or her future goals; transcripts of all undergraduate and graduate course work; Graduate Record Exam (GRE) General Test scores; a sample of academic writing; and three letters of recommendation.

REQUIREMENTS

The Ph.D. in elementary education requires a minimum of 90 s.h., including 10-15 s.h. of dissertation credit. Each student prepares an

individual plan of study in consultation with an advisor. The final plan must be approved by the advisor and the department chair.

To remain in the program, students must maintain the grade-point average required by the Graduate College.

Ph.D. Core

All of the following are required (15 s.h.).

Foundations component:

07E:304 Schooling in the United States	3 s.h.
07S:333 Seminar on Teacher Education	3 s.h.

Research component:

07P:202 Understanding Educational Research	3 s.h.
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Two other research courses chosen in consultation with advisor

6 s.h.

Elementary Education Graduate Core

All of these (9 s.h.):

07B:120 Teaching in a Culturally Diverse Society (or equivalent approved by advisor)	3 s.h.
07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Education	3 s.h.
07E:300 Design and Organization of the Curriculum	3 s.h.

Instructional Cluster

Students take two courses (6 s.h.) that deal with instructional issues in the elementary classroom. The courses are drawn from one or more of the following areas: art education, music education, social studies education, science education, math education, special education, another acknowledged area of specialization. Students must choose courses outside their specialization area.

Specialization

Students take four courses (12 s.h.) in their specialization area, chosen in consultation with their advisor.

Electives

Students choose 6 s.h. of elective course work.

COMPREHENSIVE EXAMINATION

Students are expected to pass a comprehensive exam that covers the course work in the Ph.D. core, course work in the instructional cluster, and course work in the specialization area.

DISSERTATION

Dissertation work ranges from 10 to 15 s.h.

Ph.D. in Language, Literacy, and Culture

The Doctor of Philosophy in language, literacy, and culture brings together scholarly traditions and contemporary theory in literacy and cultural studies. Course work provides both a broad background in relevant theoretic and research literature and opportunities to conduct original studies that explore the nature of literacy practices both in and out of school. Graduates find employment in university and college teaching, research, curriculum development, and administration of literacy programs.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have at least two years of experience teaching or tutoring language or literacy (reading, writing, English, language arts) and should have earned a master's degree or have completed a significant amount of graduate course work in a literacy-related field. Application materials should include a statement of purpose explaining the applicant's reasons for pursuing graduate study and describing his or her future goals; transcripts of all undergraduate and graduate course work; Graduate Record Exam (GRE) General Test scores; a sample of academic writing; and three letters of recommendation.

Applications for admission and for financial aid are reviewed by January 10 each year.

REQUIREMENTS

The Ph.D. in language, literacy, and culture requires a minimum of 88-90 s.h. beyond the bachelor's degree. Course work includes an introductory seminar in language, literacy, and culture; at least 9 s.h. of additional doctoral seminars in the program; 6 s.h. of a required sequence of courses in curriculum and instruction; at least 6 s.h. of course work in research methodology; and 9-12 s.h. of graduate course work outside the Department of Teaching and Learning (6 s.h. of that outside the College of Education). Students also earn 10-12 s.h. of dissertation credit.

COMPREHENSIVE EXAMINATION AND DISSERTATION

As students near the completion of their course work, they identify several key strands for review and synthesis. With guidance from their advisors, students prepare for written and oral exams in two areas of literacy and submit a substantive issues paper, typically a report of an exploratory study or a review of research literature on a topic

of special interest. They also design a syllabus for a literacy course and write a reflective commentary that demonstrates understanding of the relationship between theory and practice.

Following successful completion of all components of the comprehensive exam, students work with a faculty member to develop a proposal for a study that will make an original contribution to the understanding of some aspect of literacy. After the proposal has been approved, students conduct research and report their findings under the primary guidance of a dissertation chair.

For detailed information on the Ph.D. in language, literacy, and culture, see "Our Programs" on the Department of Teaching and Learning web site.

Secondary Education

The Department of Teaching and Learning offers, or jointly administers with departments in the College of Liberal Arts and Sciences, advanced degree programs in the following fields of professional interest: art education, curriculum and supervision, developmental reading, English education, foreign language education, mathematics education, music education, science education, and social studies education.

In some fields, only master's-level programs are offered; in others, Ph.D. programs also are offered. All degrees are described below.

M.A. in Art Education

The Master of Arts in art education is administered by the School of Art and Art History (College of Liberal Arts and Sciences) in cooperation with the College of Education. Application should be made to the School of Art and Art History.

The program prepares highly qualified teachers of art for elementary and secondary schools and community colleges. The program's strong academic emphasis helps teachers who are creative artists to become highly literate in the history and language of art.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have completed the equivalent of the minimum course work in art required for a University of Iowa B.A. or B.F.A. in art and must have a license/certificate to teach art. Applications must include a representative portfolio of the

applicant's work, consisting of eight slide reproductions of artwork and one example of written work, which may be a paper previously written for a course or an original paper. Deficiencies in undergraduate art or courses recommended for teacher licensure/certification are evaluated following admission so that students can make up required course work concurrent with work for the degree.

REQUIREMENTS

The M.A. in art education requires a minimum of 38 s.h. The plan of study includes a total of 18 s.h. in studio art and art history (either 12 s.h. of studio art and 6 s.h. of art history, or 12 s.h. of art history and 6 s.h. of studio art); a total of 8 s.h. in 07S:367 Seminar: Current Issues in Art Education; and a total of 12 s.h. in additional course work, specified after the student begins the program.

M.A. students also must complete a studio thesis or a written thesis.

Ph.D. in Art Education

The Doctor of Philosophy in art education is administered by the College of Education with the cooperation of the School of Art and Art History (College of Liberal Arts and Sciences). Application should be made to the College of Education.

The program prepares college teachers and researchers in art education and supervisors of community-based art learning programs in state departments of education and school systems. It also provides students with an opportunity to continue inquiry and creative work in art history and in studio.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have an M.A. in art education or an M.F.A. from The University of Iowa, or an equivalent degree from an accredited degree-granting college or university. Applications must include a representative portfolio of the applicant's work, consisting of 12 slide reproductions of artwork and two examples of written work, which may consist of papers previously written for a course or original papers. The portfolio should be submitted to the art education office in the School of Art and Art History.

In the case of course work deficiencies, students must register for appropriate remedial courses. Two years of successful teaching experience in an elementary or secondary school is required before

admission to or completion of the doctoral program.

REQUIREMENTS

The Ph.D. in art education requires at least 60 s.h. of graduate work beyond the M.A., including at least 15 s.h. in the School of Art and Art History, 15 s.h. in art education seminars, 15 s.h. in a related area (e.g., aesthetics, anthropology, higher education, early childhood education, psychology, sociology), and 15 s.h. in thesis and tool courses. Introduction to Research in Art Education (07E:306) is also required. Students plan the course of study with their advisors.

Effective fall 2004, students admitted to any Ph.D. program in the Department of Teaching and Learning must complete at least two of the following three core courses.

07E:304 Schooling in the United States	3 s.h.
07P:202 Understanding Educational Research	3 s.h.
07S:333 Seminar on Teacher Education	3 s.h.

COMPREHENSIVE EXAMINATION

The comprehensive examination includes both oral and written exams. The written exam consists of an in-depth research problem assigned by the examining committee, to be completed within 14 days. An oral exam on the project is then held. The written portion of the exam is not intended to relate directly to the dissertation proposal.

DISSERTATION

Students must satisfactorily complete a written dissertation that constitutes a contribution to scholarship, for at least 12 s.h. The student is expected to prepare a dissertation proposal and defend it before the dissertation committee. An oral examination on the dissertation is the Ph.D. final examination.

M.A. in Curriculum and Supervision

The Master of Arts in curriculum and supervision prepares teachers and administrators for positions as consultants, directors, and coordinators in curriculum development. It is offered with thesis and nonthesis options.

ADMISSION

Students must meet the admission requirements of the Graduate College. Teaching experience is desirable.

REQUIREMENTS

The M.A. in curriculum and supervision with thesis requires a minimum of 30 s.h.; the nonthesis option requires a minimum of 32 s.h.

Common Curriculum Core

Total of 15 s.h., as follows:

- 07S:186 Curriculum Foundations 3 s.h.
- 07E:300 Design and Organization of Curriculum 3 s.h.
- Three of these:
- 07B:222 Introduction to Policy Analysis and Evaluation 3 s.h.
- 07B:381 Analysis and Appraisal of Curriculum 3 s.h.
- 07E:132/07S:132 Middle School Curriculum and Methods 3 s.h.
- 07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Education 3 s.h.
- 07P:203 Learning Technology and Effective Teaching 3 s.h.
- 07P:255 Construction and Use of Evaluation Instruments 3 s.h.

Research Core

Students select two courses (total of 6 s.h.) in consultation with the advisor.

Supervision Core

Students select two courses (total of 6 s.h.) in consultation with the educational policy and leadership studies advisor.

Cognates

Students complete a total of 3 s.h. in a subject field such as English.

Thesis

Students who elect a thesis program earn 2-4 s.h. in 07S:393 M.A. Thesis.

COMPREHENSIVE EXAMINATION

Two 3-hour comprehensive exams are required: one in curriculum and one in a related field in education or in a cognate field; or three 2-hour examinations.

Ph.D. in Curriculum and Supervision

The Doctor of Philosophy in curriculum and supervision is administered by the College of Education. It prepares students for leadership positions in curriculum for elementary, middle, and secondary schools, state departments, intermediate systems, and college teaching.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must hold a valid teaching license/certificate, and have at least two years of teaching experience. A faculty review committee makes admission decisions.

REQUIREMENTS

The Ph.D. in curriculum and supervision requires a total of at least 90 s.h., including other approved graduate course work.

Effective fall 2004, students admitted to the Ph.D. program in curriculum and supervision must complete all three of the following core courses.

- 07E:304 Schooling in the United States 3 s.h.
- 07P:202 Understanding Educational Research 3 s.h.
- 07S:333 Seminar on Teacher Education 3 s.h.

Common Curriculum Core

Seven of these (21 s.h.):

- 07B:222 Introduction to Policy Analysis and Evaluation 3 s.h.
- 07B:381 Analysis and Appraisal of Curriculum 3 s.h.
- 07E:132/07S:132 Middle School Curriculum and Methods 3 s.h.
- 07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Education 3 s.h.
- 07E:300 Design and Organization of Curriculum 3 s.h.
- 07E:304 Schooling in the United States 3 s.h.
- 07P:255 Construction and Use of Evaluation Instruments 3 s.h.
- 07S:186 Curriculum Foundations 2-3 s.h.
- 07S:291 Secondary School Curriculum 3 s.h.

Research Core

A minimum of four research tools selected in consultation with advisor 12 s.h.

Supervision Core

A minimum of four courses in educational policy and leadership studies, selected in consultation with advisor 12 s.h.

Electives

Courses chosen in consultation with advisor 9-12 s.h.

Cognates

All doctoral candidates are required to complete at least 9-12 s.h. of cognate work in two areas selected in consultation with advisor.

COMPREHENSIVE EXAMINATION

Candidates take three 3-hour comprehensive exams, one in secondary school curriculum and two in related fields in education or in a cognate field.

DISSERTATION

07S:493 Ph.D. Thesis 10-18 s.h.

M.A. in English Education

The Master of Arts in English education is intended for experienced teachers of English. It provides opportunities for professional development and preparation for department chairs, supervisors of English, and curriculum specialists for secondary schools. Application should be made to the College of Education.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have taken extensive course work in English and should have taught English for at least two years.

REQUIREMENTS

The M.A. in English education requires a minimum of 30 s.h. Students specialize in English education and in one or two other areas. The other area(s) may include reading, writing, curriculum, adolescent literature, or a literary area. Students and their advisors plan the program of study together. The only required course is 07S:315 M.A. Seminar: English Education. At the end of the program, students take a comprehensive examination in English education and in their chosen area(s).

Students must maintain a g.p.a. of at least 3.00 while enrolled in the program.

M.A.T. in English Education

The Master of Arts in Teaching in English education is designed for students who have an undergraduate degree in English and few or no professional education courses. Successful completion of the program enables students to receive a credential to teach English in secondary schools.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have a B.A. in English or the equivalent, with an undergraduate g.p.a. of at least 3.00. They also must take the Graduate Record Exam and meet all TEP application requirements. Since the M.A.T. is a credentialing program, candidates must not have qualified previously for a credential. Applicants are expected to have no more than 6 s.h. of course work in professional education courses prior to admission.

REQUIREMENTS

The M.A.T. in English education requires a minimum of 45 s.h., including the following courses.

English

07S:315/08P:405 M.A. Seminar: English Education arr.
 08N:141 Approaches to Teaching Writing 3 s.h.
 08P:182 Language and Learning 2-3 s.h.
 08P:198 Reading and Teaching Adolescent Literature 3 s.h.

Students may take the following English courses as part of the M.A.T. program or as part of their undergraduate program.

A course in Shakespeare
 Three courses in American literature
 A course in British literature
 A course in nonfiction or creative writing (in addition to 08N:141)

Education

07B:180 Human Relations for the Classroom Teacher 3 s.h.
 07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college) 2 s.h.
 07P:200 Educational Psychology 3 s.h.
 07S:100 Foundations of Education 3 s.h.
 07S:114 Introduction and Practicum: English and Speech (must be completed before enrollment in 07S:115 and 07S:194) 3 s.h.
 07S:115 Methods: English 3 s.h.
 07S:187 Seminar: Curriculum and Student Teaching 1-3 s.h.
 07S:190 Orientation to Secondary Education 1 s.h.
 07S:191 Observation and Laboratory Practice in the Secondary School arr.
 07S:192 Observation and Laboratory Practice in the Secondary School arr.

07S:194 Methods: High School Reading 2-3 s.h.
 07U:100 Foundations of Special Education 3 s.h.

COMPREHENSIVE EXAMINATION

The comprehensive examination involves a series of reflective projects supervised by English education faculty. The projects encompass issues explored throughout the course of study and involve integration of theory and practice.

M.A.T. in Foreign and Second Languages Education

The Master of Arts in Teaching in foreign and second languages education is designed for superior liberal arts and sciences graduates who have had few or no professional education courses. Successful completion of the program leads to elementary and/or secondary teacher licensure. The M.A.T. is available in Chinese, French, German, Japanese, Latin, Spanish, and Russian.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have a bachelor's degree with a major or a strong concentration in a second language and an undergraduate g.p.a. of at least 3.00. They also must meet all TEP application requirements.

REQUIREMENTS

The M.A.T. in foreign and second languages education requires a minimum of 67 s.h. Students must complete at least 18 s.h. in graduate course work in the collaborating foreign language department and the following professional education courses.

Professional Education

07B:180 Human Relations for the Classroom Teacher 3 s.h.
 07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college) 2 s.h.
 07P:200 Educational Psychology 3 s.h.
 07S:100 Foundations of Education 3 s.h.
 07S:190 Orientation to Secondary Education (must be taken during student's first semester in the college) 1 s.h.
 07S:195 Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college) 1 s.h.
 07U:100 Foundations of Special Education 3 s.h.

Foreign Language Teaching

All of these:
 07E:183/07S:183 Second Language Classroom Learning 3 s.h.
 07S:197 Principles of Course Design for Second Language Instruction 3 s.h.
 07S:200 Fundamentals of Second Language Assessment 3 s.h.
 Total of 21-27 s.h. from these:
 07E:106/07S:106 Foreign Language Education Practicum I 3 s.h.
 07E:107/07S:107 Foreign Language Education Practicum II 3 s.h.
 07S:116 Learning to Teach Second Languages I 3 s.h.
 07S:117 Learning to Teach Second Languages II 3 s.h.
 07S:187 Seminar: Curriculum and Student Teaching 1 s.h.
 07S:191 Observation and Laboratory Practice in the Secondary School arr.
 07S:192 Observation and Laboratory Practice in the Secondary School arr.

Optional for K-12 Licensure

07S:189 Elementary School Special Subject Area Student Teaching 1-4 s.h.

COMPREHENSIVE EXAMINATION

A two-part comprehensive examination is required. One part covers issues in foreign language education related to theory and practice, the other covers knowledge of and proficiency in the language and/or literature of the candidate's choice.

ESL Endorsement

An ESL endorsement enables an individual to teach English as a Second Language in K-12 in the state of Iowa. Because teaching endorsements are additional areas of expertise added to a teaching license, applicants must be current students in a TEP program or licensed inservice teachers.

ADMISSION

Applicants are admitted to the ESL endorsement program twice a year; application deadlines are October 15 and March 15. Each applicant must submit a one-page essay explaining why he or she wishes to teach ESL; a transcript of all university-level course work; and evidence of having completed two semesters of foreign language beyond the language component of the College of Liberal Arts and Sciences General Education Program or a documented score of

“advanced plus” on the oral proficiency interview (OPI) given in the language department. Applicants whose first language is not English must provide evidence of scoring 55 or higher on the Test of Spoken English (TSL).

M.A. in Foreign and Second Language Education

The Master of Arts in foreign and second language education is designed for students who would like to pursue a foreign language education specialization in teaching (kindergarten through college) or in related fields (e.g., language laboratory directors, instructional materials designers, or evaluation specialists). It also offers enrichment in foreign language pedagogical knowledge for practicing teachers. Students may design programs with a special focus.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must be proficient in English and in another language and have earned at least 20 s.h. in undergraduate, upper-division foreign language course work. Applicants should submit a statement of purpose explaining their graduate study goals. A g.p.a. of at least 3.00 in undergraduate course work and some experience living, working, and/or studying in the applicant's chosen target language culture are preferred. International applicants whose first language is not English must score at least 600 (paper-based) or at least 250 (computer-based) on the Test of English as a Foreign Language (TOEFL), and at least 5 on the Test of Written English (TWE).

REQUIREMENTS

The M.A. in foreign and second languages education requires a minimum of 33-36 s.h. It offers three specializations: second languages education, a target language area (may subsume language, linguistics, literature, history, geography, or civilization), and a cognate area. The cognate area may be teacher education, reading, instructional design, measurement and statistics, or another area selected in consultation with the advisor.

Students take at least 15 s.h. in second language education course work, 9 s.h. in graduate language or linguistics, and 9 s.h. in a cognate area. Students must earn 9 s.h. in courses numbered 200 or above. They also complete a research project.

Students must maintain a g.p.a. of at least 3.00 while enrolled in the program. Candidacy for the master's degree is reevaluated annually.

Suggested courses are as follows.

Foreign and Second Languages Education

Total of 15 s.h.

07E:183/07S:183 Second Language Classroom Learning	3 s.h.
07S:197 Principles of Course Design for Second Language Instruction	3 s.h.
07S:200 Fundamentals of Second Language Assessment	3 s.h.
At least 6 s.h. from these:	
07S:180 Issues in Foreign Language Education	3 s.h.
07S:184 Reading in a Second Language	3 s.h.
07S:202 Second Language Program Management	3 s.h.
07S:203 Second Language Planning in Education	3 s.h.
07S:207 Reading in Non-Roman Scripts	3 s.h.
07S:208 Designing Materials for Second Language Instruction	3 s.h.

Target Language

In consultation with the advisor, students select at least 9 s.h. of graduate language courses in their area of interest.

Cognate Area

Students complete at least 9 s.h. of course work chosen in consultation with the advisor.

MASTER'S EXAMINATION

Students take a written exam during the semester in which they plan to graduate. The exam covers second language education and the two study areas selected by the student. It is written by the graduate committee, which consists of at least three faculty members, two of whom must be from foreign and second languages education.

Ph.D. in Foreign Language and ESL Education

The Doctor of Philosophy in foreign language and ESL education provides students with the necessary content-area knowledge and research skills for independent research, program administration, and varied leadership positions in foreign language and ESL education. It is designed for individuals who have demonstrated success in foreign language and ESL teaching and who wish to prepare for positions in academia, government, or the private sector where in-depth

knowledge of foreign language educational issues is required.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have at least two years of experience teaching foreign language or ESL and should hold a master's degree or have completed a significant amount of graduate course work in a foreign language or foreign language education. Applicants must have a g.p.a. of at least 3.00 in graduate course work. International applicants whose first language is not English must score at least 600 (paper-based) or at least 250 (computer-based) on the Test of English as a Foreign Language (TOEFL).

Application materials should include a statement of purpose explaining the applicant's professional goals, transcripts of all undergraduate and graduate work, Graduate Record Exam (GRE) General Test scores, a sample of academic writing, and three letters of recommendation.

REQUIREMENTS

The Ph.D. in foreign language and ESL education requires a minimum of 80 s.h., which can include courses taken for the master's degree. Most course work must be taken at the 200 level or above. At least 30 s.h. must be taken in the core area of foreign language education, at least 10 s.h. must be in specified courses in research methodology, and 9 s.h. must be in a cognate area to be determined in consultation with the advisor.

Effective fall 2004, students admitted to the Ph.D. program in foreign language and ESL must complete 07E:304 Schooling in the United States (3 s.h.). They also choose one of the following two core courses.

- 07P:202 Understanding Educational Research 3 s.h.
- or
- 07S:333 Seminar on Teacher Education 3 s.h.

COMPREHENSIVE EXAMINATION

To qualify to take the comprehensive examination, students must successfully complete the required course work and either write a review article or carry out extended research activity. The final products of these activities must be presented formally by the student to members of the comprehensive examination committee in anticipation of preparing the article or research activity for publication and presentation at a national

conference. After successful completion of the pre-exam activity, the student is eligible to sit for the comprehensive examination, which includes three 3-hour exams in foreign language education and the cognate area in education.

After passing the comprehensive examination, students consult with their advisor to choose a Ph.D. dissertation committee of at least five faculty members, who approve the dissertation proposal. The student then conducts research under the primary guidance of the advisor.

Ph.D. in Language, Literacy, and Culture

The Doctor of Philosophy in language, literacy, and culture brings scholarly traditions and contemporary theory together in literacy and cultural studies. Course work provides a broad background in relevant theoretic and research literature, and opportunities to conduct original studies that explore the nature of literacy practices both in and out of school. Graduates find employment in university and college teaching, research, curriculum development, and administration of literacy programs.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have at least two years of experience teaching or tutoring language or literacy (reading, writing, English, language arts) and should have earned a master's degree or have completed a significant amount of graduate course work in a literacy-related field.

Application materials should include a statement of purpose explaining the applicant's reasons for pursuing graduate study and describing his or her future goals; transcripts of all undergraduate and graduate course work; Graduate Record Exam scores; a sample of academic writing; and three letters of recommendation.

Applications for admission and for financial aid are reviewed by January 10.

REQUIREMENTS

The Ph.D. in language, literacy, and culture requires a minimum of 88-90 s.h. beyond the bachelor's degree. Course work includes an introductory seminar in language, literacy, and culture; at least 9 s.h. of additional doctoral seminars in the program; 6 s.h. of a required sequence of courses in curriculum and instruction; at least 6 s.h. of course work in research methodology; and 9-12 s.h. of graduate course work outside the Department of Teaching

and Learning (6 s.h. of that outside the College of Education). Students also earn 10-12 s.h. of dissertation credit.

COMPREHENSIVE EXAMINATION AND DISSERTATION

As students near the completion of their course work, they identify several key strands for review and synthesis. With guidance from their advisors, students prepare for written and oral exams in two areas of literacy and submit a substantive issues paper, typically a report of an exploratory study or a review of research literature on a topic of special interest. They also design a syllabus for a literacy course and write a reflective commentary that demonstrates understanding of the relationship between theory and practice.

Following successful completion of all components of the comprehensive exam, students work with a faculty member to develop a proposal for a study that will make an original contribution to the understanding of some aspect of literacy. After the proposal has been approved, students conduct research and report their findings under the primary guidance of a dissertation chair.

For detailed information on the Ph.D. in language, literacy, and culture, see Our Programs on the Department of Teaching and Learning web site.

M.A. in Mathematics Education

The Master of Arts in mathematics education provides students with advanced specialization in mathematics and education as a better foundation for K-12 teaching.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Except in unusual cases, they should hold a professional license/certificate to teach school mathematics. A combined score of 1000 on the verbal and quantitative sections of the Graduate Record Examination (GRE) General Test is preferred.

REQUIREMENTS

The M.A. in mathematics education requires a minimum of 32 s.h. Students take a minimum of 10 s.h. of course work in mathematics approved by the advisor. They also take a minimum of four courses in mathematics education, which must include 07S:235/07E:235 Current Issues in Mathematics Education (2-3 s.h.) and three courses chosen from the following.

07S:230/07E:230 Workshop in School Mathematics	1-3 s.h.
07S:231/07E:231 Technology in School Mathematics	2-3 s.h.
07S:234/07E:234 Foundations of Mathematics Education	2-3 s.h.
07S:236 The Teaching of Geometry	2-3 s.h.
07S:239 Teaching of Algebra	2-3 s.h.
07S:335/07E:335 Seminar: Mathematics Education	2-3 s.h.

Students choose a minimum of two courses from a cognate area; suggested areas are educational psychology, educational statistics and measurement, history or philosophy of education, pure or applied mathematics, instructional design and technology, counselor education, curriculum, administration, and special education. Courses are chosen in consultation with a faculty member from the cognate area.

Students also complete a sufficient number of electives in mathematics and education, chosen with the approval of the advisor, to complete 32 s.h. of credit.

COMPREHENSIVE EXAMINATION

Students take three 2-hour comprehensive exams: one in mathematics education, the second in mathematics, and the third in the cognate area.

M.S. in Mathematics with Education Option

The Master of Science in mathematics with education option prepares licensed/certified teachers with advanced specialization in mathematics and mathematics education. It is administered by the Department of Mathematics (College of Liberal Arts and Sciences). Application should be made to the Department of Mathematics.

REQUIREMENTS

The M.S. in mathematics with education option requires a minimum of 32 s.h.

Students must earn a minimum of 24 s.h. in the Department of Mathematics, including the core master's program for either pure mathematics or applied mathematics as described below. They also must complete two courses in mathematics education.

Pure Mathematics

One of these sequences:

22M:115-22M:116 Introduction to Analysis I-II	6 s.h.
22M:210-22M:211 Analysis I-II	6 s.h.

One of these sequences:

22M:120-22M:121 Abstract Algebra I-II	6 s.h.
22M:205-22M:206 Introduction to Algebra I-II	6 s.h.
22M:132 General Topology	3 s.h.

Applied Mathematics

22M:140 Continuous Mathematical Models	3 s.h.
22M:142 Nonlinear Dynamics with Numerical Methods	3 s.h.
22M:144 Partial Differential Equations with Numerical Methods	3 s.h.
22M:151 Discrete Mathematical Models	3 s.h.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory	3 s.h.
22M:171 Numerical Analysis: Differential Equations and Linear Algebra	3 s.h.
22M:174 Optimization Techniques	3 s.h.

COMPREHENSIVE EXAMINATION

Students take a comprehensive examination of six hours over the required courses in either pure mathematics or applied mathematics, and education. The examination assesses the candidate's knowledge of mathematics and of the relevance of specific concepts in teaching secondary school mathematics.

Ph.D. in Mathematics Education

The Doctor of Philosophy in mathematics education prepares supervisors, teacher education personnel, community college personnel, and researchers in mathematics education. It is administered by the College of Education.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have an undergraduate major in mathematics or the equivalent; a master's degree in mathematics, mathematics education, or education; a g.p.a. of at least 3.00; and, except in unusual circumstance, a current teaching license/certificate and at least two years of teaching experience.

REQUIREMENTS

The Ph.D. in mathematics education requires a minimum of 80-90 s.h. beyond the bachelor's degree. Credit earned more than 10 years previously must be updated.

Effective fall 2004, students admitted to any Ph.D. program in the Department of Teaching

and Learning must complete at least two of the following three core courses.

07E:304 Schooling in the United States	3 s.h.
07P:202 Understanding Educational Research	3 s.h.
07S:333 Seminar on Teacher Education	3 s.h.

Students must complete a minimum of 36 s.h. of graduate work in the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science, including the requirements for the pure mathematics core, the applied mathematics core, or middle-grades mathematics, as follows. Electives are encouraged in the pure mathematics and applied mathematics sequences.

Pure Mathematics

22M:115-22M:116 Introduction to Analysis I-II	6 s.h.
22M:120-22M:121 Abstract Algebra I-II	6 s.h.
22M:132 General Topology	3 s.h.

Applied Mathematics

22M:142 Nonlinear Dynamics with Numerical Methods	3 s.h.
22M:144 Partial Differential Equations with Numerical Methods	3 s.h.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory	3 s.h.
22M:171 Numerical Analysis: Differential Equations and Linear Algebra	3 s.h.
22M:174 Optimization Techniques	3 s.h.

Middle-Grades Mathematics

For this option, no course work may replicate undergraduate work; at least five of these courses must be completed; and 22M:106, 22M:126, and 22M:151 are required unless duplicated by previous course work.

22M:100 Introduction to Ordinary Differential Equations	2-3 s.h.
22M:104 Introduction to Matrix Theory	3 s.h.
22M:106 Transformation Geometry	3 s.h.
22M:107 History of Mathematics	3 s.h.
22M:108 Philosophy of Mathematics	3 s.h.
22M:109 Classical Analysis	3 s.h.
22M:126 Elementary Theory of Numbers	2-3 s.h.
22M:127 Matrix Theory	3 s.h.
22M:151 Discrete Mathematical Models	3 s.h.
22S:120 Probability and Statistics	4 s.h.

Courses cross-listed in education do not fulfill this requirement. Students who completed their mathematics requirement at another institution must complete at least 6 s.h. of additional course work in mathematics at The University of Iowa, chosen with the advisor's approval.

Students also must complete at least five courses in mathematics education, including 07S:235 Current Issues in Mathematics Education and continuous registrations in 07S:335 Seminar: Mathematics Education until the comprehensive examination is passed.

ADDITIONAL REQUIREMENTS

Students concentrate in two additional comprehensive examination areas in either the mathematical sciences or education. A minimum of three courses usually are required for a comprehensive examination area, but candidates should consult with faculty members in the areas selected to determine which courses they should take in order to adequately prepare for the examinations.

A minimum of two courses in data analysis and research design are required, including both quantitative and qualitative methods.

Students must demonstrate competence in computer programming.

Students must complete a total of at least 24 s.h. in College of Education courses; this includes the course work listed above.

Upon completing the program, the student must have a cumulative g.p.a. of 3.00 or higher on all graduate work in mathematics, all University of Iowa graduate work in mathematics, all graduate work, and all University of Iowa graduate work.

COMPREHENSIVE EXAMINATION

Students take three written comprehensive examinations, one in mathematics education and two in other fields of education or mathematics; an oral examination follows the written examinations. A partial list of potential cognate areas is available from the M.A. program in mathematics education.

DISSERTATION

Students must earn 10 s.h. of dissertation credit in 07S:493 Ph.D. Thesis. Each candidate completes a dissertation on a research problem in mathematics education. A prospectus of the proposed research must be presented to the dissertation committee before the candidate undertakes the study. Upon completion of the dissertation, the candidate defends the dissertation in an oral examination.

M.A. in Music Education

The Master of Arts in music education provides students with deeper insights into music, the theory and practice of music education, and the

role of music in the school curriculum. The degree is available with thesis (30 s.h. minimum) or without (33 s.h. minimum).

The program is administered by the School of Music (College of Liberal Arts and Sciences) in cooperation with the College of Education. Application is made to the School of Music.

Ph.D. in Music Education

The Doctor of Philosophy in music education prepares students for teaching, research, and administrative posts. Graduates find employment as college teachers of music education classes and activities; as band, chorus, and orchestra directors; and as administrators of music departments and schools of music. Some apply their skills in public schools as music supervisors, research and curriculum consultants, and directors of city or district school music programs.

The program is administered by the School of Music (College of Liberal Arts and Sciences) in cooperation with the College of Education. Application is made to the School of Music.

M.A.T. in Science Education

The Master of Arts in Teaching in science education is designed primarily for graduates of a bachelor's degree program in science who decide that they would like to become teachers. It features advanced work in science along with the courses required for certification, enabling students to earn a master's degree and teaching certification at the same time.

The program assumes students have completed considerable course work in science (at least 56 s.h.) as undergraduates, but no previous course work in education. Students' science course work should be equivalent to that required by the University of Iowa Science Education Program (College of Liberal Arts and Sciences).

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have a bachelor's degree with a major or equivalent in one of the sciences. A g.p.a. of at least 3.00 is required for admission and must be maintained throughout the program. Applicants must meet all TEP application requirements.

REQUIREMENTS

The M.A.T. in science education requires a minimum of 48 s.h.

Professional Education Sequence Foundation

07B:180 Human Relations for the Classroom Teacher	3 s.h.
07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college)	2 s.h.
07P:200 Educational Psychology	3 s.h.
07S:100 Foundations of Education	3 s.h.
07S:190 Orientation to Secondary Education (must be taken during student's first semester in the college)	1 s.h.
07S:195 Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college)	1 s.h.
07U:100 Foundations of Special Education	3 s.h.

Science education courses are taken in the following sequence.

07S:151 Science Teaching and Practice with Early Learners	3 s.h.
07S:152 Methods of Teaching Science	3 s.h.

These two taken concurrently:

07S:153 Instructional Issues in Teaching Science	3 s.h.
07S:179 Secondary School Science Practicum	2 s.h.

These taken concurrently:

07S:187 Seminar: Curriculum and Student Teaching	3 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School	6 s.h.
07S:192 Observation and Laboratory Practice in the Secondary School	6 s.h.

Science Specialization

The following courses are required for the undergraduate degree in science education at The University of Iowa. They need not be repeated by M.A.T. candidates who need one or more advanced courses in their major science area, or by students from other interdisciplinary science discipline programs that prepare teachers for grades 6-9.

Both of these:

097:128 Meaning of Science	2 s.h.
097:130 Science in Historical Perspective	2 s.h.

Two of these (unless completed during undergraduate study):

097:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences	3 s.h.
097:103 Societal and Educational Applications of Biological Sciences	3 s.h.
097:105 Societal and Educational Applications of Physical Sciences	3 s.h.

097:106 Societal and Educational Applications of Chemical Concepts	3 s.h.
097:140 Problems in Integrating the Teaching of Environmental Science	3 s.h.

Electives

A minimum of one graduate course in biology, chemistry, earth science, or physics is required. Students who have satisfied portions of the required science course work listed above must take additional science course work to meet the minimum requirement of 48 s.h.

COMPREHENSIVE EXAMINATION

Students complete the comprehensive examination before their student teaching semester. Two exams or projects, one in science education and one in a science specialization area, are required. They may not duplicate course examinations in these areas. The science education exam, under the guidance and supervision of the examining committee, consists of two parts, written and oral. Detailed requirements for the science education comprehensive examination are available from the Science Education office.

M.S. in Science Education

The Master of Science in science education is designed for students who want to pursue advanced science education specialization in teaching (kindergarten through college) or in related fields such as medical education, museum programs, and textbook editing. Although a nonthesis option is available, the thesis program is recommended.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have an undergraduate g.p.a. of at least 3.00 and usually must have an undergraduate degree in one of the sciences or in science education. They also must have teaching licensure/certification unless they are preparing for careers in allied health, museums, or community colleges.

REQUIREMENTS

The M.S. in science education requires a minimum of 38 s.h.

Science Education

07E:255/07S:255 Science Education: Issues, History, and Rationale	3 s.h.
07E:256/07S:256 Science Education: The Nature of Science	3 s.h.

07E:257/07S:257 Learning in the Science Classroom	2-3 s.h.
07E:258/07S:258 Writing in the Science Classroom	3 s.h.
07E:350/07S:350 Seminar: Science Education (registration required each semester in residence)	0-2 s.h.

Science Specialization

Students earn a total of 19 s.h. in science and applied science courses (100-level or above) chosen in consultation with the advisor.

Corroborative Studies (Nonthesis Only)

Science and applied science courses selected from an area other than the specialization	6 s.h.
or	
07S:393 M.A. Thesis	6 s.h.

COMPREHENSIVE EXAMINATION

Students take a comprehensive examination in two areas: one in science education, the other in a science specialization.

Ph.D. in Science Education

The Doctor of Philosophy in science education is designed for individuals who aspire to positions as college and university science educators; research directors in science education; supervisors in national, state, and local systems; science teachers in liberal arts colleges; instructors of general education science courses at major universities; and instructors or researchers in medical and/or allied health education.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have completed a master's degree in one of the sciences or science education and have a g.p.a. of at least 3.00 on all graduate work taken before applying to the program. All applicants must have completed an M.S. thesis or similar research suitable for publication.

REQUIREMENTS

The Ph.D. in science education requires a minimum of 102 s.h., which must include the courses listed below (37 s.h.); courses taken toward a master's degree count toward the 102 s.h. total.

07E:255/07S:255 Science Education: Issues, History, and Rationale	3 s.h.
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07E:256/07S:256 Science Education: The Nature of Science	3 s.h.
07E:257/07S:257 Learning in the Science Classroom	2-3 s.h.
07E:258/07S:258 Writing in the Science Classroom	3 s.h.
07E:350/07S:350 Seminar: Science Education (registration required each semester in residence)	0-2 s.h.
07E:493/07S:493 Ph.D. Thesis	10 s.h.
07S:355 Research in Science Education (repeated registrations of 3 s.h. each)	9 s.h.
07S:368 Ph.D. Seminar: Current Research in Science Education (two or more registrations required after completing 07E/07S:255-258)	4 s.h.

Effective fall 2004, students admitted to any Ph.D. program in the Department of Teaching and Learning must complete at least two of the following three core courses.

07E:304 Schooling in the United States	3 s.h.
07P:202 Understanding Educational Research	3 s.h.
07S:333 Seminar on Teacher Education	3 s.h.

Students must complete 27 s.h. of credit in the major area of study (one of the following): biological science, physical science, earth science, or environmental studies.

They also complete 8 s.h. in an integrated group of supporting courses chosen from a limited number of areas, such as curriculum, applied science, educational measurement, and history/philosophy of science, in consultation with the advisor.

Students must demonstrate competency in two of the following research tool areas: statistics, computer programming and/or data processing, and research design (completion of a pilot study). Competency is certified by the advisor.

Ph.D. students are expected to participate in research throughout their residence.

All students are expected to spend a full year in residency actively involved with course work.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three parts: one dealing with science education, another with an area of science, and a third with the corroborative studies area.

DISSERTATION

Candidates complete a minimum of 10 s.h. of dissertation credit in 07E:493 Ph.D. Thesis or 07S:493 Ph.D. Thesis.

M.A. in Social Studies Education

The Master of Arts in social studies education provides an opportunity for interdisciplinary work in education, history, social science, or related areas for classroom teachers, high school department chairs, supervisors, and others interested in advancing their competence in history and the social sciences and greater proficiency in teaching and supervision.

Students choose one of two programs. Program A provides interdisciplinary study in education, history, social science, or related areas for classroom teachers or others interested in advancing their competence in instruction and their subject area. Program B is for individuals who have a bachelor's degree in history or social sciences and who wish to obtain a teaching license/certificate while earning the M.A.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have a bachelor's degree in education, history, or one of the social sciences from an accredited institution; a cumulative g.p.a. of at least 3.00; a g.p.a. of at least 3.00 in history and/or social science courses; a combined verbal and quantitative score of at least 1000 on the Graduate Record Examination (GRE) General Test; and two letters of recommendation. Evidence of writing ability in a completed major paper or essay also is required. Typically, applicants to Program A are expected to hold a secondary teaching license/certificate.

After declaring a social studies education major, M.A. students must maintain a g.p.a. of at least 3.00.

PROGRAM A REQUIREMENTS

Program A of the M.A. in social studies education requires a minimum of 38 s.h. distributed among three concentration fields in history and social sciences (or related areas) and education, with at least 10 s.h. in each of three fields.

At least 9 of the total 38 s.h. must be earned in graduate courses numbered 200 or above distributed among the three concentration fields.

Students who choose the thesis option complete a research or investigative problem. If the thesis is research or investigation in history, social science, or a related area, the thesis director is a member of the appropriate department. If the thesis is an investigative problem in social studies

education, the thesis director is a College of Education faculty member.

PROGRAM A COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three 2-hour written exams: one on each of the three concentration fields.

PROGRAM B REQUIREMENTS

Program B of the M.A. in social studies education requires a minimum of 38 s.h. Program B students should have completed considerable work in the social sciences and/or history as undergraduates. Students who have been accepted to the University of Iowa undergraduate or postbaccalaureate Teacher Education Program in secondary social studies education cannot apply credit they earned in required licensure courses as undergraduate or postbaccalaureate students to the required 38 s.h. for the M.A. in social studies education. However, such credit does count toward state teaching licensure.

Program B students who completed 07S:111 Introduction and Practicum: Social Studies and/or 07S:170 Methods: Social Studies as undergraduate or postbaccalaureate students at The University of Iowa are required to retake these courses during the M.A. program and immediately before student teaching. Required teaching licensure course work completed at other colleges or universities is reviewed on a case-by-case basis.

Program B students who were accepted to the undergraduate Teacher Education Program before they received a baccalaureate must complete a college-level math course.

For licensure, students admitted to the M.A. in social studies education must complete 30 s.h. in a history or social science area; the 30 s.h. may include previous undergraduate and/or graduate-level course work. Required professional education course work not completed as part of the baccalaureate degree must be completed for licensure.

Students also must complete 15 s.h. in an additional history or social science licensure area; previous undergraduate course work may apply.

Students must complete all of the following courses, unless they completed some of them as part of their bachelor's degree. In such cases, the semester-hour requirement for Program B is reduced accordingly, but it never falls below 38 s.h. All students must take the course work required for meeting all Iowa Department of

Education requirements for teacher licensure/certification.

Professional education courses:

07B:180 Human Relations for the Classroom Teacher	3 s.h.
07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college)	2 s.h.
07P:200 Educational Psychology	3 s.h.
07S:100 Foundations of Education	3 s.h.
07S:111 Introduction and Practicum: Social Studies	3 s.h.
07S:170 Methods: Social Studies	3 s.h.
07S:187 Seminar: Curriculum and Student Teaching	3 s.h.
07S:190 Orientation to Secondary Education (must be taken during student's first semester in the college)	1 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School	6 s.h.
07S:192 Observation and Laboratory Practice in the Secondary School	6 s.h.
07S:195 Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college)	1 s.h.
07S:233 History and Foundations of Social Studies Education	3 s.h.
07S:277 Seminar: Social Studies Education (History Teaching and Learning)	3 s.h.
07S:277 Seminar: Social Studies Education (Education for Social Justice)	3 s.h.
07U:100 Foundations of Special Education	3 s.h.

Subject area specialization courses: a minimum of 9 s.h. of course work in history or a social science is required; students should take at least one course taught by the instructor who will serve on the examining committee.

PROGRAM B COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three 2-hour exams: one on the subject area specialization, one on general professional education, and one on social studies education.

Ph.D. in Social Studies Education

The Doctor of Philosophy in social studies education prepares secondary department chairs, supervisors, curriculum directors, teacher education personnel, and college instructors in the social sciences and in social studies education.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have a bachelor's degree in history, the social sciences, or education; a master's degree in history, the social sciences, or education; a cumulative g.p.a. of at least 3.00; and a combined verbal and quantitative score of at least 1200 on the Graduate Record Examination (GRE) General Test. At least two years of teaching experience is strongly preferred.

Applicants who did not write a thesis as part of their M.A. must submit seminar papers or field research as equivalents.

REQUIREMENTS

The Ph.D. in social studies education requires a minimum of 90 s.h. beyond the bachelor's degree, including course work and dissertation credit but not tool requirements. The 90 s.h. must be distributed among history, social sciences or related areas, and professional education, depending on the student's background and goals. Students must complete at least 18 s.h. in one area of history or one of the social sciences.

Seminars and courses numbered 200 or above are required in each of the study areas that constitute the major. Students must take 9 s.h. of required courses in social studies education, including 07E:233/07S:233 History and Foundations of Social Studies Education (3 s.h.) and 6 s.h. of 07E:196/07S:196 Topics in Teaching and Learning (social studies emphasis) and/or 07E:277/07S:277 Seminar: Social Studies Education.

Effective fall 2004, students admitted to any Ph.D. program in the Department of Teaching and Learning must complete at least two of the following three core courses.

07E:304 Schooling in the United States	3 s.h.
07P:202 Understanding Educational Research	3 s.h.
07S:333 Seminar on Teacher Education	3 s.h.

Tool requirements are tailored to the individual student's program and may consist of foreign languages or other requirements. Usually, statistics plus research techniques in one or more of the chosen fields or in a language is required.

COMPREHENSIVE EXAMINATIONS

Students take three 3-hour examinations, one in each of the study areas. Depending on the distribution of course work, the nine hours of written examinations may be rearranged.

The Ph.D. examining committee consists of five members, who are selected according to the nature of the student's Ph.D. program and distribution of course work. An oral examination is conducted by the committee following the written exam.

DISSERTATION

Ph.D. candidates must complete a dissertation on a research problem in social studies education. The candidate must present a prospectus of the proposed research to the dissertation committee before undertaking the study. Upon completion, the candidate defends the dissertation in an oral exam.

Special Education

Special education programs are offered in K-6 and 7-12 Instructional Strategist I: Mild/Moderate, and K-12 Instructional Strategist II: BD/LD. These programs are designed to prepare graduates for positions in public schools, local and state education agencies, clinical settings, and institutions of higher education. All teacher licensure/certification programs are approved by the Iowa Department of Education.

A program leading to special education licensure/certification in Instructional Strategist I: Mild/Moderate (K-6) is available to undergraduates (see "Licensure and Teacher Education Certification"/"Elementary Education" at the beginning of this section). Undergraduates who wish to pursue careers in special education should contact the Department of Teaching and Learning.

M.A. in Special Education

The Master of Arts in special education prepares individuals to deliver appropriate levels of service to students with disabilities at the elementary and secondary levels, in either public or private settings. Applicants with a master's degree and special education certification may request admission for the purpose of obtaining an additional area of special education licensure/certification (i.e., professional improvement). Students admitted to the M.A. program typically receive licensure/certification in at least one area upon completing the program.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have an undergraduate g.p.a. of at least 3.00 (and/or at least 3.00 on a minimum of 12 s.h. of

graduate course work). A combined verbal and quantitative score of at least 1000 on the Graduate Record Exam (GRE) General Test is preferred. International applicants whose first language is not English must score at least 600 (paper-based) or 250 (computer-based) on the Test of English as a Foreign Language (TOEFL).

Application materials must include a completed Graduate College application form; copies of official transcripts for all college course work; an official report of Graduate Record Examination test scores; three current letters of recommendation; and evidence of experience and/or teacher licensure/certification. An interview may be requested.

Final admission decisions are made by the special education graduate admissions committee.

REQUIREMENTS

The M.A. in special education requires a minimum of 32 s.h. Contact the Department of Teaching and Learning for specific program requirements.

Ed.S. in Special Education Administration

The Ed.S. in special education administration is offered jointly with the Department of Educational Policy and Leadership Studies. See Educational Policy and Leadership Studies in the Catalog.

Special Education Consultant Authorization

The Special Education Consultant authorization program prepares consultants to serve in special education programs.

ADMISSION

Admission to the M.A. program or to a certification program in special education is required. Applicants must hold or meet the requirements for the special education teaching endorsement congruent with their desired consultant authorization. Teaching endorsements must be documented by copies of teaching credentials.

Applicants also must have completed four years of successful teaching experience, two of which must be congruent with their desired consultant authorization. They must provide evidence of successful teaching (e.g., written statements from school personnel documenting years of teaching, type of students served, and success as a classroom teacher).

Documentation of certifications and teaching experience should be submitted with the application for admission to the Graduate College.

REQUIREMENTS

The Special Education Consultant authorization program requires at least 38 s.h., including credit required for the M.A. and the teaching endorsement program.

Students who already hold an M.A. in special education and an endorsement congruent with their desired consultant authorization must complete the following three courses.

07E:300 Design and Organization of Curriculum	3 s.h.
07P:263 Consultation Theory and Practice	3 s.h.
07P:347 Home/School/Community: System Interventions	3 s.h.

Students without an M.A. in special education must complete an M.A. and teaching endorsement program in special education congruent with their desired consultant authorization, plus the three courses listed above (07E:300, 07P:263, 07P:347), for a total of at least 38 s.h.

Ph.D. in Special Education

The Doctor of Philosophy in special education prepares students for teaching and research positions in higher education, and for curriculum, supervisory, and research positions in state and local education agencies. The program permits students to study and practice extensively in their special education interest area and in an interest area outside of special education.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have master's degree or equivalent in special education; those without an M.A. thesis must have completed an equivalent project. Applicants should have a graduate g.p.a. of at least 3.50 and a combined verbal and quantitative score of at least 1000 on the Graduate Record Exam (GRE) General Test. International applicants whose first language is not English must score at least 600 (paper-based) or 250 (computer-based) on the Test of English as a Foreign Language (TOEFL). Applicants should have at least one year of full-time teaching experience with exceptional children; several years are preferred.

Application materials must include a completed Graduate College application form; copies of official transcripts for all college course work; an official report of Graduate Record Examination test scores; three current letters of recommendation; and evidence of experience and/or teacher licensure/certification. An interview may be requested.

Final admission decisions are made by the special education graduate admissions committee.

REQUIREMENTS

The Ph.D. in special education requires a minimum of 90 s.h. beyond the bachelor's degree. The plan of study is flexible, stresses interdisciplinary work, and varies depending on the student's background and educational goals. In general, students should have a general background in all facets of special education and in one or two specialization areas. Each student develops his or her course of study in consultation with the advisor. Requirements include 16 s.h. of core special education courses, a 3 s.h. college teaching or field service practicum, a minimum of 12 s.h. in a discipline outside special education, and at least 16 s.h. of statistics, research, and measurement tool courses.

Effective fall 2004, students admitted to any Ph.D. program in the Department of Teaching and Learning must complete at least two of the following three core courses.

07E:304 Schooling in the United States	3 s.h.
07P:202 Understanding Educational Research	3 s.h.
07S:333 Seminar on Teacher Education	3 s.h.

Students also are required to write the comprehensive examination and complete a doctoral dissertation (07U:493 Ph.D. Thesis, for at least 10 s.h.).

Financial Support

Elementary Education

A number of teaching assistantships are available for graduate students in early childhood and elementary education. Assignments vary. Some involve supervising undergraduate majors enrolled in practicums; others involve teaching sections of undergraduate methods courses and supervising student teachers. Most assistantships are classified as one-half-time, which permits students to register for a maximum of 12 s.h. of credit per semester. Graduate assistants must register for at least 6 s.h. per semester.

All assistantships are awarded on a competitive basis. Applicants must have been admitted to regular status in the Graduate College and to an advanced program in the College of Education. For information about assistantships, contact the chair of the Department of Teaching and Learning.

Secondary and Special Education

A limited number of assistantships are available for graduate students in secondary and special education. Assignments vary. Some involve teaching undergraduate courses or supervising practicum experiences; others consist primarily of research activities. Graduate assistants may register for a maximum of 12 s.h. and a minimum of 6 s.h. per semester.

Graduate students in secondary education also may be eligible for assistantships in some College of Liberal Arts and Sciences departments. Students with appropriate credentials should apply directly to the specific department or consult the College of Education advisor in the appropriate field.

Traineeships in selected licensure/certification and master's degree programs are available to full-time special education students.

Courses

Early Childhood and Elementary Education

07E:021 Oral Interpretation 3 s.h.
Same as 036:021.

07E:090 Orientation to Elementary Education 1 s.h.
Overview of elementary education expectations, including options for student teaching; classroom observation, lesson planning, performance indicators, INTASC standards, classroom management, information about mandatory child abuse reporting, blood-borne pathogens, professional ethics. Eight-week course.

07E:100 Foundations of Education 3 s.h.
Overview of American education, preschool through secondary; aims, history, philosophy of education; professional ethics, legal responsibilities; school curriculum, organization, finance, school law, political and social issues. Prerequisite: admission to TEP. Same as 07S:100.

07E:102 Technology in the Classroom 2 s.h.
Same as 07S:102.

07E:104 Remedial Methods in Speech and Hearing 2 s.h.
Emphasis on elementary grades. Usually taken in conjunction with 07E:192, which provides approximately 70 hours of supervised clinical practice in elementary schools. Primarily for speech pathology and audiology majors. Prerequisite: consent of instructor.

07E:106 Foreign Language Education Practicum I 3 s.h.
Skill development for teaching languages in the early grades; curriculum design, test creation, microteaching with inservice teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:116. Same as 07S:106.

07E:107 Foreign Language Education Practicum II 3 s.h.
Practice in lesson design, classroom management techniques, evaluation skills during work with inservice foreign language teachers. Corequisite: 07S:117. Same as 07S:107.

07E:110 Teaching K-12 Second Language Learners 3 s.h.
Second language learning and teaching in the multicultural classroom; influence of school setting, societal context. Prerequisite: admission to TEP. Same as 07S:110.

07E:114 Parent-Child Relationships 3 s.h.
Roles and relationships within and between families, culture, society; identify (family) resources and concerns based on children's development, abilities.

07E:118 ESL Practicum I 3 s.h.
Skill development for teaching English as a second language; curriculum design, test creation, microteaching with inservice teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:116. Same as 07S:118.

07E:119 ESL Practicum II 3 s.h.
Practice in lesson design, classroom management techniques, evaluation skills during work with inservice English as a second language teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:117. Same as 07S:119.

07E:120 Methods and Materials: Music for the Classroom Teacher 2-3 s.h.
Development of music skills, techniques, knowledge of methods and materials for teaching music to young children; for elementary education majors. Prerequisite: admission to TEP.

07E:122 Methods and Materials: Art for the Classroom Teacher 2 s.h.
Projects, techniques, processes in art for elementary and early childhood education majors; combination lecture and studio; painting, drawing, printmaking, sculpture, and crafts with materials and tools commonly available in the elementary schools. Same as 01E:195.

07E:123 Reading and Responding to Children's Literature 2-3 s.h.
Reading and teaching children's literature in elementary classrooms for aesthetic, personal, social, and critical purposes; readings from a wide range of genres; approaches to teaching children's literature; recent trends and issues. Prerequisite: admission to elementary TEP. Corequisites: 07E:160 and 07E:164.

07E:124 Differentiating Projects with Technology 1 s.h.
Use of digital tools to enrich student presentations; PowerPoint slide shows, presentations uploaded to World Wide Web, interactive multimedia presentations via HyperStudio. Same as 07S:124.

07E:125 Differentiated Curriculum for the Gifted 1 s.h.
Program options for K-12 gifted students; student abilities and needs linked with various curriculums; case studies, school materials. Same as 07S:125.

07E:126 Reading for High-Ability Students 1 s.h.
Purposes and methods of reading instruction, with focus on developmentally appropriate needs of high-ability readers; genres of literature, enriched and accelerated reading curricula, role of reading in social and emotional development of gifted students. Same as 07S:126, 07U:126.

07E:127 Physical Education and Health for Elementary Teachers 2 s.h.
Methods, curriculum. Prerequisite: admission to TEP.

- 07E:128 Differentiating through Advanced Technology** 1 s.h.
Multimedia and web-based tools and utilities that enrich classroom learning and facilitate presentations made by technologically advanced students; production and editing of digital video, computer graphics, advanced web-publishing and communication techniques; skill development. Same as 07S:128, 07U:128.
- 07E:129 Learning and Leadership for Gifted and Talented Students** 1 s.h.
Same as 07S:129, 07U:129.
- 07E:132 Middle School Curriculum and Methods** 3 s.h.
Issues related to collaboration among families, educators, junior high and middle school development compared; characteristics of exemplary programs, disciplinary and interdisciplinary trends; variety of teaching methods (group and individual); hands-on activities. Prerequisite: admission to TEP. Same as 07S:132.
- 07E:134 Parent-Teacher Communication** 1-3 s.h.
Realities of working with parents; interpersonal skills; options for parent support services. Same as 07P:134, 07U:134.
- 07E:136 Home/School/Community Partnerships** 3 s.h.
Issues related to collaboration among families, educators, community members in implementing school programs. Same as 07P:136, 07S:136, 07U:136.
- 07E:143 Art Teaching and Learning** 3 s.h.
Application of studio methods to teaching children in Saturday Children's Art Class Program. Prerequisite: 01E:196. Same as 01E:143.
- 07E:145 Methods and Materials: General Music** 3 s.h.
Methods for teaching general music in elementary and secondary schools. Prerequisites: 07E:102 or 07S:102, 07S:190, and 07S:096.
- 07E:157 Methods: Early Childhood Education** 3 s.h.
Current educational literature emphasizing developmentally appropriate methodology across all curricular areas and including health, safety, nutritional needs, play, creativity.
- 07E:160 Methods: Elementary School Language Arts** 3 s.h.
Theoretical foundations and practical skills for designing and implementing effective language arts instruction and assessment, grades K-6. Prerequisite: admission to elementary TEP. Corequisites: 07E:123 and 07E:164.
- 07E:161 Methods: Elementary School Social Studies** 2-3 s.h.
Objectives and content for grades K-6; integrated approaches, community-based learning. Prerequisite: admission to elementary TEP. Corequisites: 07E:162 and 07E:163.
- 07E:162 Methods: Elementary School Science** 2-3 s.h.
Principles and concepts of science instruction in elementary school for preservice instruction of elementary education majors; emphasis on techniques that characterize new approaches to science. Prerequisite: admission to elementary TEP. Corequisites: 07E:161 and 07E:163.
- 07E:163 Methods: Elementary School Mathematics** 2-3 s.h.
Content; techniques of teaching and means of assessment for K-6 mathematics. Prerequisite: admission to TEP. Corequisites: 07E:161 and 07E:162.
- 07E:164 Methods: Elementary School Reading** 3 s.h.
Theoretical foundations and practical skills for designing and implementing effective reading instruction and assessment, grades K-6. Prerequisite: admission to elementary TEP. Corequisites: 07E:123 and 07E:160.
- 07E:167 Observation and Assessment of Young Children** 3 s.h.
Observation and application of developmentally appropriate assessments for children to age eight, including special needs and at-risk populations; play and creativity; practicum experience in diverse settings with varying age levels (infant/toddler, preprimary, primary); 20-hour practicum.
- 07E:170 Classroom Management** 1-3 s.h.
Activities, techniques, strategies, theories related to effective classroom management. Repeatable.
- 07E:171 Reading and Writing: Processes and Instruction** 3 s.h.
Factors that contribute to individuals' ease or difficulty in learning to read and write; issues, techniques in classroom literacy instruction and assessment. Pre- or corequisites: 07E:160 and 07E:164.
- 07E:172 Reading Instruction: Teaching Practicum** 3-4 s.h.
Experience in conducting reading instruction for children; four schoolroom sessions and one on-campus meeting weekly. Prerequisites: 07E:123, 07E:160, and 07E:164. Corequisite: 07E:171.
- 07E:173 Methods: Middle School Mathematics** 3 s.h.
Same as 07S:134.
- 07E:174 Elementary Education: Practicum** arr.
Experience conducting instruction for children; four schoolroom sessions and one on-campus meeting weekly. Prerequisite: completion of appropriate area of specialization methods block.
- 07E:175 Linguistic Diversity in the Classroom** 3 s.h.
Topics related to linguistic diversity in the classroom grades 1-12; optimal teaching techniques for positive academic outcomes of linguistically diverse students. Same as 07S:175.
- 07E:176 Teaching Elementary School Science** 3 s.h.
Special topics, activities in student-centered teaching/learning environments; standards, integrated curriculum, alternative assessments, classroom management, problem solving, action research.
- 07E:177 Workshop: Curriculum Evaluation and Selection** 1-3 s.h.
For a specific curricular area, choosing or developing criteria for evaluating, reviewing, selecting, organizing materials and activities to suit specific curricular patterns. Repeatable for different areas (see ISIS for areas offered).
- 07E:178 Workshop: Curriculum Development and Implementation** 1-4 s.h.
- 07E:179 Workshop: Teaching Methodology** 1-3 s.h.
For a specific curricular area: review of teaching methods, theory, related research; planning, developing lessons; demonstrations, observations, simulations of teaching. Repeatable for different areas (see ISIS for areas offered).
- 07E:180 Drama in the Classroom** 3 s.h.
Theories of community, culture, identity in relation to language arts teaching and learning; emphasis on incorporating multiple literacies, both oral and print, into language arts curricula; action research involving oral literacy. Same as 049:101.
- 07E:182 Language and Learning** 2-3 s.h.
How language growth reflects and enables cognitive development; readings in psychology, anthropology, education; relationship of language theory to language instruction in schools. Same as 07S:182, 08P:182.
- 07E:183 Second Language Classroom Learning** 3 s.h.
Synthesis of empirical findings on children's and adult's learning of a second or foreign language; emphasis on theoretical underpinnings of many approaches, methods, techniques in language teaching. Same as 07S:183, 039:177.

- 07E:186 Curriculum Foundations** 2-3 s.h.
Elementary and secondary background developments in curriculum; definitions, historical perspective, philosophies, theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a curriculum project. Same as 07S:186.
- 07E:187 Philosophy and Administration of Early Childhood Programs** 3 s.h.
History and philosophy of developmentally appropriate practices and application to early childhood programs; managing inclusive early childhood education programs—licensing, budgeting, health and safety, food and nutrition, parent involvement, supervising staff, maintaining a quality program; implications of legislation and public policy that affect children with and without disabilities and their parents; 12-hour practicum.
- 07E:188 Practicum in Teaching and Curriculum Development in Gifted Education** 1-6 s.h.
Experience in developing course materials for classes offered through the Belin Center. Same as 07C:188, 07S:188, 07U:188.
- 07E:190 Supervised Teaching in the Elementary School: Interactive Phase** arr.
Student teaching at the elementary level (K-9). Prerequisite: application to the Office of Teacher Education and Student Services. Corequisite: 07E:191.
- 07E:191 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase** arr.
Prerequisite: application to the Office of Teacher Education and Student Services. Corequisite: 07E:190.
- 07E:192 Special Area Student Teaching** arr.
Supervised teaching and observation in specific areas of elementary curriculum (see ISIS for areas offered). Prerequisite: consent of instructor.
- 07E:193 Independent Study** arr.
Prerequisites: senior standing and consent of instructor.
- 07E:196 Topics in Teaching and Learning** arr.
Repeatable. Prerequisite: consent of instructor. Same as 07S:196, 07U:196.
- 07E:197 Supervised Teaching Early Childhood Center: Interactive Phase** arr.
Student teaching in prekindergarten early childhood centers. Prerequisite: application to the Office of Teacher Education and Student Services. Corequisite: 07E:198.
- 07E:198 Supervised Teaching Pre- and Post-Active Phase** arr.
Prerequisite: application to the Office of Teacher Education and Student Services. Corequisite: 07E:197.
- 07E:204 Literature for Children II** 3 s.h.
Current theory, research, and practice in reading and responding to children's literature; genre and topic vary. Same as 07S:204, 08P:204.
- 07E:205 Foundations of Education** 3 s.h.
Same as 07S:205.
- 07E:230 Workshop in School Mathematics** 1-3 s.h.
One- to three-week examination of and experience with recent developments in school mathematics teaching methods, curriculum. Same as 07S:230.
- 07E:231 Technology in School Mathematics** 2-3 s.h.
Methods, materials, issues, pedagogy, assessment; use and evaluation of mathematics software, other technology; implications for organization, development of course content. Same as 07S:231.
- 07E:233 History and Foundations of Social Studies Education** 3 s.h.
Historical, philosophical, social foundations of social studies education; recent debates over content and instructional processes; student research proposals. Same as 07S:233.
- 07E:234 Foundations of Mathematics Education** 2-3 s.h.
History of U.S. mathematics education; learning theory applied to teaching, learning mathematics; curriculum design; curriculum and achievement patterns in different countries; sex differences in achievement; research literature. Same as 07S:234.
- 07E:235 Current Issues in Mathematics Education** 2-3 s.h.
Recent curriculum developments, experimental programs, research relevant to classroom instruction; education trends that may have a significant impact on mathematics programs. Same as 07S:235, 22M:195.
- 07E:251 Preparation of Curriculum Materials for School Science** 1-3 s.h.
Same as 07S:251.
- 07E:252 Designing Strategies for Science Instruction** 1-4 s.h.
Same as 07S:252.
- 07E:255 Science Education: Issues, History, and Rationale** 2-3 s.h.
Critical analysis of research reports, philosophical statements, synthesis studies, issue statements that characterize graduate study in science education. Offered fall semesters. Same as 07S:255.
- 07E:256 Science Education: The Nature of Science** 3 s.h.
Topics in philosophy, psychology, history, sociology of science that are related to research, practice, current issues in science education. Offered spring semesters. Prerequisite: 097:128. Same as 07S:256.
- 07E:257 Learning in the Science Classroom** 2-3 s.h.
Assumptions about learning and about learning theories and their impact on pedagogical actions; how some concepts are planned and implemented. Same as 07S:257.
- 07E:258 Writing in the Science Classroom** 3 s.h.
Literacy in the science classroom; theoretical and pedagogical perspectives; practical classroom activities that lead to effective writing and increased learning. Same as 07S:258.
- 07E:259 Advanced Pedagogy** 3 s.h.
Theoretical and practical perspectives on pedagogy; how to assess practice, provide feedback, and building learning pathways for teachers. Same as 07S:259.
- 07E:260 Restructuring Science Courses** 2-3 s.h.
Same as 07S:260.
- 07E:261 Leadership and Change in School Science** 2-3 s.h.
Same as 07S:261.
- 07E:264 Early Literacy Development and Instruction** 2-3 s.h.
Understanding of early reading and writing experiences; relationship of reading to other communication areas; knowledge of instructional approaches, techniques, materials, assessment procedures; interrelationship of home and school experiences; identification of current and crucial issues and relevant research.
- 07E:265 Reading and Writing Across Intermediate Grades** 3 s.h.
Reading with comprehension, provision for individual differences, research in reading, extension of skills taught in primary grades; for teachers, principals, supervisors.

- 07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms** 3 s.h.
Theoretical and practical organization of developmentally appropriate curricula and teaching methods to promote learning.
- 07E:271 Advanced Reading Clinic Techniques** 2-3 s.h.
Special instructional procedures for children with severe learning problems in reading; causes of reading disorders; educational prognosis for severely disabled readers. Prerequisite: 07E:164 or 07E:171 or 07E:174. Corequisite: 07E:272.
- 07E:272 Advanced Reading Clinic Practicum** 2-3 s.h.
Practice in selecting and using special instructional procedures; fitting clinical teaching techniques into a balanced developmental reading framework. Prerequisite: 07E:164 or 07E:171 or 07E:174. Corequisite: 07E:271.
- 07E:273 Reading Recovery I** 2-3 s.h.
- 07E:274 Reading Recovery II** 2-3 s.h.
Training for teachers; tutoring of first-grade children; effective moment-by-moment instructional decision making.
- 07E:275 Reading Recovery Assessment Training** 2-3 s.h.
How to administer and analyze Marie Clay's Observation Survey; includes administration of the assessment to at least two first-grade children.
- 07E:277 Seminar: Social Studies Education** arr.
Periodical literature, trends, curricular developments, research. Same as 07S:277.
- 07E:280 Supervision of Instruction and Staff Development** 2-3 s.h.
Teacher effectiveness research; formative and summative evaluation procedures, with emphasis on the supervision of student teachers; research on staff development and bringing about change in education. Same as 07S:285.
- 07E:293 Individual Instruction** arr.
Prerequisite: consent of instructor.
- 07E:300 Design and Organization of Curriculum** 3 s.h.
Major issues, modern selection, sequential arrangement, organization of content; relationship of time allotments to implementation; utilization of instructional equipment; appraisal procedures; staff participation in curriculum development.
- 07E:304 Schooling in the United States** 3 s.h.
Governance, finance, and policy structures that have influenced teaching and learning in public schools.
- 07E:306 Introduction to Research in Art Education** 3 s.h.
Methods of inquiry used for research in art education and related disciplines; methods of research design.
- 07E:308 Seminar: Research and Current Issues** arr.
For a specific curricular area: review of the literature, critical analysis of reported research, study of current issues and problems (see ISIS for specific areas offered). Repeatable. Prerequisite: consent of instructor. Same as 07S:308.
- 07E:335 Seminar: Mathematics Education** arr.
Analysis of current research, research methodology, curriculum developments in mathematics education. Repeatable. Same as 07S:335.
- 07E:340 Advanced Topics in Teaching and Learning** arr.
Topics vary. Same as 07S:340, 07U:340.
- 07E:350 Seminar: Science Education** 0-2 s.h.
National issues, program features, completed faculty and doctoral candidates' research. Same as 07S:350.
- 07E:355 Research in Science Education** 2-3 s.h.
Same as 07S:355.
- 07E:365 Reading Clinic: Supervision** arr.
Supervised experience in guiding and improving teacher performance in clinical practicums. Prerequisite: consent of instructor.
- 07E:370 Methods in Literacy Research** 3 s.h.
Conceptual and practical exploration of selected research methods, including pilot data collection, analysis, and reporting. Repeatable. Same as 07S:370, 08P:300.
- 07E:385 Practicum in College Teaching** arr.
Prerequisite: consent of instructor.
- 07E:391 Research Project** arr.
Individual research projects in a specific curricular area; for advanced students. Repeatable. Prerequisite: consent of instructor.
- 07E:392 Field Service Project** arr.
Individual field service project in a specific curricular area; for advanced students. Repeatable. Prerequisite: consent of instructor.
- 07E:393 M.A. Thesis** arr.
Prerequisite: consent of instructor.
- 07E:406 Research in Art Education** arr.
Individual research under supervision; applicable to thesis preparation and to doctoral prospectus development. Repeatable. Same as 01E:406, 07S:406.
- 07E:415 Ph.D. Seminar in Language, Literacy, and Culture** arr.
Historical and recent research and theory in literacy education. Repeatable. Prerequisite: consent of instructor. Same as 07S:415, 08P:425.
- 07E:493 Ph.D. Thesis** arr.
Prerequisite: consent of instructor.

Secondary Education

- 07S:090 Introduction and Practicum: Art** 2 s.h.
Experience observing and assisting art teachers and students in elementary or secondary schools; four to six hours per week in the school plus on-campus class meetings. Prerequisite: admission to TEP.
- 07S:095 Introduction and Practicum: Mathematics** 3 s.h.
Experience designing and teaching lessons that have varying instructional intent and that use multiple instructional strategies; study and practice methods of classroom management; 30-40 hours in cooperating schools. Prerequisite: admission to TEP.
- 07S:096 Introduction and Practicum: Music** 2 s.h.
Experience observing and assisting music teachers and students in elementary or secondary schools; six hours per week in the school plus on-campus class meetings. Prerequisite: admission to TEP.
- 07S:100 Foundations of Education** 3 s.h.
Overview of contemporary American education, preschool through secondary; including aims, history, philosophy of education; professional ethics, legal responsibilities; school curriculum, organization; school law, finance; political, social issues. Prerequisite: admission to TEP. Same as 07E:100.
- 07S:102 Technology in the Classroom** 2 s.h.
Same as 07E:102.
- 07S:105 Secondary Methods: Art** 3 s.h.
Art education theory and methods at elementary and secondary levels; art curriculum, unit, and lesson planning; evaluation, motivation, instructional materials; observational techniques.
- 07S:106 Foreign Language Education Practicum I** 3 s.h.
Skill development for teaching languages in the early grades; curriculum design, test creation, microteaching with inservice teachers. Prerequisite: 07S:110. Corequisite: 07S:116. Same as 07E:106.

07S:107 Foreign Language Education Practicum II 3 s.h.

Practice in lesson design, classroom management techniques, evaluation skills during work with inservice foreign language teachers. Corequisite: 07S:117. Same as 07E:107.

07S:108 World Music as Popular Music 3 s.h.

Survey of a broad selection of popular and world music from historical and current perspectives; musical elements, instruments, organization, performance, expression. Same as 02S:106.

07S:110 Teaching K-12 Second Language Learners 3 s.h.

Second language learning and teaching in the multicultural classroom; influence of school setting, societal context. Prerequisite: admission to TEP. Same as 07E:110.

07S:111 Introduction and Practicum: Social Studies 2-3 s.h.

Experience observing and assisting social studies teachers and students in secondary schools; four to six hours per week in the school plus on-campus class meetings. Prerequisite: admission to TEP.

07S:112 Introduction to Museology 3 s.h.

Introduction to history, philosophy, function, management of museums and related institutions; emphasis on American museums. GE: humanities. Same as 024:102, 097:115, 113:103, 169:102.

07S:113 Methods: Secondary School Journalism 3 s.h.

Methods and materials for teaching high school journalism; publication policies, staff organization, production schedules, technology, the Internet, and techniques for advising student publications; experience in simulated teaching situations. Offered fall semesters. Same as 019:101.

07S:114 Introduction and Practicum: English and Speech 3 s.h.

Experience observing and assisting English or speech teachers and students in secondary schools; 12 hours per week in the school plus on-campus class meetings.

07S:115 Methods: English 3 s.h.

Organizational techniques, methods, materials for teaching high school English; experience in simulated teaching situations during laboratory sessions, integrated with lectures and discussions. Prerequisite: 07S:114. Same as 08P:190.

07S:116 Learning to Teach Second Languages I 3 s.h.

Approaches, methods, and techniques of teaching the modalities of listening, speaking, reading, and writing in a second language. Corequisite: 07E:106 or 07E:118 or 07S:106 or 07S:118.

07S:117 Learning to Teach Second Languages II 3 s.h.

Curriculum design, classroom management, student evaluation, technology, using context to teach culture in second languages. Prerequisite: 07E:110 or 07S:110. Corequisite: 07E:107 or 07E:119 or 07S:107 or 07S:119.

07S:118 ESL Practicum I 3 s.h.

Skill development for teaching English as a second language; curriculum design, test creation, microteaching with inservice teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:116. Same as 07E:118.

07S:119 ESL Practicum II 3 s.h.

Practice in lesson design, classroom management techniques, evaluation skills during work with inservice English as a second language teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:117. Same as 07E:119.

07S:121 Environmental Science for High Ability Students 1 s.h.

Environmental health research; principles of toxicology, process of environmental health risk assessment; experience collecting, organizing, and analyzing information.

07S:122 Math Programming for High Ability Students 1 s.h.

Unique challenges and opportunities confronted by teachers of high-ability students; theory and practice, development of program outlines for implementation. Same as 07P:122.

07S:124 Differentiating Projects with Technology 1 s.h.

Use of digital tools to enrich student presentations; PowerPoint slide shows, presentations uploaded to World Wide Web, interactive multimedia presentations via HyperStudio. Same as 07E:124.

07S:125 Differentiated Curriculum for the Gifted 1 s.h.

Program options for K-12 gifted students; student abilities and needs linked with various curriculums; case studies, school materials. Same as 07E:125.

07S:126 Reading for High-Ability Students 1 s.h.

Purposes and methods of reading instruction, with focus on developmentally appropriate needs of high-ability readers; genres of literature, enriched and accelerated reading curricula, role of reading in social and emotional development of gifted students. Same as 07E:126, 07U:126.

07S:128 Differentiating through Advanced Technology 1 s.h.

Multimedia and web-based tools and utilities that enrich classroom learning and facilitate presentations made by technologically advanced students; production and editing of digital video, computer graphics, advanced web-publishing and communication techniques; skill development. Same as 07E:128, 07U:128.

07S:129 Learning and Leadership for Gifted and Talented Students 1 s.h.

Same as 07E:129, 07U:129.

07S:130 Workshops for Secondary School Journalism and Communication Teachers 1-3 s.h.

Teaching journalistic writing and editing, photography, design, desktop publishing, current technology; web page design; developing curriculum and advising student publications; for teachers responsible for journalism publication programs or classes. Same as 019:102.

07S:132 Middle School Curriculum and Methods 3 s.h.

Junior high and middle school development compared; characteristics of exemplary programs, disciplinary and interdisciplinary trends; variety of teaching methods (group and individual); hands-on activities. Prerequisite: admission to TEP. Same as 07E:132.

07S:134 Methods: Middle School Mathematics 3 s.h.

Subject matter content, teaching and assessment techniques for grades 5-9 math; curricular planning for special needs students. Prerequisite: 07S:095 or consent of instructor. Same as 07E:173.

07S:135 Methods: High School Mathematics 3 s.h.

Subject matter content, teaching and assessment techniques for grades 9-12 math. Prerequisite: 07S:095 or consent of instructor.

07S:136 Home/School/Community Partnerships 3 s.h.

Issues related to collaboration among families, educators, community members in implementing school programs. Same as 07E:136, 07P:136, 07U:136.

07S:140 Band Methods and Materials 3 s.h.

High school and elementary school music methods required for teaching certificate; for instrumental music education majors. Prerequisites: 07E:102 or 07S:102, 07S:190, and 07S:096.

07S:141 Measurement and Evaluation in Music Education 3 s.h.

Measurement and evaluation techniques for music aptitude, achievement, preference; emphasis on developing teacher-made tests and on available standardized music tests.

- 07S:143 Instrumental Techniques** 1-3 s.h.
Repeatable. Same as 02S:105.
- 07S:144 Psychology of Music** 2 s.h.
Cognition of music, affective response, aesthetic response, musical ability.
- 07S:145 Instrumental Conducting** 2 s.h.
Advanced skills for instrumental conducting, score analysis, rehearsal techniques, literature selection. Prerequisite: 02S:107. Same as 02S:108.
- 07S:147 Choral Methods** 3 s.h.
Organization, implementation of effective choral music programs for all ages. Prerequisites: 07E:102 or 07S:102, 07S:190, and 07S:096. Same as 02S:109.
- 07S:148 Choral Conducting and Literature** 3 s.h.
Advanced skills appropriate to choral conducting, analysis, literature selection studied and implemented to develop a secure approach to choral art; students preparing to teach in the elementary or secondary schools must register under 07S:148. Prerequisite: 07S:147. Same as 02S:110.
- 07S:149 Introduction to Music Research** 2-3 s.h.
Preparation for conducting research on music behavior.
- 07S:150 String Methods and Materials** 3 s.h.
Prerequisites: 07E:102 or 07S:102, 07S:190, and 07S:096. Same as 02S:112.
- 07S:151 Science Teaching and Practice with Early Learners** 3 s.h.
Introduction to students, schools, the purpose of schooling children in science, learning theories, science curricula, contemporary science education issues, effective science teaching.
- 07S:152 Methods of Teaching Science** 3 s.h.
Developing, writing, and orally defending a robust research-based framework for teaching science that includes student goals, student actions, content, materials, activities, teaching behaviors and strategies, contemporary learning theories, self-evaluation. Prerequisite: 07S:151.
- 07S:153 Instructional Issues in Teaching Science** 3 s.h.
Articulating, experiencing, practicing a research-based framework for teaching science in the real world of students, schools, teaching. Prerequisite: 07S:152. Corequisite: 07S:179.
- 07S:155 Approaches to Teaching Writing** 3 s.h.
Theories, practices, strategies, and history of writing and teaching writing. Same as 08N:141.
- 07S:170 Methods: Social Studies** 3 s.h.
Analysis of the teaching-learning process; organization of social studies content for teaching purposes; evaluation of learning procedures and new strategies; practicum work includes microteaching, computer-assisted modules, lesson plan development, writing test items.
- 07S:172 Thinking Skills** 1 s.h.
Factors involved in teaching thinking skills as a total concept; the relationship of critical and creative thinking; review of published programs.
- 07S:173 Programming/Curriculum for High Ability Students** 1 s.h.
Programming and curriculum for K-12 students identified as gifted or highly able; in-class differentiations, special projects for pull-out programs, facilitating research projects, mentoring in advanced programming.
- 07S:175 Linguistic Diversity in the Classroom** 3 s.h.
Topics related to linguistic diversity in the classroom grades 1-12; optimal teaching techniques for positive academic outcomes of linguistically diverse students. Same as 07E:175.
- 07S:178 Workshop in Teaching Communication and Forensics** arr.
Methods, materials, progression, evaluation in teaching; supervision of students in courses and class activities; opportunities for observation, demonstration, practice in teaching discussion and debate, and in individual speech and forensic events. Repeatable. Same as 036:105.
- 07S:179 Secondary School Science Practicum** arr.
Supervised teaching experience in a single subject; secondary school setting.
- 07S:180 Issues in Foreign Language Education** 3 s.h.
Theoretical perspectives of pivotal research issues at the forefront of foreign language education; systems available to foreign language professionals for disseminating research.
- 07S:182 Language and Learning** 2-3 s.h.
How language growth reflects and enables cognitive development; readings in psychology, anthropology, education; discussion of the relationship of language theory to schools of language instruction. Same as 07E:182, 08P:182.
- 07S:183 Second Language Classroom Learning** 3 s.h.
Synthesis of empirical findings on children's and adults' learning of a second or foreign language; emphasis on theoretical underpinnings of approaches, methods, techniques in language teaching. Same as 07E:183, 039:177.
- 07S:184 Reading in a Second Language** 3 s.h.
Current theory/research/practice in second language reading field; role of textual features and the reader in reading comprehension.
- 07S:186 Curriculum Foundations** 2-3 s.h.
Elementary and secondary background developments in curriculum; definitions, historical perspective, philosophies, theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a curriculum project. Same as 07E:186.
- 07S:187 Seminar: Curriculum and Student Teaching** 1-3 s.h.
Discussions, role-playing, group and individual reports, analysis of critical incidents, classroom management, videotapes of student classroom performance pertinent to participants' student teaching experiences. Corequisite: student teaching.
- 07S:188 Practicum in Teaching and Curriculum Development in Gifted Education** 1-6 s.h.
Experience in developing course materials for classes offered through the Belin Center. Same as 07C:188, 07E:188, 07U:188.
- 07S:189 Elementary School Special Subject Area Student Teaching** arr.
Supervised teaching experience in a single subject in grades 1-6.
- 07S:190 Orientation to Secondary Education** 0-1 s.h.
Overview, including options for student teaching, classroom observation, lesson planning, classroom management, performance indicators, INTASC standards, blood borne pathogens, professional ethics.
- 07S:191 Observation and Laboratory Practice in the Secondary School** arr.
Student teaching experience in performing the duties of regular classroom teachers under supervision of experienced personnel in secondary schools. Prerequisite: consent of instructor.
- 07S:192 Observation and Laboratory Practice in the Secondary School** arr.
Continuation of 07S:191. Prerequisite: consent of instructor.
- 07S:193 Reading and Teaching Adolescent Literature** 3 s.h.
Reading and evaluation of literature suitable for junior and senior high school students. Same as 08P:198.

- 07S:194 Methods: High School Reading** 2-3 s.h.
Methods and materials used in teaching developmental reading in all junior and senior high school content areas. Prerequisite: 07S:114.
- 07S:195 Teaching Reading in Secondary Content Areas** 1 s.h.
Integration of reading strategies into secondary content areas for teacher candidates in secondary education.
- 07S:196 Topics in Teaching and Learning** arr.
Prerequisite: consent of instructor. Same as 07E:196, 07U:196.
- 07S:197 Principles of Course Design for Second Language Instruction** 3 s.h.
Contemporary views of second language curriculum design; guidelines necessary for the creation of prototypical curriculum units to be transposed into classroom-ready forms; for individuals interested in foreign language materials development.
- 07S:198 Coaching Practicum** 1-2 s.h.
Supervised experience in coaching interscholastic teams under the direction of certified secondary school coaches. Prerequisites: completing teaching and coaching certification programs, admission to TEP, and consent of instructor.
- 07S:199 Independent Study** arr.
- 07S:200 Fundamentals of Second Language Assessment** 3 s.h.
How to write language tests; discussion of fundamental issues in development of new tests or selection of existing tests.
- 07S:201 Seminar: Current Topics in Music Education** 1 s.h.
Major areas of professional and research interest. Repeatable.
- 07S:202 Second Language Program Management** 3 s.h.
Preparation for supervising, administering foreign language programs at all levels; for precollegiate language teachers and graduate students.
- 07S:203 Second Language Planning in Education** 3 s.h.
Sociology and politics of national policies involving language, internationally; development of a research-based policy perspective on language issues in the country in which the student intends to teach.
- 07S:204 Literature for Children II** 3 s.h.
Current theory and research practice in reading and responding to children's literature; genre and topic vary. Same as 07E:204, 08P:204.
- 07S:205 Foundations of Education** 3 s.h.
Same as 07E:205.
- 07S:206 Foundations of Music Education Curricula** 3 s.h.
Curriculum development, instructional materials, analysis of current teaching methods and techniques in school music programs; historical foundations of music education.
- 07S:207 Reading in Non-Roman Scripts** 3 s.h.
Theory and practice of reading in languages that use non-Roman alphabets, syllabary, logographic systems; reading in first and second language contexts; instructional and literacy development issues. Prerequisite: 07E:171 or 07P:270 or 07S:184 or equivalent. Same as 164:226.
- 07S:208 Designing Materials for Second Language Instruction** 3 s.h.
Critical perspective on creating and using media for second language learning and teaching; research on materials design, development of media. Prerequisite: 07S:183.
- 07S:209 Cultural Curriculum** 3 s.h.
Culture's role in foreign/second language teaching; definition, pedagogy, assessment, and materials that allow culture to be taught and learned. Same as 164:229.
- 07S:210 International Program Summer Institute for Teachers** 3 s.h.
Same as 187:210.
- 07S:230 Workshop in School Mathematics** 1-3 s.h.
Recent developments in school mathematics teaching methods and curriculum relevant to a selected issue; one to three weeks of intensive examination, experience. Same as 07E:230.
- 07S:231 Technology in School Mathematics** 2-3 s.h.
Methods, materials, issues, pedagogy, assessment; use, evaluation of mathematics software, other technology; implications for organization, development of course content. Same as 07E:231.
- 07S:233 History and Foundations of Social Studies Education** 3 s.h.
Same as 07E:233.
- 07S:234 Foundations of Mathematics Education** 2-3 s.h.
History of mathematics education in the United States; learning theory applied to teaching, learning mathematics; curriculum design; curriculum and achievement patterns in different countries; sex differences in achievement; research literature. Same as 07E:234.
- 07S:235 Current Issues in Mathematics Education** 2-3 s.h.
Recent curriculum developments, experimental programs, research relevant to classroom instruction, trends in education that may have a significant impact on mathematics programs. Same as 07E:235, 22M:195.
- 07S:236 The Teaching of Geometry** 2-3 s.h.
Current developments in teaching middle school/junior high and high school geometry; selection, organization of content; research on teaching and learning.
- 07S:239 Teaching of Algebra** 2-3 s.h.
Current developments in curriculum and instructional methods in secondary school algebra; classroom use of the history of algebra, use of computer and calculators, implications of current research for the algebra classroom.
- 07S:240 Creative Thinking in Music** 2 s.h.
Review and analysis of creative literature about musical experience from theoretical and methodological perspectives; future trends for music instruction in composition, improvisation.
- 07S:241 Music Education Workshop** 1 s.h.
Materials and innovative instructional procedures for teaching instrumental music in public schools and colleges. Repeatable. Same as 02S:220.
- 07S:244 Individual Projects in Music Education** 1-2 s.h.
Projects of special concern to individual music teachers in the public schools.
- 07S:251 Preparation of Curriculum Materials for School Science** 1-3 s.h.
Preparation of instructional materials for science courses. Repeatable. Same as 07E:251.
- 07S:252 Designing Strategies for Science Instruction** 1-4 s.h.
Strategies and instructional models characterizing science instruction at the elementary, secondary, college levels. Offered spring semesters and summer sessions. Same as 07E:252.
- 07S:255 Science Education: Issues, History, and Rationale** 2-3 s.h.
Intermediate topics in philosophy and psychology of science, implications for research and practice in science education. Offered fall semesters. Prerequisite: previous work in philosophy or psychology of science. Same as 07E:255.

- 07S:256 Science Education: The Nature of Science** 3 s.h.
Historical and sociological understanding of the nature of science; applications of that understanding to problems and issues in science education. Offered spring semesters. Prerequisites: 097:128 and previous work in history or sociology of science. Same as 07E:256.
- 07S:257 Learning in the Science Classroom** 2-3 s.h.
Assumptions about learning and about learning theories and their impact on pedagogical actions; how some concepts are planned and implemented. Same as 07E:257.
- 07S:258 Writing in the Science Classroom** 3 s.h.
Literacy in the science classroom; theoretical and pedagogical perspectives; practical classroom activities that lead to effective writing and increased learning. Same as 07E:258.
- 07S:259 Advanced Pedagogy** 3 s.h.
Theoretical and practical perspectives on pedagogy; how to assess practice, provide feedback, and build learning pathways for teachers. Same as 07E:259.
- 07S:260 Restructuring Science Courses** 2-3 s.h.
Constructivist learning model applied to existing science courses; emphasis on student-centeredness. Repeatable. Same as 07E:260.
- 07S:261 Leadership and Change in School Science** 2-3 s.h.
Developing leadership skills for science education reform. Repeatable. Same as 07E:261.
- 07S:266 Mentoring of Science Educators** 2-3 s.h.
Self-analysis, interpersonal communication, leadership, and mentoring versus evaluation. Repeatable.
- 07S:268 Science Concepts Applied to Local Issues** 2-3 s.h.
Science concepts as product of instructional process.
- 07S:277 Seminar: Social Studies Education** arr.
Periodical literature, trends, curricular developments, research in various aspects of social studies education; for master's and doctoral candidates in social studies education. Same as 07E:277.
- 07S:279 Advanced Research in Music Education** 3 s.h.
Design, performance, analysis, and reporting of music research.
- 07S:280 Workshop: Teacher Training for Advanced Placement Courses** 1-2 s.h.
Focus on a particular academic content area. Prerequisite: consent of instructor.
- 07S:281 Junior High School and Middle School Curriculum** 2-3 s.h.
- 07S:285 Supervision of Instruction and Staff Development** 2-3 s.h.
Teacher effectiveness research; formative and summative evaluation procedures, with emphasis on the supervision of student teachers; research on staff development and bringing about change in education. Same as 07E:280.
- 07S:291 Secondary School Curriculum** 2-3 s.h.
Theory and development of secondary school curriculum; analysis of components of curriculum; emphasis on practices and issues in various subject areas since 1983.
- 07S:293 Individual Instruction** arr.
Prerequisite: consent of instructor.
- 07S:300 Issues in Second Language Assessment** 3 s.h.
Theoretical and practical issues in assessment of English as an international language; factors that influence development and use of English as a second language assessment instruments worldwide. Prerequisites: 07S:200 and consent of instructor.
- 07S:306 Proposal Writing for Second Language Research** 3 s.h.
Procedures and techniques for writing research proposals at the doctoral level; written research proposal dealing with a question in second language teaching and learning. Prerequisite: consent of instructor.
- 07S:308 Seminar: Research and Current Issues** arr.
Literature review, critical analysis of research, current issues and problems for a specific curricular area. Repeatable. Same as 07E:308.
- 07S:315 M.A. Seminar: English Education** arr.
Significant developments in English education; primary and collateral readings. Prerequisite: consent of instructor. Same as 08P:405.
- 07S:333 Seminar on Teacher Education** 3 s.h.
History, structure, and politics of teacher education; current practice and agendas for reform; new developments in teacher assessment.
- 07S:335 Seminar: Mathematics Education** arr.
Analysis of current research, research methodology, curriculum developments in mathematics education; topics vary. Repeatable. Prerequisite: Ph.D. student standing or consent of instructor. Same as 07E:335.
- 07S:340 Advanced Topics in Teaching and Learning** arr.
Topics vary. Same as 07E:340, 07U:340.
- 07S:342 Philosophies of Music Education** 3 s.h.
Overview of 20th-century philosophies that have influenced music education, including recent emergence of postmodern philosophy.
- 07S:350 Seminar: Science Education** 0-2 s.h.
Discussion of completed faculty and doctoral candidates' research, national issues, program features. Same as 07E:350.
- 07S:355 Research in Science Education** 2-3 s.h.
Same as 07E:355.
- 07S:367 Seminar: Current Issues in Art Education** 2-3 s.h.
Analysis of literature in art education and related disciplines. Repeatable. Same as 01E:367.
- 07S:368 Ph.D. Seminar: Current Research in Science Education** 2-3 s.h.
Significant ongoing research programs in the field; emphasis on faculty research.
- 07S:370 Methods in Literacy Research** 3 s.h.
Conceptual and practical exploration of selected research methods, including pilot data collection, analysis, and reporting. Repeatable. Same as 07E:370, 08P:300.
- 07S:385 Practicum in College Teaching** arr.
Prerequisite: consent of instructor.
- 07S:391 Problems of Curriculum Planning** 2-3 s.h.
Organizing and conducting programs of curriculum review and improvement; techniques for developing curriculum materials; typically includes field experience, examination of current curriculum issues.
- 07S:393 M.A. Thesis** arr.
Prerequisite: consent of instructor.
- 07S:406 Research in Art Education** arr.
Individual research under supervision; applicable to thesis preparation, doctoral prospectus development. Repeatable. Same as 01E:406, 07E:406.
- 07S:407 Research: Science Education** arr.
Planning of individual research projects by M.S. and Ph.D. students.

07S:415 Ph.D. Seminar in Language, Literacy, and Culture arr.

Historical, recent research and theory in literacy education. Repeatable. Prerequisite: consent of instructor. Same as 07E:415, 08P:425.

07S:445 Social and Psychological Factors in Music Education 3 s.h.

Social and psychological factors that affect curriculum and instructional practices in music. Prerequisite: music education Ph.D. student or consent of instructor.

07S:493 Ph.D. Thesis arr.

Prerequisite: consent of instructor.

Special Education

Courses at the 100 level are open to students in education and related disciplines.

07U:100 Foundations of Special Education 3 s.h.

Students with disabilities, gifted and talented; strategies for effective treatment, collaboration between regular and special education teachers; remediation of academic, behavioral, social problems. Prerequisite: admission to TEP.

07U:101 Methods: Child/Adolescents with LD and BD 3 s.h.

Strategies for effectively teaching elementary and secondary students with learning disabilities and behavioral disorders; emphasis is on practical, empirically verified techniques. Prerequisite: admission to TEP.

07U:110 Teaching Deaf and Hard of Hearing Students 3 s.h.

How to recognize and respond to the deaf population and how they learn best and are taught; teaching varied subject matter that addresses diversity in small groups of deaf students; testing, use of technology, ethnic and cultural diversity, classroom management, educational program options. Taught in American Sign Language and English. Offered fall and spring semesters. Same as 158:110.

07U:115 Introduction: Strategist I (Elementary) 2 s.h.

Teaching students with mild disabilities in elementary resource placements; current trends and issues, basic and theoretical approaches, implications of federal and state statutes, multidisciplinary team approaches to providing appropriate educational programming. Prerequisite: admission to TEP.

07U:116 Methods: Strategist I (Elementary) 2 s.h.

Methods and materials for students with mild to moderate disabilities in elementary resource placements; effective school collaboration; empirically validated strategies. Prerequisite: admission to TEP.

07U:121 Transition and Related Issues 3 s.h.

Curriculums, programs, and delivery systems that help persons with disabilities move from preschool to elementary, elementary to middle school, middle school to high school, and to postsecondary life; emphasis on ecological and task analysis, transition planning strategies, interagency collaboration, self-determination, access to resources and support services.

07U:122 Supervised Teaching: Elementary Strategist I 7 s.h.

Student teaching at the elementary level in a program for students with mild to moderate disabilities. Prerequisites: elementary education major and consent of instructor.

07U:126 Reading for High-Ability Students 1 s.h.

Purposes and methods of reading instruction, with focus on developmentally appropriate needs of high-ability readers; genres of literature, enriched and accelerated reading curricula, role of reading in social and emotional development of gifted students. Same as 07E:126, 07S:126.

07U:128 Differentiating through Advanced Technology 1 s.h.

Multimedia and web-based tools and utilities that enrich classroom learning and facilitate presentations made by technologically advanced students; production and editing of digital video, computer graphics, advanced web-publishing and communication techniques; skill development. Same as 07E:128, 07S:128.

07U:129 Learning and Leadership for Gifted and Talented Students 1 s.h.

Same as 07E:129, 07S:129.

07U:133 The Culturally Different in Diverse Settings 3 s.h.

Diversity in society; laws—past and present, experiences, incidents, how they affect society.

07U:134 Parent-Teacher Communication 1-3 s.h.

Realities of working with parents; interpersonal skills; options for parent support services. Same as 07E:134, 07P:134.

07U:136 Home/School/Community Partnerships 3 s.h.

Issues related to collaboration among families, educators, community members in implementing school programs. Same as 07E:136, 07P:136, 07S:136.

07U:137 Introduction to Educating Gifted Students 3 s.h.

History, identification, characteristics, programming, educational methods and materials for the gifted; discussion on readings, films, and guest speakers; practical project. Same as 07C:137.

07U:138 Assessment of Learning Problems 3 s.h.

Effective use of varied formal and informal assessment techniques for students with learning and behavior problems; techniques that inform teaching decisions. Prerequisite: admission to TEP.

07U:140 Characteristics of Disabilities 3 s.h.

Etiologies of mild/moderate disabilities; current educational trends; educational alternatives; importance of multidisciplinary team; psychological and social-emotional characteristics of individuals.

07U:148 Adaptations for Students with Multiple Disabilities 3 s.h.

Enhancing participation of persons with multiple disabilities; partial participation, individualized adaptations; positioning, handling techniques; integration of therapy with educational programs.

07U:187 Introduction to Assistive Technology 3 s.h.

Same as 07C:187.

07U:188 Practicum in Teaching and Curriculum Development in Gifted Education 1-6 s.h.

Includes experience in developing course materials for classes offered through the Belin Center. Same as 07C:188, 07E:188, 07S:188.

07U:190 Interdisciplinary Issues in Disabilities 1-3 s.h.

Critical issues related to interdisciplinary delivery of services to persons with developmental disabilities; observation and participation in staffing and consultation; opportunity for related community experiences.

07U:193 Independent Study arr.

Specialized study of topics not included in other courses. Prerequisite: consent of instructor.

07U:196 Topics in Teaching and Learning arr.

Prerequisite: consent of instructor. Same as 07E:196, 07S:196.

07U:201 Strategist II Methods - Elementary 3-4 s.h.

Methods and materials; strategies for assessing behavior, academic achievement, social skills; instructional resources; consultation with parents and peers; collaboration strategies; empirically validated strategies. Prerequisite: 07U:238.

- 07U:203 Strategist II Methods - Secondary** 3-4 s.h.
Methods, materials, accommodations; practical skills for working in school/community settings; academic, affective, behavioral assessment; communication skills, management strategies, innovative program models, transition and career education planning; empirically validated strategies. Prerequisite: 07U:238.
- 07U:206 Practicum with Exceptional Persons** arr.
Practicum experience with students with disabilities; experiences differ depending upon student's program of study. Prerequisite: consent of instructor.
- 07U:209 Seminar: Graduate Supervised Teaching** 1 s.h.
For students enrolled in graduate student teaching practicum. Prerequisites: special education major and consent of instructor.
- 07U:212 Characteristics and Programs: Persons with Autism** 1-3 s.h.
Introduction to autism; definition, assessment, research information, communication skills, speech, language development of persons with autism. Prerequisite: consent of instructor.
- 07U:230 Behavioral and Social Interventions** 3 s.h.
Individual behavioral management, behavioral change strategies, and social interaction strategies, methods, and techniques for individuals with exceptional learning needs.
- 07U:231 Strategist I Methods** 4 s.h.
Methods and strategies K-12 that include models for providing curricular and instructional methodologies used in educating mildly and moderately disabled, collaboration and consultation models; empirically validated strategies.
- 07U:236 Administration of Students with Special Needs** 3 s.h.
Provides a foundation for and skill practice in tasks performed by directors of special education; for prospective directors of special education and school administrative personnel. Same as 07B:236.
- 07U:238 Assessment of Learning Difficulties** 1-3 s.h.
Administration of individual educational assessment instruments and interpretation of test results; supervised practice in assessment and planning. Prerequisite: consent of instructor. Same as 07P:238.
- 07U:250 Strategist I Student Teaching: K-6** arr.
Student teaching in a K-6 mild and moderate special education program.
- 07U:251 Strategist I Student Teaching: 7-12** arr.
Student teaching in a 7-12 mild and moderate special education program.
- 07U:252 Seminar: Behavioral Assessment and Evaluation** 3 s.h.
Broadens skills of graduate students who engage in research with exceptional persons; research designs are usually taught in the Department of Psychological and Quantitative Foundations, but because of the nature of handicapping conditions and the low incidence of some handicaps, the single-subject design yields better research information. Same as 07P:352.
- 07U:253 Strategist II Student Teaching: K-6** arr.
Student teaching in K-6 learning disabilities or behavior disorders.
- 07U:254 Strategist II Student Teaching: 7-12** arr.
Student teaching in 7-12 learning disabilities or behavior disorders.
- 07U:275 Direct Instruction: Academic Skills** 3 s.h.
Empirically supported methods for teaching reading and mathematics K-12 to students with mild-moderate disabilities; assessment and curricular adaptations to individual needs.
- 07U:293 Individual Instruction** arr.
Permits specialized study of topics not included in other courses. Prerequisite: consent of instructor.
- 07U:340 Advanced Topics in Teaching and Learning** arr.
Topics vary. Same as 07E:340, 07S:340.
- 07U:343 Proseminar: Issues, Trends, and Research in Special Education** 2-3 s.h.
Conceptual and practical development of research across special education and related disciplines; empirical review of the literature; focus on professional writing skills. Prerequisite: consent of instructor.
- 07U:344 Proseminar: Issues, Trends, and Research in Special Education II** 2-3 s.h.
Recent research from a variety of special education areas reviewed by students; simulated comprehensive examinations. Prerequisite: 07U:343.
- 07U:345 Current Issues and Trends in Learning Disabilities** 3 s.h.
Readings and discussions of current issues and trends in learning disabilities (e.g., definition, prevalence, interventions, subtyping, assessment).
- 07U:348 Contemporary Research in Behavioral Disorders** 3 s.h.
In-depth analysis of current research in behavioral disorders; emphasis on evaluating its methodology and contribution to the field.
- 07U:353 Seminar: Single Subject Design Research** 3 s.h.
Reviews of single subject research, development of student proposals; focus on special education, applied research.
- 07U:355 Seminar: Transition** 3 s.h.
History, legal mandates, and practice of assisting persons with disabilities through the varied transitions of life.
- 07U:380 Practicum in College Teaching** arr.
Supervised experience in teaching basic special education courses; for doctoral students majoring in teacher training. Prerequisite: consent of instructor.
- 07U:392 Field Service Project in Special Education Internship** arr.
Part-time or full-time experience as an intern in school districts or area education agencies; develops skills in supervision and administration of special education. Prerequisite: consent of instructor.
- 07U:493 Ph.D. Thesis** arr.
Prerequisite: consent of instructor.

College of Engineering

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Dean: P. Barry Butler
Associate dean, research and graduate studies:
Gregory R. Carmichael
Associate dean, academic programs:
Alec B. Scranton
Director, Center for Computer-Aided Design:
Karim Abdel-Malek
Director, IHHR—Hydrosiences & Engineering:
Larry Weber
Director, Iowa Spine Research Center: David Wilder
Degrees: B.S.E., M.S., Ph.D.
Web site: <http://www.engineering.uiowa.edu>

Engineering is defined by the Accreditation Board for Engineering and Technology as that profession in which knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to use, economically, the materials and forces of nature for the benefit of mankind.

In short, engineering is the application of science and mathematics to solve problems for society.

The major aim of engineering is the creation of a new process, product, material, or system. This activity demands a high degree of creativity and problem solving ability coupled with a full understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares men and women for one or more of the many career opportunities in the engineering profession. Such opportunities include positions in design, production, development, research, management, and consulting. Engineers are employed in industrial organizations, governmental agencies, and private practice.

The College of Engineering’s mission is to develop, disseminate, transfer, and preserve technical knowledge that improves people’s lives. The college endeavors to:

- provide a well-rounded and superior engineering education that draws upon resources of a comprehensive research university to attract outstanding undergraduate and graduate students in selected engineering fields;
- conduct high-quality research in selected areas, enabling faculty members and students to keep pace with new developments and ensuring that the newest concepts are taught in its courses; and
- serve the needs of the University, industry, government, and the general populace by making its facilities and faculty expertise accessible.

College Organization

The College of Engineering has five departments and four research units. The Department of Biomedical Engineering, Department of Chemical and Biochemical Engineering, Department of Civil and Environmental Engineering, Department of Electrical and Computer Engineering, and Department of Mechanical and Industrial Engineering offer a total of six undergraduate programs and several graduate programs.

The four research units are the Center for Bioinformatics and Computational Biology, the Center for Computer-Aided Design, the IIHR—Hydroscience & Engineering, and the Iowa Spine Research Center.

Undergraduate Programs

The College of Engineering offers the Bachelor of Science in Engineering (B.S.E.) in six major fields: biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering. The undergraduate programs are designed to attract the best and brightest students and prepare them to be engineers who will succeed in a workplace filled with diverse people, attitudes, and ideas; to compete in the global marketplace; to work effectively in multidisciplinary teams; and to confidently understand, use, and develop modern technology.

All six B.S.E. programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. Each has its own set of articulated educational objectives, and all are designed to ensure that graduates possess the following general attributes:

- ability to apply knowledge of mathematics, science, and engineering;
- ability to design and conduct experiments as well as to analyze and interpret data;
- ability to design a system, component, or process to meet desired needs;
- ability to function on multidisciplinary teams;
- ability to identify, formulate, and solve engineering problems;

- understanding of professional and ethical responsibility;
- ability to communicate effectively in oral, written, and graphical forms;
- broad education necessary to understand the impact of engineering solutions in a global and societal context;
- recognition of the need to engage in lifelong learning and the ability to do so;
- knowledge of contemporary issues; and
- ability to use the techniques, skills, and modern engineering tools necessary for successful engineering practice.

The University of Iowa B.S.E. programs distinguish the College of Engineering from other engineering colleges in the region. They draw on the University's recognized strengths to offer unique opportunities for students who wish to pursue a wide range of career options and an education that goes beyond technology.

Each program emphasizes a broad understanding of fundamental principles common to all engineering disciplines and provides students with the opportunity to specialize in a selected engineering discipline. All build on the University's research strengths. Program flexibility is provided by a curriculum in which each student develops engineering competency within a particular academic program and complements it with a tailored thematic option in support of chosen career objectives (e.g., engineering practice, project management, research and development).

Combined Degrees, Minors, Certificates

All of the college's B.S.E. programs may be combined with a second B.S.E., a Bachelor of Business Administration (B.B.A.) in the Tippie College of Business, or a bachelor's degree in the College of Liberal Arts and Sciences; see "Two B.S.E. Degrees," "Combined B.B.A./B.S.E.," and "Combined B.S.E./Liberal Arts and Sciences Degree" later in this section. Contact the Student Development Center for details.

The College of Engineering and the University of Northern Iowa offer a dual degree program in which students earn a B.S. in applied physics from UNI and a B.S.E. from The University of Iowa; see "B.S./B.S.E. Dual Degree With Northern Iowa" later in this section. The college also offers a joint bachelor's/master's degree with the University's Urban and Regional Planning

Program; see “Joint B.S.E./M.A. or M.S. in Planning” later in this section.

Engineering students may earn a minor in the Tippie College of Business or in the College of Liberal Arts and Sciences; see “Minor in Business” and “Minor in Liberal Arts and Sciences” later in this section. Students also may pursue international business and technological entrepreneurship certificates; see “Certificate in International Business” and “Certificate in Technological Entrepreneurship” later in this section.

Bachelor of Science in Engineering

The Bachelor of Science in Engineering (B.S.E.) requires a minimum of 128 s.h.

Students must be enrolled in the College of Engineering for at least the last 30 s.h. of work toward the degree, or 45 of the last 60 s.h., or a total of 90 s.h. They must have a g.p.a. of at least 2.00 on all college work used to satisfy degree requirements as well as on all work undertaken at The University of Iowa. All students must complete 22M:031 Engineering Mathematics I: Single Variable Calculus and 22M:032 Engineering Mathematics II: Multivariable Calculus, or their equivalents, with a grade of C- or higher in each course.

The faculty of each engineering program has established a curriculum—a set of required and elective courses that must be completed satisfactorily as part of the requirements for a degree in that program. The purpose of each program’s curriculum is to prepare students for the practice of engineering in that program. General guidelines for establishing course requirements in each program are provided by the national accrediting body, the Accreditation Board for Engineering and Technology (ABET).

Each B.S.E. student also must satisfy the requirements of his or her specific program, as described in the Catalog’s College of Engineering department sections: Biomedical Engineering, Chemical and Biochemical Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, and Mechanical and Industrial Engineering.

Curriculum Stems

The curriculum for each program is divided into four major curriculum stems: mathematics and basic sciences; engineering topics; elective focus area; and general education (humanities and

social sciences). In addition to the four major stems, there are a few general background courses that fall outside of the stems. Students take these courses during the first year. They include 059:005-059:006 Engineering Problem Solving I and II and 010:003 Accelerated Rhetoric, which is a first-year course in writing, speaking, and critical reading. Engineering Problem Solving I-II covers a breadth of topics from engineering as a profession to team design projects to engineering computations and computer programming.

All of the courses in the curriculum stems are integrated and sequenced to help students understand the interrelationships and importance of each stem.

MATHEMATICS AND BASIC SCIENCES

The mathematics and basic sciences stem provides the foundation upon which the engineering courses in each engineering program are based. This stem includes a minimum of five courses in mathematics and statistics and one each in chemistry and physics. The faculty of each engineering program has specified at least one additional chemistry or physics course and other additional mathematics or science courses beyond these minimum requirements to provide a base appropriate for the program’s major.

ENGINEERING TOPICS

The second curriculum stem, engineering topics (science and design), builds upon the math and science stem, providing a bridge from fundamental principles to applications and creative practice.

The engineering science courses use the underlying principles learned in the mathematics and basic science courses to understand and predict the behavior of idealized models of real components or systems encountered in engineering. These courses include fundamentals of statics, thermodynamics, and electrical circuits, as well as other engineering courses relevant to each major.

Engineering design is the process of devising a system, component, or process to meet desired needs. It is a decision-making process, often iterative, in which the basic sciences, mathematics, and engineering sciences are applied optimally to convert resources to meet a stated objective. The design process includes the establishment of objectives and criteria, synthesis, analysis, construction, testing, and evaluation. Essential to the design process is the inclusion of realistic constraints such as economic factors,

safety, reliability, aesthetics, ethics, and social and environmental impact.

ELECTIVE FOCUS AREA

In each undergraduate program, a pool of semester hours is set aside to enable students to build strength in a technical focus area, pursue a formal minor, earn a multidisciplinary certificate, or pursue a tailored program of study. Each program has its own set of guidelines and constraints for the elective focus area. See “Elective Focus Area” below.

GENERAL EDUCATION COMPONENT

The fourth stem involves general education course work in the humanities and social sciences. This stem promotes understanding of and appreciation for society and culture. See “General Education Component” below.

First and Second Years

Approximately one-third of the course requirements in each engineering program are common to all engineering majors. These common course requirements constitute a core program. Students take most of the courses in the core program during the first and second years, along with a few program-specific courses. Hence, most students may postpone making a decision about which engineering major to pursue or may change their engineering major during their first three semesters with little or no loss of time or credit. The remaining curriculum for each engineering program is listed in the Catalog’s College of Engineering department sections.

The first- and second-year courses common to all majors are listed below. Not all students complete all of these courses in the first three semesters. Students who do not follow this three-semester plan may encounter a delay in graduation because of scheduling problems for courses that require sequencing or that are offered only once a year.

First Semester

004:011 Principles of Chemistry I (all majors)	4 s.h.
010:003 Accelerated Rhetoric (all majors)	4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus (all majors)	4 s.h.
059:005 Engineering Problem Solving I (all majors)	3 s.h.
059:090 First-Year Engineering Seminar (all majors)	0 s.h.

Second Semester

004:012 Principles of Chemistry II (biomedical, chemical, and environmental majors)	4 s.h.
or	
General education component 1 (civil, electrical, industrial, and mechanical majors)	3 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus (all majors)	4 s.h.
22M:033 Engineering Mathematics III: Matrix Algebra (all majors)	2 s.h.
029:081 Introductory Physics I (all majors)	4 s.h.
059:006 Engineering Problem Solving II (all majors)	3 s.h.

Third Semester

22M:034 Engineering Mathematics IV: Differential Equations (all majors)	3 s.h.
029:082 Introductory Physics II (biomedical, civil, electrical, industrial, and mechanical majors)	3-4 s.h.
or	
General education component 1 (optional, chemical and environmental majors)	3 s.h.
059:007 Engineering Fundamentals I: Statics (all majors)	2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits (all majors)	3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics (all majors)	3 s.h.

Students who do not meet the eligibility requirement for 010:003 Accelerated Rhetoric (4 s.h.) are required to complete the two-course sequence 010:001 and 010:002 Rhetoric I-II (total of 8 s.h.). Only 4 of the 8 s.h. may be applied toward the degree requirement for rhetoric.

Credit earned for courses below the level of the beginning courses specified in each engineering curriculum appears on a student’s grade report and permanent record but is not used to satisfy any course requirements (including electives) for an engineering degree. Examples of courses in this category include 010:001 Rhetoric I, 22M:009 Elementary Functions, and 004:009 Supplemental Chemistry Lab.

General Education Component

Students choose 15 s.h. of general education (humanities and social science) courses from approved department and college areas. Among these 15, at least 3 s.h. must be from the pool of

courses designated by the College of Engineering as humanities courses, and at least 3 s.h. must be from the pool of courses designated by the college as social science courses. To ensure depth, at least 6 s.h. of general education credit should be earned in intermediate (100-level) courses. At least one of the 100-level courses should be taken in the same department as a lower-level course already completed.

Humanities and social science subject areas are defined by the College of Engineering; they may not correspond to the same general education area definitions used by the College of Liberal Arts and Sciences. Individual engineering programs may require further depth in one area and may include one or more of the general education requirements as part of a student's elective focus area.

Courses that are primarily mathematical or scientific in nature and those designed specifically to develop art or music skills are not acceptable as social science or humanities electives.

Credit may be earned by examination; see "Undergraduate Academic Rules and Procedures"/"Academic Standards"/"Credit by Examination" later in this section.

Humanities and social science course work transferred to The University of Iowa by students with A.A. degrees who enter the College of Engineering directly from two-year schools is evaluated on the same basis as similar course work transferred by other students entering the college without a B.A. or B.S.

Students who enter the College of Engineering with a B.A. or B.S. are considered to have satisfied the general education (humanities and social science) requirement.

Students who enroll in a combined degree program in the College of Engineering and the College of Liberal Arts and Sciences or the Tippie College of Business are considered to have satisfied the College of Engineering's general education requirement once they have completed all requirements for the liberal arts or business degree.

For details, see General Education Component (GEC) on the college's web site (under Current Students/Engineering Student Records/Curriculum Guides).

Elective Focus Area

Students choose elective focus area courses in two broad categories: traditional career goals and nontraditional career goals. The degree plans students choose to pursue and the courses they

take may affect the number and type of employment opportunities available to them after graduation. Program advisors help students develop coherent, well-focused plans that fit their goals.

Students who pursue a well-defined plan may replace up to 21 s.h. of traditional technical electives with course work toward a minor or certificate. Or with an advisor's guidance, they may pursue a rigorous, well-focused, nontraditional program outside existing minor or certificate programs. Each College of Engineering undergraduate program is responsible for approving proposed plans of study, ensuring that the program's ABET accreditation criteria are met and that students' choices are consistent with their career aspirations and with the college's educational mission.

To pursue one of these alternatives, a student must define and justify his or her career goal, obtain the program's approval for the detailed plan of study before taking the courses, and then complete the plan as it has been defined.

Guidelines for elective focus areas vary by program. For details, see Engineering Curriculum Guides and EFAs on the college's web site (under Current Students/Engineering Student Records/Curriculum Guides).

Four-Year Graduation Plan

College of Engineering students who choose to participate in the University's Four-Year Graduation Plan must be admitted on schedule and must complete specified courses during the first year in order to stay on the plan. They must work closely with their advisors to make sure they know what requirements must be met and the appropriate sequences in which to take courses.

The agreement holds both the student and the University responsible for clearly defined actions to ensure graduation within four years. Since changes in a student's interests may lead to changes in goals or majors, there is no penalty for withdrawing from the Four-Year Graduation Plan. For more information, contact the College of Engineering's Student Development Center.

Honors

Outstanding undergraduate engineering students may qualify to participate in the Engineering Honors Program or the University Honors Program. See "Undergraduate Academic Rules and Procedures"/"Academic Recognition"/"Honors Program" later in this section.

Minors

Students graduating from the College of Engineering may earn a minor in the Tippie College of Business or a minor or minors in any degree-granting department or approved program in the College of Liberal Arts and Sciences. A minor in another college may be earned by satisfying requirements established by the college offering the minor. A notation of the minor is entered on the student's permanent record.

College of Engineering programs generally allow use of a non-engineering minor to satisfy their elective focus area requirements. Students who pursue this option must work closely with program advisors to ensure compatibility with their engineering career aspirations.

Students must inform the Office of the Registrar of their fulfillment of minor requirements when they apply for a degree. This assures that the minor designation is included on their transcript. See "Undergraduate Academic Rules and Procedures"/"Application for Degree" later in this section.

Minor in Business

Engineering students who wish to earn a minor in business must complete the following courses.

06A:001 Introduction to Financial Accounting	3 s.h.
06A:002 Managerial Accounting	3 s.h.
06E:001 Principles of Microeconomics	4 s.h.
06E:002 Principles of Macroeconomics	4 s.h.
06F:100 Introductory Financial Management (engineering students may substitute 056:054)	3 s.h.
06J:047 Introduction to Law	3 s.h.
06J:048 Introduction to Management	3 s.h.
06K:070 Computer Analysis (engineering students may substitute 059:006)	3 s.h.
06M:100 Introduction to Marketing Strategy	3 s.h.
22M:017 Calculus and Matrix Algebra for Business (engineering students may substitute 22M:031)	4 s.h.
22S:008 Statistics for Business (engineering students may substitute 22S:039)	4 s.h.

Students must maintain a g.p.a. of at least 2.00 in courses for the minor. Courses for the minor may not be taken pass/nonpass. At least 12 s.h. of courses taken for the minor must be completed at the Tippie College of Business. For more information, contact the Tippie College of Business Undergraduate Program Office.

Minor in Liberal Arts and Sciences

Engineering students who wish to earn a minor offered by the College of Liberal Arts and Sciences must complete a minimum of 15 s.h. in the minor, including at least 12 s.h. in advanced courses taken at The University of Iowa and approved by the school, department, or program offering the minor. Students should confer with the academic unit offering the minor to identify acceptable courses. Students must have a g.p.a. of at least 2.00 in courses taken for the minor. Courses in the minor may not be taken pass/nonpass. See Minors offered by the College of Liberal Arts and Sciences (<http://www.clas.uiowa.edu/departments/minors.shtml>) for details.

Certificate in International Business

The Tippie College of Business and the College of Liberal Arts and Sciences offer the Certificate in International Business. The program is designed for University of Iowa undergraduates interested in broadening their understanding of the global economy and their awareness of the political, historical, and social environment in which international business operates.

Certificate students study international business and economics, international relations and institutions, a foreign language, and the contemporary art, literature, culture, and/or politics of the related geographical area. The certificate's range of courses permits students to tailor areas of specialization that suit their individual interests and complement their majors.

The certificate requires 29 s.h.; a minimum of 20 s.h. must be completed at The University of Iowa or in approved study abroad programs. Guided Independent Study is accepted toward the certificate. Students must maintain a g.p.a. of at least 2.00 on all certificate course work. Certificate courses may not be taken pass/nonpass, nor may a single course be counted toward more than one certificate requirement.

Interested students must declare their intention to pursue the certificate with the international business certificate advisor in the Tippie College of Business; contact the Tippie Undergraduate Program Office for details.

For a detailed description of certificate requirements, see International Business in the Catalog.

Certificate in Technological Entrepreneurship

The College of Engineering and the Tippie College of Business offer a joint program leading to the Certificate in Technological Entrepreneurship. The program entails study of the entrepreneurial process as it relates to technology.

The certificate program is designed not only for students who intend to start and/or operate their own business but for any student interested in gaining a better understanding of the entrepreneurial process. The program's range of electives permits students to tailor areas of specialization to their individual interests.

Interested students must declare their intention to pursue the certificate with the College of Engineering technological entrepreneurship program faculty representative. To receive the certificate, students must be granted a degree in engineering; maintain a g.p.a. of at least 2.00 on all certificate course work; and take at least 12 s.h. of certificate course work at The University of Iowa or in approved study-abroad courses. Completion of the program results in the notation "Certificate in Technological Entrepreneurship" on the student's transcript.

For details, see Certificate in Technological Entrepreneurship on the college's web site (under Current Students/Academic Information). For application information, contact the College of Engineering Office of the Dean.

Cooperative Education and Internship Program

The Cooperative Education and Internship Program offers students the opportunity to explore engineering careers and develop engineering skills through periods of professional practice. Supervised professional engineering-related experiences in business, industry, education, or government expose students to the challenges and opportunities of the day-to-day life of an engineer. Students with co-op and/or internship experience are sought by employers and usually receive higher starting salaries upon graduation. A portion of registered co-op and/or internship experience before graduation can be credited toward the experience requirements for professional licensure in Iowa and some other states.

Qualified students may choose to alternate periods of on-campus study with full-time work experience, or they may elect to work half-time

while taking at least 6 s.h. of classes. The co-op experience can cover one to three semesters, a series of summer placements, or a single summer. Students may apply to the program following their first year. Academic record and class status are considered in acceptance decisions. Interested students and employers or organizations must register on Employment Expo and contact the College of Engineering director of professional development. For details, see Engineering Professional Development on the college's web site (under Current Students/Student Services).

Two B.S.E. Degrees

Current College of Engineering students and recent graduates may earn a second Bachelor of Science in Engineering. The second degree requires at least 30 s.h. of residence course work beyond the 128 s.h. required for the first B.S.E., with a g.p.a. of at least 2.00. The additional 30 s.h. must include all courses required by the second engineering degree program, including the senior-level design course sequence and any specific social science elective requirements. Elective focus area courses selected for the second B.S.E. must be of a variety and level that permit students to meet at least the minimal level of competence usually expected of graduates of that program.

Students must file an academic study plan, which must be approved by the faculty of the second degree program, submitted to the Student Development Center, and placed in the student's permanent file before the student may begin course work in the second B.S.E. The study plan should include a list of the courses to be taken in the second program along with a list of the courses already completed and yet to be completed for the first engineering degree program. Any changes in the plan must be approved by the student's faculty advisor in the second program and by the department chair of that program (the college petition form may be used for this purpose), submitted to the Student Development Center, and placed in the student's permanent file.

Combined B.B.A./B.S.E.

The College of Engineering and the Tippie College of Business offer a combined degree program in which students earn two University of Iowa bachelor's degrees: a Bachelor of Business Administration (B.B.A.) from the Tippie College of Business and a Bachelor of Science in Engineering (B.S.E.) from the College of Engineering.

The combined business/engineering degree program requires a total of 158 s.h.; at least 30 s.h. must be earned in College of Engineering courses, and at least 30 s.h. must be earned in Tippie College of Business courses. Both degrees must be granted at the end of the same academic session.

Students in the program must complete all General Education components and all other requirements for both majors. They must enroll in appropriate mathematics and engineering courses early in their course of study in order to complete the program in a timely way. Because courses in natural sciences, mathematics, humanities, and social sciences count toward the B.B.A. and the B.S.E., students may count a single course toward both degrees.

B.B.A./B.S.E. students usually meet the degree requirements of both colleges in about five years; time required depends on the student's choice of major study areas.

Students may not use the second-grade option for courses in the combined program.

Students are assigned two advisors, one in the Tippie College of Business Undergraduate Program Office, the other in their College of Engineering major department.

Contact the College of Engineering Student Development Center or the Tippie College of Business Undergraduate Program Office for specific degree requirements.

Combined B.S.E./Liberal Arts and Sciences Degree

Students may earn two University of Iowa baccalaureate degrees in a combined program in the College of Engineering and the College of Liberal Arts and Sciences. Successful candidates are awarded a B.S.E. (Bachelor of Science in Engineering) by the College of Engineering and a B.A. (Bachelor of Arts), B.S. (Bachelor of Science), B.F.A. (Bachelor of Fine Arts), or B.M. (Bachelor of Music) by the College of Liberal Arts and Sciences.

To qualify for both degrees in the combined degree program, students must complete a total of 158 s.h., including at least 30 s.h. earned in College of Engineering courses and at least 30 s.h. earned in College of Liberal Arts and Sciences courses. Students who complete the combined degree program must receive both degrees simultaneously.

Students in the combined program usually can meet the degree requirements of both colleges in about five academic years. The exact length of time necessary to complete the program is determined by the major areas of study selected in each college. Students who enter the combined degree program are assigned two faculty advisors, one in their major department in the College of Engineering and the other in their major department in the College of Liberal Arts and Sciences.

To enter the combined degree program, students must be admitted to both the College of Engineering and the College of Liberal Arts and Sciences and must have College of Engineering approval to enter the combined degree program. Those who enter the program are required to complete the general education components and all other requirements for both majors. Combined degree program applicants must meet the high school course or unit requirements for admission to each of the two colleges.

It is crucial that students enroll in the proper mathematics and engineering courses early in their course of study to expedite the completion of the program. The specific engineering courses taken by each student vary according to engineering major. Since courses in natural sciences, mathematics, humanities, and social sciences are accepted for credit by both colleges, students may be able to count a particular course toward both degrees.

Contact the Student Development Center for information about specific requirements.

B.S./B.S.E. Dual Degree with Northern Iowa

The 3+2 dual degree program leads to a B.S. in applied physics from the University of Northern Iowa (UNI) and a B.S.E. from The University of Iowa. It requires approximately three years of study at UNI followed by approximately two years of study at Iowa. There is no guarantee that students can complete the 3+2 degree in five years.

Students interested in the program are guaranteed admission to the University of Iowa portion of the program if they have a g.p.a. of at least 3.00 (B average) in all course work and in the chemistry, mathematics, and physics courses required by the University of Northern Iowa physics department.

During the first three years of the program, students complete at least 90 s.h. of course work at the University of Northern Iowa. They must

successfully complete courses in each of the following areas: chemistry, mathematics through differential equations, physics to satisfy the applied physics major requirements, and courses to satisfy the General Education requirements. Credit for courses passed with a grade of C or higher is transferred to The University of Iowa as credit for equivalent courses there.

At The University of Iowa, students complete the B.S.E. requirements that were current at the time of their admission to the UI College of Engineering. Course work completed at The University of Iowa is transferred to the University of Northern Iowa and applied toward the requirements for that institution's B.S. in applied physics.

When transferring to Iowa from UNI, students must submit applications for admission, housing, and financial aid to The University of Iowa by the University's established deadlines.

Joint B.S.E./M.S. or M.A. in Planning

The College of Engineering and the Urban and Regional Planning Program offer the joint Bachelor of Science in Engineering/Master of Arts or Master of Science for students who wish to pursue a career in planning in either the public or private sector. Planning encompasses the development of alternatives to improve the quality of life in cities and regions.

Graduates of the combined program are technically oriented professionals who have a clear understanding of policy development and implementation. They fill positions such as public works director, transportation engineer, and public utilities staff member. Their work involves a blend of civil and industrial engineering problems and policy analysis.

The joint program satisfies all requirements of both degrees. It requires a minimum of 152 s.h., including at least 45 s.h. of urban and regional planning graduate courses. Completion of the program takes five years—one fewer than would be required for consecutive completion of both programs.

Each student in the joint program has two advisors, one in engineering and one in urban and regional planning. Students enroll in the College of Engineering for their first four years in the program and in the Graduate College for their fifth year. Successful students receive a B.S.E. at the end of the fourth year and an M.A. or M.S. in planning at the end of the fifth year.

To join the combined degree program, students must first be admitted to the College of Engineering. During spring semester of their second year in engineering, they apply for admission to the joint program. Students admitted to the program apply for admission to the Graduate College at the end of their fourth year. Applicants must have completed all requirements for a B.S.E., have an undergraduate g.p.a. of at least 3.00, and earn a score on the Graduate Record Exam (GRE) General Test judged satisfactory by the urban and regional planning admissions committee.

While enrolled in the College of Engineering, students must maintain the overall grade-point average required by their engineering program.

Students also must maintain a g.p.a. of at least 3.00 in planning courses in the joint program. If they do not, they may be placed on academic probation, and if they fail to satisfy the conditions of probation, they are dismissed from the joint program. Dismissal from the joint program does not affect a student's standing in the College of Engineering.

Students in the joint program must maintain a cumulative g.p.a. of at least 3.00 in order to graduate with an M.A. or M.S. in planning.

Joint Program Curriculum

Students in the joint program follow the standard B.S.E. curriculum for their College of Engineering program during the first and second year. Urban and regional planning courses (prefix 102) are added in the third and fourth years. Students earn 15 s.h. of their required B.S.E. elective focus area credit in courses that also meet the requirements of the M.A. or M.S. in planning.

During the summer after the fourth year, most students in the joint program complete an approved internship.

The fifth year usually includes the remaining urban and regional planning core courses and electives. Students take the M.S. or M.A. comprehensive examination during spring of the fifth year.

A typical study plan calls for completion of the following planning courses during the third and fourth years (15 s.h. are applied to requirements of both the B.S.E. elective focus area and the planning courses).

Third year, fall semester:

102:202 Land Use Planning: Law and Practice	4 s.h.
102:205 Economics for Policy Analysis	3 s.h.

Third year, spring semester:
102:201 Analytic Methods in Planning II 2 s.h.

Fourth year, fall semester:
102:203 History and Theories of Planning 3 s.h.

Fourth year, spring semester:
Electives 3 s.h.

During the fifth year and the preceding summer session, students take the remaining 30 s.h. of planning courses, as follows. This completes the 45 s.h. of planning course work required for the M.S. or M.A.

Summer before fifth year:
102:335 Internship 2 s.h.

Fifth year, fall semester:
102:208 Program Seminar in Planning Practice 1 s.h.
102:209 Field Problems in Planning I 1 s.h.
Electives 12 s.h.

Fifth year, spring semester:
102:210 Field Problems in Planning II 3 s.h.
Electives 11 s.h.

See Urban and Regional Planning (Graduate College) in the Catalog for course descriptions and information about the University's Urban and Regional Planning Program.

Undergraduate Admission

To be considered for admission to the College of Engineering as first-year students, applicants must have successfully completed at least four years of English/language arts; four years of mathematics, which must include at least two years of algebra, one year of geometry, and one year of higher mathematics (trigonometry, analysis, calculus); two years of a single foreign language; three years of natural science, which must include at least one year of chemistry and at least one year of physics; and at least two years of social studies. A high school computer programming course is recommended but not required.

Applicants are guaranteed admission to the College of Engineering if they have an ACT composite score of 25 or higher and an ACT math score of 25 or higher; rank in the top 30 percent of their class; and have no high school unit deficiencies. Students who do not meet these requirements, or who attend a high school that does not rank its students, are encouraged to send recommendations from math and science teachers and a personal statement of special circumstances that may have kept them from meeting these standards.

Incoming first-year and transfer students who do not meet the foreign language requirement may be admitted on conditional status for a maximum of four semesters in order to complete two semesters of an introductory college-level foreign language.

Students who do not meet the other high school unit requirements may be admitted on special review by the College of Engineering. They may be required to make up deficiencies by taking a lower-level course in their area of deficiency before enrolling in the first required course in that area. For example, students who have high math grades and standardized test scores, but who are deficient by one unit in mathematics, may be required to complete a course such as 22M:009 Elementary Functions before enrolling in the first engineering calculus course.

Students who are unsure whether to pursue a degree in engineering or a degree in liberal arts and sciences are strongly encouraged to begin in engineering if they meet the admission requirements.

For more information about admission to the College of Engineering, see <http://www.uiowa.edu/admissions/undergrad/requirements/fy-eng.html> on the University's Office of Admissions web site.

TRANSFER APPLICANTS

Transfer applicants must have completed the same high school unit requirements as entering first-year students and must submit an official high school transcript as well as a transcript of college work undertaken at other institutions. To transfer to the College of Engineering, students must have demonstrated success in math, science, and engineering courses, ideally earning all As and Bs with no grade lower than a C in these foundation subjects. Transfer students must have completed calculus I and the equivalent of either 004:011 Principles of Chemistry I or 029:081 Introductory Physics I (the first semester of chemistry designed for majors, or the first semester of calculus-based physics). Overall grade-point average also is considered in transfer applications.

For more information about transfer admission to the College of Engineering, see <http://www.uiowa.edu/admissions/undergrad/requirements/xfer-eng.htm> on the University's Office of Admissions web site.

Undergraduate Academic Rules and Procedures

Academic Advising

Undeclared engineering students are advised by the staff members in the Student Development Center. Engineering students who have declared an academic program are advised by faculty advisors assigned to that program. Students may request a change of advisor when it is deemed appropriate. All students are required to have a conference with their advisors before registering for classes each semester.

Application for Degree

Students who wish to be considered for graduation must file an Application for Degree with the Office of the Registrar before the deadline date during the session in which the degree is to be conferred.

Students who do not graduate on the date indicated in the Application for Degree must file another application for the next applicable session. Students do not need to be registered to apply for a degree.

See Application for Degree (<http://www.registrar.uiowa.edu/graduation/degreeapp.aspx>) on the University's Office of the Registrar web site.

Academic Recognition

Engineering Honors Program

The College of Engineering Honors Program provides special recognition for outstanding undergraduate students who demonstrate exceptional accomplishment through research, directed independent study, teaching internships, or other approved nondegree enrichment activities. Engineering students who wish to graduate with honors must maintain a University of Iowa g.p.a. of at least 3.33, complete an honors project with a faculty member, and participate in a college-wide honors seminar with faculty members and other honors students. Successful completion of the honors program requirements leads to a B.S.E. with honors, which is recorded on the student's University academic record.

First-year and sophomore students with a University of Iowa g.p.a. of at least 3.33 are automatically admitted to the University Honors Program, which provides access to all of the services offered through the University's Honors Center. Engineering students are encouraged to participate in honors activities. Engineering students are the second largest collegiate group in the University Honors Program.

For more information, contact the College of Engineering associate dean for academic programs.

Graduation with Honors

High scholastic achievement is certified in two ways; graduation with distinction based on grades only, and graduation with honors based on both grades and exceptional accomplishment. To be eligible for graduation with honors, students must be recommended by their major department, approved by a selected honors committee and the director of the honors program, and complete honors requirements.

Graduation with Distinction

The college awards degrees "with highest distinction" to students in the highest 2 percent of their graduating class, "with high distinction" to students in the next-highest 3 percent, and "with distinction" to students in the next-highest 5 percent. Ranking is based on students' grade-point average for all college-level study undertaken up to their final registration.

To be eligible to graduate with distinction, students must take their final 60 s.h. of study in residence at the college and must have completed at least 45 s.h. in the college before their final registration. Students in the combined engineering/liberal arts and sciences program are eligible to graduate with distinction regardless of the college in which they complete their residency requirement.

Dean's List

Undergraduate students in the College of Engineering who have a g.p.a. of 3.50 or higher on 12 s.h. or more of graded work (excluding University of Iowa Guided Correspondence Study courses) during a given semester and who have no semester hours of I (incomplete) or O (no grade reported) during the same semester are recognized by inclusion on the Dean's List for that semester.

President’s List

University of Iowa undergraduate students who have a g.p.a. of 4.00 on 12 s.h. or more of graded work and who have no semester hours of I (incomplete) or O (no grade reported) for two consecutive semesters (excluding summer sessions) are recognized by inclusion on the President’s List.

Academic Standards

Maximum Schedule

Course schedules of more than 18 s.h. for a semester, 9 s.h. for a summer session, or 3 s.h. for a winter session require approval of the advising staff in the college’s Student Development Center. Permission to Register for Additional Hours forms are available on the college’s web site (under Current Students/Student Records Information/Forms).

Classification of Students

Students in the College of Engineering are classified by the number of semester hours of credit they have earned toward the Bachelor of Science in Engineering.

- First-year: 0-29 s.h. earned toward the B.S.E.
- Sophomore: 30-59 s.h. earned toward the B.S.E.
- Junior: 60-89 s.h. earned toward the B.S.E.
- Senior: 90 s.h. or more earned toward the B.S.E.

Grading System

The college uses a letter grading system. Plus and minus designate gradations of performance between letter grades. Numerical equivalents of letter grades are as follows.

Grade	Grade points
A+	4.33
A (superior)	4.00
A-	3.67
B+	3.33
B (above average)	3.00
B-	2.67
C+	2.33
C (average)	2.00
C-	1.67
D+	1.33
D (below average)	1.00
D-	0.67
F (failing)	0

This grading system is used for all students in both undergraduate and graduate engineering courses. Grades of D-minus are passing grades; that is, courses completed with grades of D-minus or higher count toward collegiate requirements, with the exception of 22M:031 and 22M:032 Engineering Mathematics I-II: Single and Multivariable Calculus, which have a minimum grade requirement of C-minus or higher. Grades of A-plus have a value of 4.33 in calculating grade-point averages, but averages displayed in University records are truncated so that they do not exceed 4.00.

Academic Probation and Dismissal

Students who do not achieve or surpass the following University of Iowa cumulative and semester minimum grade-point averages are placed on academic probation.

- First-year (0-29 s.h. earned toward B.S.E.), 1.80
- Sophomore (30-59 s.h. earned toward B.S.E.), 1.90
- Junior (60-89 s.h. earned toward B.S.E.), 1.95
- Senior (90 or more s.h. earned toward B.S.E.), 2.00

Students on academic probation are restored to good standing when they successfully complete an additional 9 s.h. toward an engineering degree, either in one semester or cumulatively, and their University of Iowa cumulative and semester grade-point averages equal or exceed those designated above.

The college reviews academic records for all students at the end of the fall and spring semesters. There is no review at the end of the summer session. Students are placed on probation, dismissed for unsatisfactory progress (with or without previous probationary status), or restored to good standing only at the end of the fall and spring semesters. Students on academic probation are not permitted to continue their enrollment without written expectations for their future performance.

Students who do not make satisfactory progress may be dismissed from the college without an intervening probationary period. Students who are dismissed from the college for unsatisfactory academic progress due to circumstances beyond their control, such as a death in their immediate family or extended personal illness, may appeal for a revocation of the dismissal. A student dismissed in January must submit a written appeal by the second day of spring semester

classes. A student dismissed in May must submit the written appeal by June 15.

Students dismissed from the college for poor scholarship may appeal to reenroll after an interval of at least one calendar year. A written appeal for reinstatement must be submitted to the Appeals Committee at the Student Development Center. Appeals must be submitted before June 15 for reinstatement in a fall semester or before December 1 for reinstatement in a spring semester.

For details about engineering academic probation and engineering academic appeal procedures, visit the College of Engineering web site (under Current Students/Student Procedures/Academic Standards, and Appeal Procedures).

Dropping and Adding Courses

Courses may be added with permission of the advisor and the instructor during the first two weeks of the semester or first one-and-one-half weeks of the summer session.

Courses may be dropped with permission of the advisor and the instructor at any time during the first 10 weeks of the semester. Only under compelling circumstances may courses be dropped after the 10th week, in which case special approval must be granted by the advisor, the course instructor, and the dean's office. Under no circumstance are students permitted to drop after the beginning of the scheduled final examination period.

Limits on Withdrawing from Courses

Undergraduates receive the mark of W for any course dropped after the second week of the semester or the first one-and-one-half weeks of the summer session. Students may not drop the same course with a mark of W more than twice. Special courses that may be repeated are exempt from this rule.

Students admitted to degree programs in the College of Engineering fall 1991 and after are limited to a total of five Ws while enrolled in the College of Engineering. First-year students entering the University directly from high school with no prior full-time college experience are permitted to exclude Ws received during their first two sessions of enrollment.

Students who have a legitimate reason for dropping a course (e.g., disabling illness, death of an immediate family member) and can document

that reason are permitted to exclude that drop from the maximum, but the W is not removed from the record. Requests for such exclusions are made in the Student Development Center.

Withdrawal of Registration

Students who withdraw their entire registration must consult the staff at the Student Development Center. A student on scholastic probation who withdraws registration at any time without good cause may not be permitted to enroll for the following semester without specific approval from the Student Development Center staff. Withdrawal cards for students enrolled in the college are signed by the associate dean for academic programs.

Pass/Nonpass Option

A maximum of two courses taken pass/nonpass (P/N) may be applied toward satisfaction of the general education (humanities and social sciences) requirement. P/N registration must be approved by the student's advisor and the instructor of the course and must be completed during the first three weeks of a semester or the first two weeks of a summer session. P/N registration may not be changed after the deadline for adding courses. The pass/nonpass option may not be used for courses taken to satisfy the rhetoric requirement. Guided Independent Study courses taken for humanities or social science credit may not be taken P/N.

Students enrolled in courses taught in the College of Engineering may choose to be graded pass/nonpass under the following conditions:

- the signatures of the advisor and instructor must be obtained on the proper form, and the completed form must be submitted to the registration center by the student within the time period established by University policy;

- the mark of P (pass) is awarded where the final course grade earned was C-minus or higher; the mark of N (nonpass) is given for grades of D-plus or below; marks of P and N are not used in computing the grade-point average, and the mark of N does not count as earned credit.

No course work taken in the College of Engineering on the pass/nonpass option may be used to satisfy requirements for an engineering degree.

Second-Grade-Only Option

A student may elect to repeat a course with only the new grade being counted in his or her grade-point average. The option may be applied to no more than three courses, and it may be applied only once to a particular course. Transfer students may apply the option on a prorated basis.

A course may not be repeated under the second-grade-only option once it has been used as a prerequisite for a more advanced course that the student has completed successfully.

To exercise the second-grade-only option, students register as usual for the course that is to be repeated, then complete a Second Grade Option form at the Student Development Center; Second Grade Option forms are available on the college's web site (under Current Students/Student Records Information/Forms). The form must be completed during the session in which the course is repeated, within the first 12 weeks of the fall or spring semester or the first six weeks of the summer session. Students must follow this procedure or both grades will be counted in the University of Iowa grade-point average.

Under the second-grade-only option, the registrar marks the permanent record to show that a particular course has been repeated. Both grades remain on the permanent record, but only the second is used in calculating the grade-point average and semester hours earned. The course must be taken the second time under the same circumstances and with the same grade option as it was taken the first time.

The second-grade-only option cannot be used to remove a grade of incomplete, which must be removed in the usual manner. A student who holds a degree from The University of Iowa may not apply the second-grade-only option to a course taken before the degree was conferred.

Satisfactory/Fail Courses

The noncredit professional seminar courses required in each of the professional programs are offered only satisfactory/fail (S/F). No other engineering courses are offered on this basis. An F (failure) grade earned for such a class does not satisfy any portion of the professional seminar requirement.

Incomplete and No Report Grades

A mark of I (incomplete) that is not replaced by a final grade will automatically be converted to an

F at the end of the next fall or spring semester (summer and winter sessions excluded), even if the student does not enroll after the session the incomplete was posted.

A mark of O (no grade reported) will remain on a student's permanent record until a valid grade is submitted.

Credit by Examination

Students who have acquired knowledge in subject areas from sources other than formal course registrations may be granted credit toward graduation by examination, under the following conditions and limitations.

No more than 32 s.h. of credit by examination may be applied toward B.S.E. degree requirements.

College-Level Examination Program (CLEP) credit may be counted toward the lower-level General Education Component (humanities and social science) requirements. CLEP credit earned in natural science areas does not count toward the engineering degree. Credit also may be earned through Advanced Placement Exams. For details about CLEP and Advanced Placement Exam credit, visit the college's web site (under Current Students/Student Records Information/Exam Credit).

Engineering students may earn credit for equivalent experience or former course work in any of the required common core courses through successful completion of examinations prepared and graded by the core course committees. Students who fail a core course are not permitted to earn credit by examination for the failed course. Students who wish to earn credit for core courses by examination must obtain approval from the associate dean for academic programs.

With approval of the departmental faculty, credit in three or fewer courses (totaling no more than 6 s.h.) may be awarded upon successful completion of final examinations in program elective courses.

Foreign Language Incentive Program

The University's Foreign Language Incentive Program (FLIP) gives entering engineering students two options for earning college credit.

Option 1: Entering students who place into a fifth-semester language course and complete the course with a grade of B-minus or higher receive 4 s.h. of exam credit for the fourth-semester

course. The credit is ungraded but may be counted toward the hours required for graduation. Incentive credit is not granted for college course work for which credit has been received.

Students are eligible for incentive credit only during their first and second registrations at The University of Iowa.

Option 2: Students may receive 2 s.h. of exam credit for earning a grade of B-minus or higher in a first-semester-level course in a foreign language different from the language used to satisfy the foreign language requirement. They may earn another 2 s.h. for completing the second-semester-level course in that language for a grade of B-minus or higher.

For details about FLIP for engineering students, visit the college's web site (under Current Students/Student Records Information/Exam Credit). For more information on eligibility and restrictions, consult the Student Development Center.

Credit from Other Colleges

Course requirements in engineering may be satisfied with credit earned in courses taken in other University of Iowa colleges or at other accredited colleges or universities. When students apply for admission to the College of Engineering, they must submit official transcripts from each college attended along with their application for admission. After the credit has been certified by the Office of Admissions as college-level work from an accredited institution and after admission has been granted, the credit is evaluated by the Student Development Center either before or during the student's first semester of enrollment in the college.

Satisfaction of engineering course requirements by transfer course work may be approved by the Student Development Center if, course-by-course, there is a match in the content and level of the transfer courses, and if the grades earned for such courses are C-minus or higher. Students who want to satisfy the engineering General Education Component (GEC) (social sciences and humanities) requirements or The University of Iowa rhetoric requirements by transfer work must follow the College of Engineering General Transfer Credit Guidelines.

Students planning to attend a two- or four-year institution before transferring to the College of Engineering should discuss the planned transfer with officials at both schools before embarking on a transfer program. The College of Engineering has recommended transfer course lists for most

Iowa community colleges and some four-year colleges. Once students are enrolled in the College of Engineering, they must have prior approval for course work taken at other institutions.

For details about transfer credit for engineering students, including recommended transfer course lists and taking course work at other institutions, visit the college's web site (under Current Students/Student Records Information/Transferring Credit to Iowa).

By policy of the Board of Regents, State of Iowa, a student may apply a maximum of 64 s.h. of transfer credit earned at a two-year college toward the 128 s.h. required for the B.S.E. However, transfer credit from a two-year school in excess of 64 s.h. is used in computing grade-point average and may be used to satisfy course requirements, even though the semester hours cannot be counted toward the total required for graduation. A grade of C-minus or higher is required in order for transfer credit to be applied toward a degree requirement.

Course Substitutions

For students in the College of Engineering, the substitution of an alternate course for a required course requires the approval of a petition. Permission for Course Substitution forms are available on the college's web site (under Current Students/Student Records Information/Forms) or at the Student Development Center. The form must be completed by the student and must be approved by the student's advisor and by the chair of the academic department in which the student is majoring.

If the petition involves a required engineering core course or a General Education Component (social sciences or humanities) course, then it also must be approved by the Student Development Center. Substitutions for required engineering core courses should be made infrequently and only under compelling circumstances. Substitutions of courses that are required by the student's program are governed by the faculty of that program; approval of these course substitutions is needed only from the faculty advisor and the department chair. All petitions must be forwarded to the Student Development Center for inclusion in the student's permanent file.

Auditing Courses

Students in the College of Engineering may register for a course for zero credit (audit) with

the permission of the course instructor and the advisor. The mark of R is assigned to students registered for zero credit if attendance and performance in the course are satisfactory; if unsatisfactory, the mark of W is assigned. Courses completed with a mark of R do not meet any requirements nor do they carry any credit toward graduation. Auditing may not be used as a second-grade-only option.

To register for a course on an audit basis, students must obtain the instructor's authorizing signature and their advisor's signature and must register for 0 s.h. To change registration from audit to credit or from credit to audit, a drop-add form is used. These changes must be made during the first three weeks of a semester or the first one-and-one-half weeks of a summer session.

Misconduct, Complaints

Student Academic Misconduct

Policies regarding cases of cheating or plagiarism are outlined on the College of Engineering web site (<http://www.engineering.uiowa.edu/current-students/academic-misconduct.html>) and are included in Policies and Regulations Affecting Students, on the University's Division of Student Services web site (<http://www.uiowa.edu/~vpss/policies/index.html>). In cases of cheating on an exam or quiz, the policy recommends that the instructor reduce the student's grade, including the assignment of F for the course. When a course grade has been reduced to an F, the student may not drop the course or use the second-grade-only option to eliminate the failing grade.

At the beginning of each semester, course instructors individually announce and explain their policies on acceptable levels of student-student collaboration on graded work, which includes homework assignments, and lab or design projects. When a policy is violated, a zero is assigned for the total portion of the course grade allocated to the requirement in which the violation occurs. The instructor sends a written report of any disciplinary action to the office of the dean and the report is placed in the student's file. Students are notified by the office of the dean of any disciplinary action reported and are informed of appeal procedures.

Student Complaints Concerning Faculty Actions

In cases where complaints do not involve alleged student academic misconduct, students with

complaints against engineering faculty members first should attempt to resolve the issue with the faculty member; see the college's web site (under Current Students/Student Procedures). Lacking a satisfactory outcome, the student should discuss the matter with the chair of the faculty member's department.

Students who are uncomfortable dealing directly with a faculty member or a department chair may seek assistance from the engineering faculty ombudsperson when attempting to resolve a complaint related to an engineering course. Students taking nonengineering courses should seek assistance from the University ombudsperson. However, grievances generally can be satisfactorily resolved most expeditiously at the faculty or chair level. If students are not satisfied with the outcome of this procedure, they should discuss their complaints with the dean of engineering.

Student Activities and Organizations

The College of Engineering student body is represented by the Engineering Student Council. The council plans and carries out activities involving the entire college, such as the student and faculty picnic and MECCA Week. The organization also acts on collegewide matters of general student interest.

Engineering students publish their own student journal, *Hawkeye Engineer*. The journal is staffed by students, with faculty members serving only in an advisory capacity.

The following engineering technical societies are represented by University of Iowa student chapters: American Institute of Chemical Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers, Institute of Electrical and Electronics Engineers, Institute of Industrial Engineers, and National Society of Professional Engineers.

A student club of the Society of Automotive Engineers is open to all engineering majors, and a student society of biomedical engineers, which is formally recognized by the University, is open to biomedical engineering majors. The University chapter of Tau Beta Pi, a national honorary society for students in all engineering fields, gives special recognition to superior students in their junior and senior years. The work of students who are outstanding in their respective fields is recognized by Alpha Eta Mu Beta, honorary biomedical engineering society; Omega Chi Epsilon, honorary chemical engineering society;

Chi Epsilon, honorary civil engineering society; Eta Kappa Nu, honorary electrical engineering society; Alpha Pi Mu, honorary industrial engineering society; and Pi Tau Sigma, honorary mechanical engineering society.

Engineering student organizations dedicated to providing support and assistance in the development of more equitable enrollments of minorities and women in the college are the Multi-Ethnic Engineering Student Association and the student chapter of the Society of Women Engineers. A local chapter of Theta Tau, a national professional engineering fraternity, is active in service to the college and draws its membership from students throughout the college.

Professional Licensure

Licensure as a professional engineer is governed by the laws of each state. Most states' minimum requirements include graduation from an accredited engineering curriculum of at least four years, followed by at least four years of practical experience and successful completion of two major examinations.

The agency that controls and monitors the licensing procedure in Iowa is the Iowa Engineering and Land Surveying Examining Board. The first step in the procedure for students enrolled in an accredited program is to pass an examination on engineering fundamentals given near the time of graduation. Following graduation and the successful completion of the engineering fundamentals exam, graduates receive an Engineer-in-Training (EIT) certificate. The final step in the procedure is to pass the principles and practice exam in a specialty area following a minimum of four years of approved professional experience. At this point, the graduate engineer becomes a licensed Professional Engineer.

Graduate Programs

The College of Engineering offers the Master of Science and Doctor of Philosophy in biomedical engineering, chemical and biochemical engineering, civil and environmental engineering, electrical and computer engineering, industrial engineering, and mechanical engineering. For information about principal research and study areas, degree requirements, admission, and financial support for individual graduate programs, see the Catalog's College of Engineering department sections:

Biomedical Engineering, Chemical and Biochemical Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, and Mechanical and Industrial Engineering.

Applicants must meet the admission requirements of the Graduate College; for detailed information about Graduate College policies, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

College Facilities

The Seamans Center for the Engineering Arts and Sciences is home to the College of Engineering. Dedicated in 2001, the Seamans Center combines new construction with extensive renovation of the former Engineering Building to provide space for learning, teaching, research and collaboration that anticipates the needs of 21st-century engineering.

The center's Student Commons and John Deere Plaza Lobby provide welcoming space for students to work individually or together on homework and projects, with wireless computer connections. Additional work rooms and conference areas join the center's expanded classrooms and flexible research space in an environment designed to serve the needs of the college's students, faculty, and staff.

All five of the college's departments have headquarters in the building, and most faculty offices are located there.

Student Development Center

The professional staff of the Student Development Center administers student services for the College of Engineering. Admission, advising, tutoring, student records and scholarship, and professional development are provided at the center.

Lichtenberger Engineering Library

The Lichtenberger Engineering Library is a center of college activity. It maintains a collection of more than 100,000 volumes and provides access to more than 1,000 current journal titles. The library offers internet access to a wide array of indexes and abstracts and houses a significant collection of standards. Study space is provided for library users.

Hanson Technical Communication Center

The Hanson Center for Technical Communication (CTC) helps undergraduate engineering students develop and polish their written communication skills. The center's coordinator and assistant coordinator supervise a staff of professional writing consultants and peer consultants.

CTC writing consultants are professional instructors who work in teams to help engineering faculty members present and evaluate writing-intensive assignments. They also provide individual feedback and assessment of students' work throughout the writing process.

CTC peer consultants are engineering students who have strong writing skills. Peer consultants conduct one-on-one tutoring sessions at the center, helping their fellow students develop skills relating to organization, audience analysis, precise technical descriptions, and persuasive and logical narratives.

The CTC coordinator teaches an elective course, 059:004 Essentials of Technical Communication (2 s.h.), which uses a workshop approach to help students explore and practice communication genres practiced by engineers. Students deliver presentations, practice literature and patent searches, and work in teams to acquaint themselves with the reality of writing in the workplace. The course also uses selected readings and response papers to broaden students' perspectives on the role of engineers in society.

Computer Systems Support

Engineering Computer Systems Support (CSS) provides for curricular computing at the College of Engineering. A large network of high performance Hewlett Packard color graphics UNIX workstations and XP workstations, along with extensive commercial and public domain software, support the full range of engineering college classes. The college provides the same type of computer hardware and software that students will use when they graduate and begin working as engineers. CSS updates hardware and software regularly to maintain the best educational environment.

Engineering and other students who take engineering courses are provided with an engineering computing account, which they keep

during their tenure at the college. This account provides students with electronic mail and access to the Internet. The college's computer labs provide students with more than 300 networked computers, and labs at the Seamans Center are open 24 hours per day. CSS provides support for student computing.

Engineering Design & Prototyping Center

The Engineering Design & Prototyping Center (EDPC) provides state-of-the-art technical resources to University and to private sector research and development groups for concept development, project design, full service machining, and rapid prototype modeling.

Engineering Electronics Shop

The Engineering Electronics Shop is a full-service electronics support facility for the College of Engineering. The shop provides design, construction, repair, calibration, and preventive maintenance services for both teaching and research laboratories. There also is an extensive electronics parts supply store and PC board facility for engineering students and researchers.

Engineering Professional Development

Engineering Professional Development (EPD) develops and promotes experiential education and professional opportunities for students in the College of Engineering. EPD programs and services include the Co-op and Internship Program, Study Abroad Programs, job shadowing, spring break programs, the fall Engineering Career Fair, and the spring Engineering Job and Internship Fair. EPD offers individual advising and class presentations on résumé preparation and interviewing skills, and instruction on finding professional engineering positions and using electronic, print, and other resources in job searches. In collaboration with the Pomerantz Career Center, EPD facilitates on-campus interviewing and recruits employers and organizations interested in hiring students.

Research Units

IIHR—Hydroscience & Engineering

IIHR—Hydroscience & Engineering (formerly the Iowa Institute of Hydraulic Research) is one of the nation's premier and oldest fluids research and engineering laboratories. Its activities encompass the broad spectrum of fluid mechanics, engineering and environmental hydraulics, and hydrometeorology.

Basic and applied engineering research programs are carried out at IIHR in nine modern, well-equipped laboratories. IIHR conducts teaching and research programs in fluid mechanics (turbulent shear flows, vortex dynamics, ship hydrodynamics, biofluid dynamics, and computational fluid dynamics); environmental hydraulics (river hydraulics, computational hydraulics, hydraulic structures, bioremediation, water quality dynamics, air-water exchange processes, ice-related river hydraulics, winter highway maintenance, and ice modeling); water and air resources (hydrometeorology, hydroclimatology, hydrogeology, hydrology, remote sensing and water resources); and history of hydraulics and fluid mechanics.

IIHR maintains state-of-the-art research facilities, including a large low-turbulence wind tunnel, a vortex dynamics laboratory, a ship-model towing tank, extensive energy balance equipment, and radiometric and meteorological stations. It also has specialized equipment, such as a three-dimensional scanning elastic lidar, a differential absorption lidar, particle image velocimetry (PIV) and laser Doppler velocimetry (LDV) systems, and state-of-the-art computer resources.

IIHR has constructed a new research and education facility on the Mississippi River near Muscatine, Iowa. The Lucille A. Carver Mississippi Riverside Environmental Research Station provides opportunities for researchers and educators from around the world to study river processes in a multidisciplinary setting. The research station's state-of-the-art facilities support study of diverse facets of the Upper Mississippi River and promote a better understanding of river ecosystems and their response to natural events and human activities.

High-level involvement of graduate students is a hallmark of most IIHR projects. IIHR is heavily involved in fluids engineering for industry and in fundamental research programs, providing graduate students and postdoctoral trainees with

unique opportunities for valuable research and engineering experience. Undergraduates also have opportunities to participate in IIHR projects.

Center for Computer-Aided Design

The Center for Computer-Aided Design is a College of Engineering research unit dedicated to the advancement and practical implementation of modeling and simulation research. The unit promotes multidisciplinary research, scholarship, and technology transfer with applications in design and optimization, kinematics and dynamics, human factors, and solid mechanics.

Among the technology applications currently under investigation at the center are meshfree methods for structural analysis and design sensitivity analysis, composite materials, probabilistic mechanics and reliability, reliability-based design optimization, topology optimization, multidisciplinary design optimization, advanced geometric modeling and CAD, human interaction with advanced technology and automation, human-computer interaction and virtual reality, computational modeling of human performance, mechanisms and robotics, and real-time dynamic simulation for haptic interfaces. CCAD research activities promote individual and multidisciplinary approaches to design and engineering analysis, engaging research participants from a variety of academic fields and interests.

Twelve faculty members currently are affiliated with CCAD, representing the Departments of Civil and Environmental Engineering, Mechanical and Industrial Engineering, and Mathematics (College of Liberal Arts and Sciences). Together, these faculty members supervise more than 50 graduate and undergraduate students. CCAD also employs 10 full-time professional staff members and three postdoctoral research scholars.

CCAD maintains a variety of high-performance computer systems. Its primary computing capability consists of a network of Hewlett-Packard HP C-, B-, and J-class workstations and servers and Silicon Graphics workstations. Most individual workstations incorporate high-performance graphics for general computing needs, including CAD/CAE, software development, virtual prototyping, and virtual environment development. More than 40 Windows NT workstations are connected to the HP/Silicon Graphics network, providing routine X windows access. A 16-processor HP Exemplar S-class supercomputer with 3 GB of main

memory, more than 45 GB of local disk space, and two J6000 dual processor compute servers, each with 4 GB of memory, provide resources for extensive engineering analysis capabilities using a wide variety of industry-standard and locally developed software. A Network Appliance F520 file server with more than 200 GB of disk supports the storage needs of all center UNIX resources. Standard desktop, multimedia, and office productivity applications are hosted on a network of Dell and Micron personal computers running Windows 2000. Network-capable Hewlett-Packard LaserJet and Tektronix color printers support the center's printing needs, and there is a variety of CD creation, video, and video production equipment for archival, dissemination, visualization, and presentation of center research.

Connecting all of this is a switched network using 10/100BaseT Ethernet via HP 4000M network switches connected via Gigabit Ethernet to the College of Engineering backbone. Each switch has its own dedicated connection to the Network Appliance file server and uses a mesh of 100BaseT connections to provide 400Mbps full-duplex connectivity between each pair of switches.

The center supports a wide range of commercially available scientific and engineering packages. For structural analysis, the center uses ABAQUS, ANSYS, and MSC Nastran, as well as pioneering software in the area of meshless analysis, ADAMS and DADS for dynamic analysis, and Altair HyperWorks and MSC Patran for preprocessing, meshing, and visualization. It uses PTC's ProEngineer for CAD. Additional software tools include Mathematica, Matlab, IMSL, Xmath, and DOT.

Organizations supporting CCAD's research program include the National Science Foundation, the National Aeronautics and Space Administration (NASA), the U.S. Departments of Transportation and Defense, the Iowa Department of Transportation, the Minnesota Department of Transportation, and industry leaders such as Caterpillar, 3M, Allsteel Inc., LG Digital Appliances, Maytag Corporation, Honda, General Motors, Nissan, and Rockwell International.

Iowa Spine Research Center

The Iowa Spine Research Center (ISRC) assesses clinical effectiveness and outcome in diagnosing and treating various spinal diseases. It also provides guidance in spinal research and patient care. The center, a unique collaboration between

the College of Engineering and the Carver College of Medicine, involves teams of investigators that include engineers, economists, surgeons, research scientists, nurses, therapists, and students.

Center for Bioinformatics and Computational Biology

The Center for Bioinformatics and Computational Biology facilitates development of new areas of study and expanded research opportunities in informatics areas related to the basic biological sciences and applied medical research.

The field of bioinformatics and computational biology (BCB) involves creation of methods for applying advanced mathematics and computation to problems of biological and biomedical interest, for example, understanding of the human genome, evolution of plants and animals, and relationships between microorganisms and higher-order life-forms. BCB is characterized by a diverse confluence of traditional academic disciplines. Biology and computing are joined by applied mathematics, biochemistry, biomedical and computer engineering, physics, probability and statistics, and others.

The Center for Bioinformatics and Computational Biology sponsors a seminar series, varied symposiums, and a seed grant program. It is affiliated with the University's Carver Center for Comparative Genomics, Center for Macular Degeneration, Coordinated Laboratory for Computational Genomics, DNA Facility, Holden Comprehensive Cancer Center, and Iowa Center for Gene Therapy.

Course Numbering System

The title of each course offered by the College of Engineering is preceded by a three-digit prefix and a three-digit suffix separated by a colon.

The second digit of the prefix is 5, which identifies the course as one offered by the College of Engineering.

The third digit of the prefix identifies the College of Engineering program that offers the course as follows:

- 051—Biomedical engineering
- 052—Chemical and biochemical engineering
- 053—Civil and environmental engineering
- 055—Electrical and computer engineering

056—Industrial engineering

057—Engineering core (old curricula)

058—Mechanical engineering

059—Core engineering (new curricula)

The three-digit suffix of a course number identifies the level and type of course. Generally, suffix numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduate students, and numbers 200 and above designate courses primarily for graduate students.

The courses offered by each department are listed in the department's section by discipline area, starting with the lowest-level course and proceeding to the highest-level course.

A brief description is included for each course. Prerequisite and corequisite courses listed in course descriptions are University of Iowa courses. Students who have not taken the University of Iowa prerequisite but who have earned credit in equivalent course work from another institution should consult the course instructor if they have questions concerning their preparation for the course. They must obtain the instructor's consent before registering for the course.

Engineering students may enroll in any course in the College of Engineering if they meet the course prerequisite and corequisite requirements. Undergraduates from other colleges may enroll in engineering courses only with consent of the College of Engineering director of admissions and outreach; contact the Student Development Center. Consent for enrollment in an engineering course is based on space available as well as on whether the students have the mathematics, science, and engineering background considered necessary to undertake the course work.

Courses

Engineering Core

The college's individual undergraduate programs and course requirements for each engineering major are described in the Catalog's College of Engineering department sections.

Each undergraduate program builds upon a core program (see "Undergraduate Curriculum" earlier in this section). The following core program courses are offered by the college. Not all core courses are required for each engineering major.

Undergraduates from other colleges cannot register for core program courses without special permission from the college's director of admissions and outreach; contact the Student Development Center.

057:000 Cooperative Education Training

Assignment: Engineering 0 s.h.

For engineering majors participating in the Cooperative Education and Internship Program. Prerequisite: consent of college's internship and co-op director.

057:001 Engineering Honors Seminar

1 s.h.

Repeatable. Prerequisites: engineering honors and junior or higher standing.

057:003 Accelerated Rhetoric for Engineers

4 s.h.

Rhetoric 010:001 and 010:002 combined in one semester. Prerequisite: admission to College of Engineering.

057:010 Dynamics

3 s.h.

Vector calculus, Newton's laws, 3-D motion of particles and multiparticle systems, 2-D motion of rigid bodies applications. Prerequisites: 22M:031 and 059:007.

057:015 Materials Science

3 s.h.

Concepts and examples of selection and applications of materials used by engineers; mechanical, electrical, and thermal properties that govern a material's suitability for particular applications; lectures supplemented by laboratory experiments. Prerequisite: 004:011. Corequisite: 22M:031.

057:017 Computers in Engineering

3 s.h.

Introduction to digital systems and engineering applications of microprocessor-based computers; C programming language; serial and parallel I/O; analog-to-digital and digital-to-analog conversion; system control using polling and interrupts; lab arranged. Prerequisites: 059:006 and sophomore standing.

057:018 Principles of Electronic Instrumentation

4 s.h.

Principles of analog signal amplification, signal conditioning, filtering; operational amplifier circuit analysis and design; principles of operation of diodes, bipolar transistors, field effect transistors; discrete transistor amplifier analysis and design; laboratory included. Prerequisites: 029:082 and 059:008.

057:019 Mechanics of Deformable Bodies

3 s.h.

Elementary theory of deformable bodies, stress, strain; axial, transverse, bending, torsion, combined and buckling loads; deflection of beam. Prerequisite: 059:007. Corequisite: 22M:034.

057:020 Fluid Mechanics

4 s.h.

Fluid properties; hydrostatics; transfer of mass, momentum, and energy in control-volume and differential forms; dimensional analysis and similitude; laminar and turbulent flow in conduits; flow past bluff bodies and airfoils; engineering applications; experimental laboratories, computer simulation projects. Prerequisites: 22M:037 and 057:010. Corequisite: 059:009.

057:030 Introduction to Engineering Design 3 s.h.

Problem-solving skills taught through a design-development process; use of solid-modeling computer design software to create, analyze, and communicate models of product solutions. Prerequisite: consent of UI Project Lead the Way director.

057:031 Principles of Engineering 3 s.h.

Introduction to engineering and engineering technology; exploration of varied technology systems and manufacturing processes to show how engineers and technicians use math, science, and technology to solve engineering problems and help people; concerns about social and political consequences of technological change. Prerequisite: consent of UI Project Lead the Way director.

057:032 Digital Electronics 3 s.h.

Applied logic, with focus on application of electronic circuits and devices; use of computer simulation software to design and test digital circuitry before circuits and devices are built. Prerequisite: consent of UI Project Lead the Way director.

057:033 Computer Integrated Manufacturing 3 s.h.

Builds on computer solid modeling skills developed in 057:030; application of robotics and automation principles; robotics in automated manufacturing, design analysis; students use CNC equipment to produce models of their 3-D designs. Prerequisite: consent of UI Project Lead the Way director.

057:034 Civil Engineering and Architecture 3 s.h.

Overview of civil engineering and architecture; interrelationship and dependence of each field on the other; roles of civil engineers and architects, project planning, site planning, building design, project documentation and presentation; students use state-of-the-art software to solve real-world problems and provide solutions for projects and activities. Prerequisite: consent of UI Project Lead the Way director.

057:035 Aerospace Engineering 3 s.h.

Experience applying scientific and engineering concepts to design materials and processes for aeronautics and flight; aerospace information systems, star sailing or astronautics rocketry, propulsion, physics of space science, space life sciences; habitat and crew systems with life support, biology of space science, principles of aeronautics, structures and materials, systems engineering. Prerequisite: consent of UI Project Lead the Way director.

057:036 Biotechnical Engineering 3 s.h.

Experiences from the fields of biotechnology, bioengineering, biomedical engineering, and biomolecular engineering; biomechanics, cardiovascular engineering, genetic engineering, agricultural biotechnology, tissue engineering, biomedical devices, human interface, bioprocess engineering, forensics, bioethics. Prerequisite: consent of UI Project Lead the Way director.

057:039 Engineering Design and Development 3 s.h.

Experience working in student teams to research, design, and construct a solution to an open-ended engineering problem, under a community mentor's guidance; application of design and engineering concepts. Prerequisite: consent of UI Project Lead the Way director.

057:186 Experiential Design I arr.

057:187 Experiential Design II 3 s.h.

Prerequisite: 057:186.

Core Engineering

059:004 Essentials of Technical Communication 2 s.h.

Engineering as a real-world community of engineers working to increase their competence and confidence in the basic forms of technical communication.

059:005 Engineering Problem Solving I 3 s.h.

Development and demonstration of specific problem solving skills; directed project or case study involving actual engineering problems and their solutions.

059:006 Engineering Problem Solving II 3 s.h.

Engineering problem solving using computers; introduction to digital computations, problem formulation using a procedural high-level language; structured, top-down program design methodology; debugging and testing; introduction to use of software libraries; examples from numerical analysis and contemporary applications in engineering. Corequisite: 22M:031.

059:007 Engineering Fundamentals I: Statics 2 s.h.

Vector algebra, forces, couples, moments, resultants of force couple systems; friction, equilibrium analysis of particles and finite bodies, centroids; applications. Prerequisites: 22M:031 and 029:081.

059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.

Kirchhoff's laws and network theorems; analysis of DC circuits; first order transient response; sinusoidal steady-state analysis; elementary principles of circuit design; laboratory experience with DC, AC, and transient circuits. Corequisites: 22M:034 and 029:082.

059:009 Engineering Fundamentals III: Thermodynamics 3 s.h.

Basic elements of classical thermodynamics, including first and second laws, properties of pure materials, ideal gas law, reversibility and irreversibility, and Carnot cycle; control volume analysis of closed simple systems and open systems at steady state; engineering applications, including cycles; psychrometrics. Prerequisites: 004:011, 22M:031, and 029:081.

059:090 First-Year Engineering Seminar 0 s.h.

Introduction to engineering student life; electronic resources; keys to and skills for success; coping with adversity; selecting a major; advising responsibilities; curriculum choices and career objectives; ethics; communication; internships and co-ops; job search skills. Prerequisite: first-semester standing.

Biomedical Engineering

Chair: Krishnan B. Chandran

Professors: Karim Abdel-Malek, Brian D. Adams, Thomas D. Brown, John J. Callaghan, Thomas L. Casavant, Krishnan B. Chandran, Charles R. Clark, Patrick Hitchon, Eric Hoffman, John C. Keller, Satish C. Khera, Tae-Hong Lim, Geoffrey McLennan, Joon B. Park, Kwan Rim, Charles L. Saltzman, David J. Skorton, Ingo R. Titzel, Ge Wang

Adjunct professors: Richard McLay, Victor G. Rodgers, Tadaatsu Satomi

Associate professors: Edwin L. Dove, Stephen K. Hunter, Michael A. Mackey, Madhavan L. Raghavan, Joseph Reinhardt, Robert Tucker, David Wilder, Jinhu Xiong

Adjunct associate professors: Don Anderson, Alan B. Moy, Douglas R. Pedersen, Joel Pickar

Assistant professors: Terry A. Braun, Nicole Grosland, Fiorenza Ianzini, Khalid Kader, William R. Lynch, Vincent Magnotta, Aliasger Salem, Todd Scheetz

Adjunct assistant professors: Jose G. Assouline, James W. Devocht, Ram R. Gudavalli, Anneliese D. Heiner, Joung-Hwan Mun

Adjunct lecturer: Lisa Scranton

Undergraduate degree: B.S.E. in Biomedical Engineering

Graduate degrees: M.S., Ph.D. in Biomedical Engineering

Web site: <http://bme.engineering.uiowa.edu/>

The past four decades have seen a tremendous growth of technological activity in biology and medicine. As engineers increasingly have become involved with projects in the life and health sciences, there has been greater need for them to become more familiar with the fields of biology and medicine. Recognition of this need has led to the emergence of a new interdisciplinary engineering activity designed to bridge the gap between the life sciences and engineering—the biomedical engineering profession.

The Department of Biomedical Engineering fosters interdisciplinary activities across departments and colleges and maintains strong ties with the Carver College of Medicine. The department strives to provide a well-rounded and superior engineering education that attracts outstanding students at both the undergraduate and graduate levels; conduct high-quality research that enables faculty members and students to keep pace with and initiate new developments; and serve government, industry, and institutions worldwide by making the department's facilities and faculty expertise accessible.

Several engineering faculty members have joint appointments in the Carver College of Medicine. Both biomedical engineering undergraduates and graduate students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

Undergraduate Program

The department offers the Bachelor of Science in Engineering in biomedical engineering. The program provides a contemporary education in a multidisciplinary area. Its objective is to produce graduates who:

- have the ability to identify, formulate, and solve open-ended problems with medical relevance, including the design of devices, systems, and processes to improve human health;
- are able to pursue a wide range of career options, including those in industry, academia, and medicine; and
- are able to advance to leadership positions in their chosen field.

Students who complete the program may pursue traditional career opportunities in industry, such as those rooted in mechanical or electrical engineering disciplines, or they may pursue newer areas of engineering, such as design and development of biomedical instrumentation, diagnostic aids, life-support systems, prosthetic and orthotic devices, and man-machine systems. Other career options are available in government (Food and Drug Administration, Environmental Protection Agency, National Institutes of Health, Veterans Affairs). Some biomedical engineering graduates elect to continue formal education in engineering, medicine, or law.

Bachelor of Science in Engineering

The B.S.E. in biomedical engineering builds on the foundation provided by the College of Engineering core curriculum. It prepares students for the challenges and opportunities associated with careers in the biomedical engineering profession. The program has been designed

Carefully to enable students to satisfy the entrance requirements of the Graduate College. Students whose choice of electives includes a three-course sequence in organic chemistry and an additional biology or biochemistry course may satisfy entrance requirements of the Carver College of Medicine, the College of Dentistry, or the allied health sciences.

The B.S.E. in biomedical engineering requires a minimum of 128 s.h. The curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005-059:006 Engineering Problem Solving I-II and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. See "Curriculum Stems" and "General Education Component" under "Bachelor of Science in Engineering" in the College of Engineering section of the Catalog.

Elective focus area courses must be selected according to guidelines established by the Department of Biomedical Engineering. See "Elective Focus Area" after the following curriculum list.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

FIRST YEAR

First Semester

004:011 Principles of Chemistry I	4 s.h.
010:003 Accelerated Rhetoric (or 010:001-010:002)	4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus	4 s.h.
051:090 BME Freshmen/Sophomore Forum	0 s.h.
059:005 Engineering Problem Solving I	3 s.h.

Second Semester

004:012 Principles of Chemistry II	4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus	4 s.h.
22M:033 Engineering Mathematics III: Matrix Algebra	2 s.h.
029:081 Introductory Physics I	4 s.h.
051:090 BME Freshmen/Sophomore Forum	0 s.h.
059:006 Engineering Problem Solving II	3 s.h.

SECOND YEAR

First Semester

002:010 Principles of Biology I	4 s.h.
22M:034 Engineering Mathematics IV: Differential Equations	3 s.h.
051:091 Professional Seminar: Biomedical Engineering	0 s.h.
059:007 Engineering Fundamentals I: Statics	2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits	3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics	3 s.h.

Second Semester

027:130 Human Physiology	3 s.h.
051:030 Cell Biology for Engineers	2 s.h.
051:091 Professional Seminar: Biomedical Engineering	0 s.h.
051:130 Introduction to Genetics and Quantitative Physiology	1 s.h.
057:017 Computers in Engineering	3 s.h.
057:019 Mechanics of Deformable Bodies	3 s.h.
General education component course	3 s.h.

THIRD YEAR

First Semester

029:082 Introductory Physics II	4 s.h.
051:040 Biological Systems Analysis I	3 s.h.
051:070 Biomaterials and Implant Design	3 s.h.
051:075 Cell-Material Interactions	3 s.h.
051:091 Professional Seminar: Biomedical Engineering	0 s.h.
General education component course	3 s.h.

Second Semester

051:050 Biomechanics: Theory and Design	3 s.h.
051:060 Data and Image Acquisition and Analysis	4 s.h.
051:080 Data Acquisition Design Laboratory	2 s.h.
051:091 Professional Seminar: Biomedical Engineering	0 s.h.
171:161 Introduction to Biostatistics	3 s.h.
General education component courses	6 s.h.

FOURTH YEAR

First Semester

051:085 Biomedical Engineering Senior Design I	4 s.h.
051:092 Leadership and Resourcefulness	0 s.h.
Four elective focus area courses	12 s.h.

Second Semester

051:086 Biomedical Engineering Senior Design II	4 s.h.
One general education component course	3 s.h.
Three elective focus area courses	9 s.h.

Elective Focus Area

The biomedical engineering program offers a variety of elective focus area options, including standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests. For more detailed information about elective focus areas, see “Bachelor of Science in Engineering”/“Elective Focus Area” in the College of Engineering section of the Catalog. For a list of standard biomedical engineering elective focus area options and guidelines for tailored elective focus areas, contact the Department of Biomedical Engineering or visit its web site.

Combined B.S.E./M.S.

Students who wish to complete a Bachelor of Science in Engineering and a Master of Science in biomedical engineering at The University of Iowa can apply to the fast-track B.S.E./M.S. program. Fast-track students receive a B.S.E. in biomedical engineering once they have completed all of the requirements for the B.S.E. They normally complete the required course work for the M.S. one year later.

To be admitted to the program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.50, and must submit a letter of application to the chair of the Department of Biomedical Engineering stating the intended area of specialization and the name of the M.S. advisor.

Graduate Programs

The department offers the Master of Science and the Doctor of Philosophy in biomedical engineering. The aim of graduate study at both levels is to educate students more deeply and broadly than is possible at the undergraduate level. The goal is to enable students to use contemporary methods at an advanced level during a professional career in engineering design, development, and research.

Each student’s course of study is based on individual background and career objectives, and sound academic practice. Department faculty members have teaching and research expertise in areas related to cardiovascular and fluid

biomechanics, musculoskeletal biomechanics, biomaterials and tissue engineering, bioinstrumentation, biosystems, biomedical imaging, biological signal analysis, bioinformatics and computational biology, and other allied fields.

An individual program for each student may be developed from courses offered by the biomedical engineering department and other departments, especially mechanical engineering, electrical engineering, physiology, mathematics, and biological sciences. M.S. students who want a more general program may combine emphases, while those who want some specialization in any particular field may accommodate these preferences through the combination of departmental courses and appropriate electives from other departments of the College of Engineering and the University.

Ph.D. programs may center on any one of the previously described areas through the choice of appropriate course work and research topic.

Master of Science

The M.S. in biomedical engineering requires a minimum of 30 s.h. and is offered with or without thesis. Students who choose the nonthesis program must earn at least 6 s.h. of 200-level courses. Those who choose the thesis program may count no more than 6 s.h. of thesis research and writing credit toward the degree. The M.S. is designed to be a terminal degree or a step toward the Ph.D.

A tentative plan of study for each student is determined through consultation with an advisor. An M.S. committee of at least three graduate faculty members, including at least two on the biomedical engineering faculty, is appointed by the dean of the Graduate College. The student’s plan of study is reviewed by the committee before the student has completed 18 s.h. of course work. The plan of study then is submitted for review to the department chair.

To earn the M.S., students are required to attain a g.p.a. of at least 3.00 on a minimum of 30 s.h. of graduate work and successfully complete the final examination administered by their committee.

Candidates for the M.S. (thesis or nonthesis) must complete the following courses or their equivalents with a grade of B or higher.

Advanced mathematics
Human physiology (027:130)

Individual study plans should include as much advanced work as individual aptitude and previous preparation permit.

Admission

Applicants must meet the admission requirements of the Graduate College; for detailed information about Graduate College policies, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants who have earned a baccalaureate or postbaccalaureate degree in engineering or in the mathematical or physical sciences, with a g.p.a. of at least 3.00, and who have a combined verbal and quantitative score of 1250 on the Graduate Record Examination (GRE) General Test are eligible to be considered for admission to the M.S. program in biomedical engineering. Students with a lower grade-point average or GRE General Test scores may be considered for conditional admission. They must achieve regular standing within 8 s.h. of initial registration by attaining a g.p.a. of at least 3.00 at The University of Iowa and regular acceptance by the department faculty. Students who do not meet these requirements are subject to dismissal.

Reference letters, research interests, previous graduate grade-point average, and other factors may be considered in making admission decisions.

Doctor of Philosophy

The doctoral program requires a minimum of 72 s.h. of graduate work, including acceptable transfer credit. At least 42 s.h. must be earned in formal course work taken after the B.S. is awarded, and at least 12 s.h. must be earned for research and thesis. For students entering with an M.S., at least 18 s.h. of formal course work must be completed beyond the M.S., and at least 12 s.h. must be earned for research and thesis. Based on research progress, examination results, or other measures, the student's graduate committee may require additional formal course work to strengthen perceived areas of weakness.

Admission

Applicants must meet the admission requirements of the Graduate College; for detailed information about Graduate College policies, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Admission to the Ph.D. program is conditional until students successfully complete a qualifying examination, which is administered by the biomedical engineering faculty. The decision on

whether the student's performance on this examination is adequate for admission to the Ph.D. program is made by the biomedical engineering faculty.

Admission to Ph.D. candidacy requires a g.p.a. of at least 3.25 on all graduate work done at The University of Iowa. Upon completion of the course work specified in the plan of study and with the required grade-point average and the advisor's recommendation, students are admitted to the comprehensive examination by their committee.

Having satisfactorily completed these examinations, students usually have only to complete and defend their dissertation at the final examination. Requirements for the Ph.D. generally can be completed in about three years beyond the master's degree.

Financial Support

Students are encouraged to apply for fellowships and assistantships. Contact the chair of the Department of Biomedical Engineering.

Special Facilities and Laboratories

Required Undergraduate Laboratories

Four dedicated undergraduate teaching laboratories are associated with the required and elective courses in biomedical engineering: Biomechanics Laboratory, Biomaterials and Tissue Engineering Laboratory, Biomeasurements and Systems Laboratory, and Biomedical Imaging Laboratory.

BIOMECHANICS

The Biomechanics Laboratory is equipped to perform experiments in biological flow analysis and in human musculoskeletal systems. The laboratory houses a pulse duplicator for simulating physiological pulsatile flow, a flow visualization set-up to analyze flow past stenosis and aneurysms, blood pressure and flow measurement devices, digital still and video cameras for kinematic analysis, a ski binding tester, a drop tower for impact testing, a four-channel EMG amplifier system, and a table-top material testing machine. The laboratory is used for 051:050 Biomechanics: Theory and Design, elective courses in cardiovascular and skeletal biomechanics, other elective courses, senior design projects, and

demonstrations in 051:030 Cell Biology for Engineers.

BIOMATERIALS AND TISSUE ENGINEERING

The Biomaterials and Tissue Engineering Laboratory is equipped to test mechanical and thermal properties of biomaterials, thin sectioning of hard tissues, and prostheses for histology. It also is equipped for basic tissue engineering experiments. The laboratory is used for 051:070 Biomaterials I; elective courses in biotransport processes, biomaterials, and tissue engineering; senior design projects; and demonstrations in 051:030 Cell Biology for Engineers.

BIOMEASUREMENTS AND BIOSYSTEMS

The Biomeasurements and Biosystems Laboratory is equipped to measure biomedical variables of clinical and physiological interest, design and build electronic instrumentation, and conduct modeling experiments in physiology. It is used for 051:040 Biological Systems Analysis I and 051:080 Data Acquisition Design Laboratory, elective courses in biomeasurements and biological systems analysis, senior design projects, and demonstrations in 051:030 Cell Biology for Engineers.

BIOMEDICAL IMAGING

The Biomedical Imaging Laboratory has state-of-the-art computer hardware and software for teaching the fundamentals of medical imaging and image analysis required in 051:060 Data and Image Acquisition and Analysis. It also is used for elective courses in physics and in analysis of medical imaging, the medical imaging practicum course, and demonstrations in 051:030 Cell Biology for Engineers.

Research Facilities and Laboratories

BIOMATERIALS LABORATORY

The Biomaterials Laboratory is equipped to characterize implant materials and biological tissues for their mechanical and thermal properties. Hard tissue histological slide preparations, for both microradiograph and optical, can be made for the study of interactions between bone and implant interactions. Metallographic sample preparations can be made and analyzed under optical microscopes.

The laboratory contains MTS (model 812) materials testing machine with recorder and controller; automatic data acquisition and process computer dedicated to the MTS machine; differential scanning calorimeter (Perkin-Elmer

DSC-4 model); Omega x-ray generator with microradiographic attachment; Bronwill thin sectioning saw; Buehler Isomet thin sectioning saw; Buehler metallographic and petrographic grinding and polishing wheels; IR, polarizing, reflection research type microscopes; temperature-controlled bath; Lindberg tube furnace; strain gage attachment and measurement devices; videotape and play equipment; and conventional and vacuum oven with a diffusion pump.

SPINE RESEARCH LABORATORY

The Spine Research Laboratory is equipped for interdisciplinary research. The laboratory's MTS Bionix (with extended columns) servohydraulic testing equipment permits application of uniaxial tension or compression together with axial torsion under displacement or load control. The laboratory also has a fully automated 3-D motion measuring system. These devices are used to test mechanical properties of biomechanical joints and tissues, and for biomechanical evaluation of the performance of surgical treatment modalities. Other equipment includes digital cameras, surgical tools, and sensors (i.e., LVDTs, six-degrees-of-freedom load cell, pressure transducers, digital inclinometers).

A biaxial biomechanical culture system is available for application of controlled compression and/or shear forces onto the intervertebral disc during culture, in order to investigate the disc's biological responses to mechanical loads. This culture system is used in conjunction with an incubator in which cells and tissues can be cultured. Basic equipment for histology and immunohistochemical analyses includes a microtome, ovens, a microscope, and glassware for chemical processes.

SPINE BIOMECHANICS AND ERGONOMICS LABORATORY

Located at University of Iowa Hospitals and Clinics, the Spine Biomechanics and Ergonomics Laboratory is equipped for investigation of the biomechanics of the spine, particularly problems related to production and treatment of low back pain. For example, electromyography equipment, accelerometry, a motion capture system, and a force plate are used to study response to sudden loads. A stadiometer is used to evaluate how varied activities affect shrinkage (creep) in the spine. A pressure pad is used to study interface pressures between people and chairs or beds.

JOLT/VIBRATION/SEATING LABORATORY

The Jolt/Vibration/Seating Laboratory is equipped for investigation of the biomechanics of

the spine, particularly problems related to low back pain due to the interaction between people and equipment in jolt (impact) and vibration environments. Three shakers are available to simulate impact and vibration environments.

Human responses are measured using equipment including load cells, electromyography, accelerometry, position sensors, and pressure pads. Portable sensors and data recorders are used to evaluate impact and vibration environments in the field and compare them to domestic and international guidelines and standards.

UPPER EXTREMITY BIOMECHANICS LABORATORY

The Upper Extremity Biomechanics Laboratory is configured for image analysis, upper extremity physical testing, and radiographic archives. A two-sensor Optotrak system, coupled with The MotionMonitor software package, is used to collect upper-extremity kinematic data.

CARDIOVASCULAR BIOMECHANICS LABORATORY

The Cardiovascular Biomechanics Laboratory houses an EMS Whitest uniaxial tension/compression testing system, a pulse-duplicating apparatus with flow loop, a spectrophotometer, silicone prototype fabrication utilities, high-speed/high-resolution cameras, a Sun Solaris workstation, and personal computers. The lab is equipped for soft tissue tensile/compression testing and viscoelastic creep/relaxation testing; simulation of flow through fabricated, anatomically realistic, patient-specific models of vasculature and heart valves; quantification of protein content in soft tissues; fabrication of realistic, compliant prototypes of human organs; and computational modeling of hemodynamics and tissue mechanics of normal and pathological cardiovascular organs.

IMAGE PROCESSING LABORATORY

The Image Processing Laboratory is equipped to perform sophisticated image processing procedures required for varied investigations. Its equipment centers around a cluster of workstations, a video graphics copy device, a video camera that is used as a densitometer, and various other peripherals. The cluster is connected to the University-wide broadband communications system through which data can be transferred from ICAEN, all Academic Computing machines, all hospital computers, and off-campus computers (such as the national supercomputer system).

Many investigators use this facility to analyze cardiac images obtained from cine-CT or

ultrasound, and for cross-section of human spines, dental specimens, and so forth.

ORTHOPAEDIC BIOMECHANICS LABORATORY

The Orthopaedic Biomechanics Laboratory occupies 20 rooms on the ground floor of Westlawn. It is configured primarily for macroscopic-level physical testing of musculoskeletal constructs (e.g., bones, articular joints, orthopaedic implants) and for corresponding computational modeling. The physical testing area includes a multipurpose wet lab, a multipurpose dry lab, a surgical preparation room, a mechanical testing room, a machine shop, and a specimen storage area. The computational modeling area is arranged around eight separate workstation seats in two adjoining partially partitioned areas. Adjacent to these core operational areas are offices for faculty, research staff, students, and fellows; a secretarial/reception area; a conference room; and a library.

BIOINFORMATICS AND COMPUTATIONAL BIOLOGY LABORATORY

The Bioinformatics and Computational Biology Laboratory is wired for high-speed networking (10- and 100-megabit and gigabit ethernet, hardwired and wireless, and ATM). It includes five dedicated Linux clusters, 126 computing systems, 178 CPUs, more than 100 gigabytes of RAM, and 2.5 terabytes of disk space. Computer resources include a dedicated compute server cluster of 18 Linux systems (36 CPUs) connected with a dedicated, switched, copper Gigabit Ethernet intranet—18 Dual AMD MP-2400 (2.2 GHz, 2 GB memory, 40 GB disk each); second dedicated compute server cluster of 16 Linux systems (32 CPUs) connected with a dedicated, switched, fiber-optic Gigabit Ethernet intranet—12 Dual Pentium III (500 MHz, 1 GB memory, 9 GB disk each), and four Dual Pentium III (500 MHz, 2 GB memory, 9 GB disk each); and third dedicated compute cluster of nine Linux systems (18 CPUs) connected with a dedicated 2.4 GB multistage intranet—eight Dual Pentium III (866 MHz, .5 GB memory, 45 GB disk each), and one Dual Pentium III (866 MHz, 1 GB memory, 45 GB disk each). There are two additional clusters: an 8-node cluster of Pentium II class machines, and a 12-system heterogeneous cluster of various SUNs, HPs, and SGIs; four dedicated, dual fiber channel, redundant disk storage systems (RAID) 412 GB usable each. An additional 78 computers are used as compute servers, web servers, database servers, file servers, workstations, laptops, and for other developmental and experimental needs.

IOWA SPINE RESEARCH CENTER BIOMECHANICS LABORATORY

The Iowa Spine Research Center Biomechanics Laboratory is fully equipped to perform studies of tissue and/or specimen response to mechanical loads. An MTS Bionix machine (with extended columns) servohydraulic testing machine permits application of uniaxial tension or compression in concert with axial torsion under displacement (rotation) or load control. In addition, the laboratory has a large base plate with T-slots, grips, an environmental chamber, and an independent controller with specialized test control and data acquisition and analysis routines.

An MTS Model 810 servohydraulic testing machine permits uniaxial tension or compression under displacement, load, or strain control. A bank of fatigue testing machines is planned.

An apparatus for testing spinal motion segments for their balance point and buckling behaviors also is available.

TISSUE ENGINEERING LABORATORY

The Tissue Engineering Laboratory is outfitted with a fume hood, sink, laboratory counters, tables, and major tissue culture equipment, including a Baker SG3 laminar flow hood, a NuAir water jacketed incubator, an autoclave, a vacuum pump, a Zeiss Axiovert S-100 phase contrast and bright field microscope with a computer interface, computer-controlled peristaltic pumps, a computer-controlled water bath, and a refrigerator and freezer.

The inverted microscope has an image capture system interfaced to a computer workstation with image processing software. A variety of sensors for performing temperature, pressure, and flow measurements also are available. The laboratory's computers are equipped with software for graphical, numerical, image analysis, word processing, and symbolic computation. Liquid nitrogen dewars, and CO₂ and N₂ tanks have been installed. An Ussing chamber with electrodes and a high impedance Keithley electrometer also are available.

LARGE-SCALE DIGITAL CELL ANALYSIS LABORATORY

The Large-Scale Digital Cell Analysis Laboratory is involved in development of the large-scale digital cell analysis system (LSDCAS) and model-based approaches to problems of general biological interest. The facilities include the Real-Time Cell Analysis Laboratory, in the Seamans Center, with 10 Linux workstations, a Power Mac, printers, and scanners; and

Real-Time Cell Analysis Data Center, also in the Seamans Center, with two Itanium servers (36 GB RAM/144 GB RAID storage), a fiber channel RAID storage system (2 terabytes), two dual-Pentium servers (2 MB RAM/36 GB disk storage), dual 30 amp/240 volt uninterruptible power supplies, 30-slot DLT tape library, fiber channel switch, fiber channel/SCSI bridge, rack-mount monitor/keyboard, and KVM switch.

The Quantitative Real-Time Cell Analysis Research Facility, located in the Medical Education and Research Facility, has a LSDCAS system consisting of three automated microscope systems capable of performing real-time single-cell analysis experiments, located in a dedicated darkroom to regulate illumination conditions. Each microscope system is controlled by a microcomputer interfaced to a digital camera and a microscope controller. This facility also includes a small tissue culture support laboratory containing a cell incubator, and access to tissue culture hoods, freezers, refrigerators, and other equipment. The Biomedical Research Laboratory, in the Medical Education Building, has a tissue culture hood, dual-chamber incubator, Coulter cell counter, protein and nucleic acid gel electrophoresis and blotting apparatus, refrigerators, freezers, and a variety of tools used for biochemistry, cell biology, and molecular biology.

Courses

Special Topics

051:000 Cooperative Education Training Assignment: Biomedical Engineering 0 s.h.

Biomedical engineering students participating in the Cooperative Education Program register for this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Prerequisites: admission to Cooperative Education Program and consent of faculty advisor.

051:030 Cell Biology for Engineers 2 s.h.

Introduction to fundamental concepts in quantitative cell biology from an engineering perspective. Repeatable. Prerequisite: 002:010. Corequisites: 027:130 and 051:130.

051:040 Biological Systems Analysis I 3 s.h.

Application of principles of linear system (control) theory to analysis of biological systems; development of computer simulation techniques to study dynamic response of physiological systems. Offered fall semesters. Prerequisites: 22M:034, 027:130, and 051:130. Corequisite: 057:017.

051:050 Biomechanics: Theory and Design 3 s.h.

Introduction to biomechanics theory and design, with application to musculoskeletal and cardiovascular systems. Prerequisites: 027:130 and 057:019.

051:060 Data and Image Acquisition and Analysis 4 s.h.

Introduction to acquisition and analysis of data collected from living systems; concepts of analog and digital circuit design, with emphasis on circuits for collecting data for biomedical applications

using operational amplifiers, active filters, conversion, and interface to microcomputers; patient safety; clinical circuits; analysis of data using time domain, spatial domain, and Fourier domain techniques; time domain and spatial domain sampling, Nyquist sampling theorem; physics, acquisition, and analysis of medical images, especially those collected from X-ray, CT, MR, and ultrasound systems. Prerequisites: 051:040, 057:017, and 059:008. Corequisite: 051:080.

051:070 Biomaterials and Implant Design 3 s.h.

Properties, biocompatibility characteristics, performance requirements of materials for implants. Offered spring semesters. Prerequisites: 004:012 and 057:019. Corequisite: 051:075.

051:075 Cell-Material Interactions 3 s.h.

Current thought and techniques in engineering and assessment of biomaterials. Prerequisites: 027:130 and 051:030. Corequisite: 051:070.

051:080 Data Acquisition Design Laboratory 2 s.h.

Laboratory for 051:060; practice in designing and building electronic circuits to measure, acquire, and analyze biosignals, and in acquiring and analyzing images from the human body. Corequisite: 051:060.

051:083 Biomechanical Design 3 s.h.

051:085 Biomedical Engineering Senior Design I 4 s.h.

Individual or group work on a creative design project involving current problems in biomedical engineering; interdisciplinary projects involving biomedical engineering and health sciences faculty members; first semester of a year-long senior capstone design project. Prerequisites: 051:080, 051:083, and senior standing.

051:086 Biomedical Engineering Senior Design II 4 s.h.

Second semester of a year-long senior capstone design project begun in 051:085. Prerequisites: 051:085 and senior standing.

051:090 BME Freshmen/Sophomore Forum 0 s.h.

Presentations by faculty, graduate students, collaborators from the Carver College of Medicine, and Colleges of Dentistry and Law; may include visits to laboratories and industries.

051:091 Professional Seminar: Biomedical Engineering 0 s.h.

Professional aspects of biomedical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Repeatable. Prerequisite: sophomore or higher standing.

051:092 Leadership and Resourcefulness 0 s.h.

Development of leadership skills and resourcefulness for real-world professional work and life. Repeatable. Prerequisite: completion of six semesters of 051:090 and 051:091 combined.

051:098 Individual Investigations: Biomedical Engineering arr.

Individual projects for biomedical engineering undergraduate students, such as laboratory study, engineering design projects, analysis and simulation of an engineering system, computer software development, research. Prerequisite: consent of instructor.

051:121 Introduction to Bioinformatics 4 s.h.

Overview of bioinformatics and genome science including genome projects, functional genomics, phylogenetics, proteomics, microarray, DNA polymorphism, data-mining algorithms; experimental methods and analytical approaches. Prerequisite: consent of instructor. Same as 002:169, 055:121.

051:122 Computational Genomics 3 s.h.

Contemporary computational methods in genomics and molecular biology; DNA and RNA sequence analysis, sequence/gene/disease mapping, gene expression, disease gene linkage; principal genome science challenges, recent solutions. Prerequisite: 002:170 or 055:121 or 127:170. Same as 002:174, 055:122, 127:173.

051:123 Bioinformatics Techniques 3 s.h.

Tools and techniques relevant to bioinformatics and genomics with theoretical and design issues; genetics, algorithms, Perl, bio-Perl, XML, databases, datamining, systems software.

051:130 Introduction to Genetics and Quantitative Physiology 1 s.h.

Genetics and quantitative physiology in visceral organs and the musculoskeletal system. Corequisite: 027:130.

051:162 Biomedical Computer-Aided Design 3 s.h.

Fundamentals of computational methods and tools in design and analysis; 3-D modeling and simulation; systematic approach to creation of virtual 3-D models (digital prototypes), including visualization and physics-based simulation; matrix transformations, geometric modeling, computational methods in simulation and integration; virtual reality. Prerequisites: 051:050 and 051:083.

051:178 Fast-Track Biomedical Engineering Design I 4 s.h.

First semester of year-long senior capstone design project; individual or group design project involving biomedical engineering problems. Prerequisites: 051:080, 051:083, and senior standing.

051:179 Fast-Track Biomedical Engineering Design II 4 s.h.

Second-semester of year-long senior capstone design project begun in 051:178. Prerequisites: 051:178 and senior standing.

Biomaterials

051:170 Graduate Biomaterials 3 s.h.

Properties, biocompatibility characteristics, performance requirements of materials for implants. Prerequisite: 004:012. Corequisite: 072:154.

051:172 Polymers as Biomaterials 3 s.h.

Structure-property relationships and in vivo and in vitro performances of polymers used to manufacture implants and other devices. Prerequisite: 051:070 or equivalent.

051:173 Metals as Biomaterials 3 s.h.

Property-structure relationship of metals used to fabricate implant materials; their interactions in vivo. Prerequisite: 051:070 or equivalent.

051:174 Ceramics and Glasses as Biomaterials 3 s.h.

Property-structure relationship of ceramics and glasses used to fabricate implant materials; their interactions in vivo. Prerequisite: 051:070 or equivalent.

051:175 Tissue Engineering 3 s.h.

Principles of tissue engineering; cell/material interactions, cellular scaffolding, material design for tissue-engineered devices, genetic engineering for tissue engineering, in vitro and in vivo models. Same as 046:290, 052:227.

051:176 Biomaterials Laboratory 3 s.h.

Practical experience in design, fabrication, and testing of biomaterials and devices; mechanical testing, tissue response, design to optimize response. Basic understanding of materials required. Prerequisite: 051:070.

051:177 Graduate Cell Material Interactions 3 s.h.

Current thought and techniques in the engineering and assessment of biomaterials; companion course to 051:070 and 051:075. Prerequisite: senior or graduate student standing.

051:215 Interfacial Engineering for Biological Systems 3 s.h.

Survey of current literature on interfacial engineering for biomedical engineering; student presentation and discussion of articles. Prerequisite: organic or polymer chemistry or consent of instructor.

051:248 Elastic Waves in Solids 3 s.h.
Same as 053:248, 058:271.

051:261 Cellular Systems Modeling 3 s.h.
Computer programming techniques for designing and implementing realistic mathematical models of biological phenomena. Prerequisite: graduate standing.

Biomechanics/Biofluids

051:149 Graduate Biomechanics 3 s.h.
Understanding the human body from an engineering mechanics perspective; challenges of applying engineering principles to living systems, illustrated through real-world examples. Repeatable. Prerequisite: 057:019.

051:150 Musculoskeletal Biomechanics 3 s.h.
Principles of solid mechanics applied to analytical, experimental investigation of biological systems; emphasis on applications in kinesiology of human musculoskeletal system. Prerequisites: 057:019 and graduate standing. Corequisite: 072:154.

051:151 Intermediate Mechanics of Deformable Bodies 3 s.h.
Application of equilibrium analysis, strain-displacement relations, constitutive relationships to practical structural systems and elementary plane elasticity problems. Offered fall semesters. Prerequisite: 057:019. Same as 053:140, 058:150.

051:152 Ergonomics of Occupational Injuries 3 s.h.
Epidemiology, surveillance systems, ergonomics, biomechanics, physiology, psychology, legal aspects, and cost control. Prerequisite: 051:050 or 051:150.

051:154 Cardiac and Vascular Mechanics 3 s.h.
Bio-solid mechanics of the cardiovascular system; mechanical properties of ventricles, valves, and blood vessels, their normal function, how they are affected by disease states; design of artificial organs, prostheses. Prerequisite: 057:019.

051:155 Cardiovascular Fluid Mechanics 3 s.h.
Anatomy and physiology of the human circulatory system, pressure-flow relationship in arteries, elastic properties of the arterial wall, steady and pulsatile flow dynamics, flow dynamics of human heart valves, flow dynamics past valve prostheses, fluid mechanical measurements in circulation, relationship between fluid mechanics and diseases in human circulation. Prerequisites: 057:019, 057:020, and 072:154.

051:157 Musculoskeletal Tissue Mechanics 3 s.h.
Biomechanical characterization of bone, cartilage, and tendon/ligament at the tissue level, with applications to lower and upper limb, spine, dental, and craniofacial structures. Repeatable. Prerequisites: 051:050 and 051:151.

051:158 Biomechanics of Orthopaedic Implants 3 s.h.
Design and function of hip, knee, ankle, shoulder, elbow, and wrist replacements and of fracture stabilization devices; fixation modalities, stress analysis, tissue adaptation, failure mechanisms. Prerequisites: 051:050, 057:019, 059:007, and 059:008.

051:253 Spine Mechanics 3 s.h.
Biomechanics applied to mechanics of the human spine; clinical aspects; state-of-the-art in spine research; basic engineering principles for biomechanical analysis. Prerequisite: 051:150.

051:254 Advanced Vascular Mechanics 3 s.h.
Topics in vascular solid mechanics; study of vascular tissue from theoretical (constitutive modeling), experimental, and computational perspectives. Prerequisite: 051:154.

051:255 Advanced Biofluid Mechanics 3 s.h.
Hemodynamic theories of atherogenesis, Womersley models, steady and unsteady flows in curvatures, bifurcation and branching arterial segments, flow dynamics past prosthetic implants, experimental and computational models, particulate and mass transport simulations in human circulation. Prerequisite: 051:155.

051:257 FE Analysis in Orthopaedic Biomechanics 3 s.h.
Finite element modeling techniques applied to musculoskeletal (orthopaedic) biomechanics; use of ABAQUS finite element software. Prerequisite: 051:150. Corequisites: 051:158 and 058:115.

Bioelectrical Engineering

051:141 Graduate Biological Systems Analysis 3 s.h.
Application of principles of linear system (control) theory to analysis of biological systems; development of computer-simulation techniques to study dynamic response of physiological systems. Prerequisite: graduate standing. Corequisite: 072:154.

051:148 Digital Image Processing 3 s.h.
Same as 055:148.

051:160 Transport Phenomena in Biomedical Engineering 3 s.h.
Same as 052:271.

051:161 Graduate Biomedical Imaging 3 s.h.
Engineering and science medical imaging fundamentals; reconstruction of CT and MR images; processing and analysis of medical images. Prerequisite: 027:130 or equivalent. Corequisite: 051:141.

051:181 Graduate Biomedical Measurements I 3 s.h.
Design, development, utilization of contemporary electronic instrumentation for measuring biomedical variables of clinical and research interest. Prerequisites: a basic electronics course and graduate standing. Corequisite: 072:154.

051:182 Biomedical Signal Processing 3 s.h.
Application of signal processing methods (e.g., Fourier, Laplace, z-transforms) to biomedical problems, such as analysis of cardiac signals, circadian rhythm, the breathing cycle; computer simulation lab. Prerequisite: 051:080.

051:185 Medical Imaging Physics 3 s.h.
Physics and data acquisition techniques of major medical imaging modalities (X-ray, CT, MR, ultrasound, PET, SPECT); physical interactions of energy with living tissue; principles and methods for acquiring imaging data and subsequent image construction; how individual modalities influence image quality; MATLAB programming required. Second in a medical imaging sequence. Prerequisites: background in physics and computers, and anatomy or biology or physiology.

051:186 Multidimensional Medical Imaging Process 3 s.h.
Algorithms developed to process and analyze large volumetric data sets; physics of CT, MRI, ultrasound, 3-D convolution and filtering, geometric transformations, shape features, surface segmentation, regional segmentation, surface tiling, surface reconstruction, volumetric registration. Third in a medical imaging sequence. Prerequisite: 051:185.

051:187 Health Informatics I 3 s.h.
Same as 021:275, 050:283, 056:186, 074:191, 096:283, 174:226.

051:188 Imaging Practicum 3 s.h.
Real-world problems in medical imaging; team approach leading to publication in scientific literature. Prerequisite: 051:060 or 051:185 or 051:186 or equivalent.

051:189 Health Informatics II 3 s.h.
Health care networking, computer-based patient records, network-based imaging and physiologic monitoring applications, information protocols and standards, network system design, validation techniques. Same as 021:280, 056:287, 074:192, 096:289.

051:286 Contemporary Topics in Medical Imaging 3 s.h.
Presentation of recent research results and clinical applications of medical imaging techniques. Prerequisites: 051:185, and 051:186 or equivalent.

051:287 Insight into Images 3 s.h.

Advanced image processing algorithms applied to analysis of medical images; image segmentation (level sets, watershed, active contours) and image registration (mutual information, Thirion Demons, B Spline algorithms); development and application of these algorithms using ITK Toolkit. Prerequisites: 051:158 and 051:186.

Graduate Seminars, Advanced Topics, Research

051:191 Seminar in Biomedical Engineering 0 s.h.

Presentation of recent advances in biomedical engineering. Prerequisite: graduate standing.

051:198 Individual Investigations: Biomedical Engineering arr.

Individual projects for biomedical engineering graduate students, such as laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of advisor.

051:199 Research: Biomedical Engineering M.S. Thesis arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of the requirements for the M.S. with thesis in biomedical engineering. Prerequisites: graduate standing and consent of advisor.

051:298 Advanced Individual Investigations in Biomedical Engineering arr.

Advanced individual projects such as laboratory study, engineering design projects, analysis and simulation of an engineering system, computer software development, research. Prerequisite: graduate standing.

051:299 Research: Biomedical Engineering Ph.D. Dissertation arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. with thesis in biomedical engineering. Prerequisite: consent of advisor.

Chemical and Biochemical Engineering

Chair: John M. Wiencek

Professors: Gregory R. Carmichael, Vicki Grassian, David W. Murhammer, David G. Rethwisch, Alec B. Scranton, Venkiteswaran Subramanian, John M. Wiencek

Professor emeritus: J. Keith Beddow

Associate professors: Gary Aurand, Chris Coretsopoulos, Umran Dogan, C. Allan Guymon, Stephen K. Hunter, Tonya L. Peebles, Ramaswamy Subramanian

Assistant professors: S.-Y. Barry Hu, Julie L.P. Jessop, Aliasger Salem, Charles Stanier

Lecturer: Audrey Butler

Undergraduate degree: B.S.E. in Chemical Engineering

Graduate degrees: M.S., Ph.D. in Chemical and Biochemical Engineering

Web site: <http://www.cbe.engineering.uiowa.edu/>

Chemical and biochemical engineers use physics, chemistry, biology, and mathematics to aid in the invention and production of materials and processes that benefit society. For example, biochemical engineers might develop new technologies to produce polymers from biorenewable resources; and they might apply these polymeric materials in the field of medicine for the growth and repair of tissues and organs.

Chemical and biochemical engineers engage in a wide variety of activities that benefit the global community. Fuel cells, solar energy, and biorenewable fuels (biodiesel or ethanol) fall within the realm of chemical engineering. Chemical engineering distinguishes itself from other engineering professions with its reliance on chemical reactions and physicochemical transformations to produce a wide variety of important materials and products.

Biochemical engineers are involved in a wide variety of industrial biocatalytic, fermentation, and cell culture processes that generate products ranging from the high fructose corn syrup in soft drinks to recombinant human insulin.

As part of their training, chemical and biochemical engineers learn ethical design and a respect for the larger issues in any design, such as community health, employee safety, and the global implications of the design. The University of Iowa's curriculum emphasizes chemical process safety and environmentally conscious chemical engineering design.

Chemical and biochemical engineers work in a wide range of industries; petroleum and specialty chemical production, polymer or plastic production, food processing, microelectronics production, biochemical processing, and environmental compliance are just a few. Potential jobs include production, process development, plant design and construction, and fundamental research. Many experienced chemical and biochemical engineers move through management ranks to high-level administrative positions.

Undergraduate Program

The department offers the Bachelor of Science in Engineering in chemical engineering. The program's objective is to produce graduates who have:

- a strong foundation of scientific and technical knowledge and are equipped with problem-solving, teamwork, and communication skills that will serve them throughout their careers;
- the ability to pursue careers as practicing chemical engineers in fields such as pharmaceuticals, microelectronics, chemicals, polymers/advanced materials, food processing, or environmental engineering;
- the ability to pursue advanced studies in disciplines such as chemical engineering, environmental engineering, medicine, law, or business; and
- the ability to assume professional leadership roles.

The program uses the following methods and strategies to achieve its educational objectives:

- foster a personalized, supportive environment for all students by taking advantage of the unique combination of a small college atmosphere in a major research university;
- enrich the undergraduate experience through cultural diversity, and international opportunities or experiential learning;
- provide a solid foundation and understanding of the fundamental principles of mathematics, science, and engineering;

- provide students with experience in learning and applying tools (e.g., computer skills) to the solution of theoretical and open-ended chemical engineering problems;
- provide students with opportunities to participate in multidisciplinary teams, and to develop and practice written and oral communication skills, both within the team and to a broader audience;
- provide students with opportunities to design and conduct chemical engineering experiments, and to design systems, components, and chemical processes to meet specific needs and constraints; and
- provide a contemporary grounding in professional responsibility, including ethics, the global and societal impact of engineering decisions, and the need for lifelong learning.

Bachelor of Science in Engineering

The B.S.E. in chemical engineering program provides a broad education at the leading edge of technology. It emphasizes fundamental concepts, problem solving, laboratory techniques, and communication skills. Biological science joins physics, chemistry, and mathematics as foundation disciplines for chemical engineering.

The sophomore, junior, and senior years emphasize chemical engineering courses such as engineering flow and heat exchange, mass transfer and separations, chemical reaction engineering, chemical process safety, chemical engineering laboratories, process dynamics and control, and process design. Experience in instrumentation, analysis, and design is obtained through an integrated laboratory program. Routine use is made of computer-based data analysis, simulation, and design.

Students are required to participate in at least one enriching activity, which may include a research experience, a cooperative education or internship experience, study abroad, completion of the Certificate in Technological Entrepreneurship, or other approved experiences.

Chemical engineering students may gain depth of knowledge related to a career path through their selection of physical science, engineering, humanities, and social science electives. Several preapproved elective focus areas may help students define potential careers.

The B.S.E. in chemical engineering requires a minimum of 128 s.h. The curriculum covers four

major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005-059:006 Engineering Problem Solving I-II and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. See “Curriculum Stems” and “General Education Component” under “Bachelor of Science in Engineering” in the College of Engineering section of the Catalog.

Elective focus area courses must be selected according to guidelines established by the Department of Chemical and Biochemical Engineering. See “Elective Focus Area” after the following curriculum list.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

FIRST YEAR

First Semester

004:011 Principles of Chemistry I	4 s.h.
010:003 Accelerated Rhetoric (or 010:001-010:002)	4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus	4 s.h.
059:005 Engineering Problem Solving I	3 s.h.
059:090 First-Year Engineering Seminar	0 s.h.

Second Semester

004:012 Principles of Chemistry II	4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus	4 s.h.
22M:033 Engineering Math III: Matrix Algebra	2 s.h.
029:081 Introductory Physics I	4 s.h.
052:090 CBE Departmental Seminar	0 s.h.
059:006 Engineering Problem Solving II	3 s.h.

SECOND YEAR

First Semester

22M:034 Engineering Mathematics IV: Differential Equations	3 s.h.
052:041 Process Calculations	3 s.h.
059:007 Engineering Fundamentals I: Statics	2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits	3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics	3 s.h.
General education component course	3 s.h.

Second Semester

004:121 Organic Chemistry I	3 s.h.
052:091 Professional Seminar	0 s.h.
052:103 Chemical Engineering Thermodynamics	3 s.h.
052:151 Engineering Flow and Heat Exchange	3 s.h.
General education component courses	6 s.h.

THIRD YEAR

First Semester

004:122 Organic Chemistry II	3 s.h.
004:141 Organic Chemistry Laboratory	3 s.h.
052:091 Professional Seminar	0 s.h.
052:161 Mass Transfer and Separations	3 s.h.
052:171 Thermodynamics/Transport Laboratory	3 s.h.
Elective focus area course	3 s.h.

Second Semester

052:091 Professional Seminar	0 s.h.
052:105 Chemical Reaction Engineering	3 s.h.
052:172 Chemical Reaction Engineering/Separations Laboratory	2 s.h.
052:187 Chemical Process Safety	3 s.h.
Elective focus area courses	6 s.h.
General education component course	3 s.h.

FOURTH YEAR

First Semester

052:091 Professional Seminar	0 s.h.
052:173 Senior Laboratory Experience	2 s.h.
052:185 Process Dynamics and Control in Design	3 s.h.
057:015 Materials Science	3 s.h.
Advanced chemical science elective	3 s.h.
Elective focus area courses	6 s.h.

Second Semester

052:092 Senior Enriching Activities Seminar	0 s.h.
052:186 Chemical Engineering Process Design	3 s.h.
Advanced chemical science electives	6 s.h.
Elective focus area course	3 s.h.
General education component course	3 s.h.

Elective Focus Area

The elective focus area enables students to gain depth of knowledge in a career path. Students meet with their chemical engineering academic advisor to discuss career options and develop a plan for choosing electives based on their career interests. The department offers preapproved elective focus areas in biochemical engineering,

chemical process engineering, polymers, environmental engineering, engineering and physical sciences, pre-medicine, business, and entrepreneurship.

Students may prefer to develop an individualized elective focus area, which is subject to approval by the department's curriculum committee. See the Department of Chemical and Biochemical Engineering web site for detailed descriptions of preapproved elective focus areas, guidelines for tailored elective focus areas, and typical four-year study plans based on elective focus areas.

Graduate Programs

The Department of Chemical and Biochemical Engineering offers the Master of Science and Doctor of Philosophy. Through course work and research, graduate students gain an understanding of the principles of engineering science and use those principles in contemporary applications related to energy, the environment, biotechnology, and materials. The department emphasizes research, since most opportunities for graduates are in research and development.

Research and Study Areas

Current research strengths of the Department of Chemical and Biochemical Engineering are in the areas of global and regional atmospheric modeling, biomaterials medical engineering, cellular engineering, photopolymerization, and biocatalysis.

BIOMEDICAL RESEARCH

Chemical engineering-based biomedical and artificial organ research is an interdisciplinary effort with the Carver College of Medicine to investigate medical problems that may be solved through chemical and biochemical engineering practice. A current project with the Department of Obstetrics and Gynecology involves the use of membrane and microencapsulation technologies to develop a short-term bioartificial pancreas for diabetic pregnancy. Another project is concerned with development of more effective vaccination methods.

The department's interdisciplinary collaborations allow chemical engineering students to take advantage of facilities in both colleges. Some of the equipment available for this research includes a refrigerated centrifuge, dissecting microscope, a clean hood, and a Diamond General Oxygen Uptake System. Students have access to the Ob/Gyn core microbiology laboratory, which contains a spectrophotometer and other

specialized equipment. In addition, the department shares access to ultracentrifuges, a scintillation counter, HPLC, UV illuminator and photographic equipment, and an automatic plate reader at the Medical Research Facility.

Students involved in animal research have access to the University's Office of Animal Resources, which is adjacent to the University of Iowa Hospitals and Clinics.

ENVIRONMENTAL ENGINEERING TECHNOLOGIES

Environmental contamination is a major problem facing engineers today. The Department of Chemical and Biochemical Engineering has an active research program in the environmental areas of air pollution, atmospheric chemistry, environmental change, bioremediation, and the design of new environmentally compatible technologies. Particular emphasis is placed on the chemistry and physics of local, regional, and global air-pollution problems. Research in support of this activity includes high-speed computing and detailed sensitivity analysis.

This work involves the Center for Global and Regional Environmental Research, an interdisciplinary research consortium that brings together University scientists and scholars from more than 20 disciplines, including chemistry, civil and environmental engineering, geography, geology, law, and medicine. The center's chief area of concern is environmental change.

BIOCHEMICAL AND BIOLOGICAL SEPARATION PROCESSES

Research in this area is devoted to developing a better understanding and new techniques of separation, especially for biochemistry and fermentation. The department's long-standing research strengths are fundamentals and applications of membrane-based separations. Membrane separation research in the department involves fundamentals of ultrafiltration and microfiltration, reversible and irreversible fouling of membranes by protein molecules, the role of transmembrane pressure pulsing in reducing concentration polarization, demulsification via crossflow microfiltration, application of supported emulsion liquid membranes for extractive fermentation and perfusion, membrane fabrication to produce photoresponsive gas separation devices, and enzymatic membrane reactors for resolution of racemic mixtures.

Another core separation research area is the crystallization of biological macromolecules. Using a variety of environmental parameters such as pressure and temperature, researchers are evaluating the role of growth rate control on

crystal quality. Other studies focus on improved crystallization screening protocols and crystal handling for subsequent structural determination via X-ray diffraction.

PHOTOPOLYMERIZATION

Photopolymerizations are chain reactions in which a liquid monomer is converted to a solid, durable polymer in a process triggered by light of the appropriate wavelength. The use of light, rather than heat, to drive a polymerization reaction offers advantages in developing new processes or products.

Photopolymerizations provide both spatial control and temporal control of reactions, since light can be directed to locations of interest in the system and is easily shuttered on or off.

Photopolymerizations also provide solvent-free formulations, which reduce the emissions of volatile organic pollutants, and they exhibit extremely rapid reaction rates. These advantages have led to tremendous growth in the application of photopolymerizations in the private sector, but much of this growth has occurred without a fundamental understanding of the underlying chemical processes.

Research in the Department of Chemical and Biochemical Engineering focuses on comprehensive characterization of the kinetics, mechanisms, structure, and properties of photopolymerizations. It includes the following types of studies: characterization of the photochemical processes by which polymerizations may be initiated; kinetic characterization of cationic photopolymerization; development of methods for photopolymerization of thick polymers and composites; development of photopolymerization systems based upon agricultural feedstocks; and new methods for monitoring high-speed photopolymerization reactions.

BIOCHEMICAL ENGINEERING

Biochemical engineering involves the industrial application of enzymes, microorganisms, cells, and tissues for production of chemicals, pharmaceuticals, and other materials of commercial value.

The department is active in solving problems with the use of insect cell culture for recombinant protein and viral insecticide production. Research is being conducted to improve the quality and quantity of recombinant proteins produced in large-scale bioreactors. In addition, a continuous viral insecticide production system is being developed for the

large-scale production of these environmentally safe alternatives to chemical insecticides. Finally, the insect cell/baculovirus system is being used as a model system to investigate the role of oxidative stress in viral cytotoxicity.

Novel rotating wall vessels developed at NASA are being used to simulate *in vivo* conditions with animal cell cultures. A major component of this research is the development of near-infrared spectroscopy for bioreactor monitoring, which will be used to monitor nutrients and byproducts noninvasively in real-time.

The department is active in designing technologies for the characterization and use of extremophiles, organisms that possess unusual abilities to survive in harsh chemical environments. In these studies, novel bioreactor systems that can withstand extremes of temperature, pressure, pH, and salinity are being developed. Extremophile strategies for survival also are being studied, with the aim of discovering unique enzymes for industrial application as well as evaluating molecular interactions that govern protein stability under extreme conditions.

In addition to the study of natural extremophiles, efforts to engineer stability in biocatalysts for industrial processing are underway. Novel solvent-tolerant enzymes and organisms for environmentally beneficial chemical reactions are being generated using molecular biology tools. Combinations of chemical and biological processing are being used to produce valued chemicals from renewable feedstocks. This work contributes to the interdisciplinary training of engineers and scientists to address the challenges of minimizing and cleaning up environmental pollution, while maximizing the economic benefits of chemical processing.

The integration of biotechnology with traditional chemical engineering has led to an interdisciplinary area involving other engineering departments and the Departments of Chemistry, Biological Sciences, Biochemistry, and Microbiology, and the College of Pharmacy. This focus includes involvement in the University's Center for Biocatalysis and Bioprocessing, whose fermentation capabilities are highlighted by its 1,500-liter fermentor.

Master of Science

The M.S. in chemical and biochemical engineering requires a minimum of 30 s.h. and is offered with and without thesis. All M.S. students must earn at least 24 s.h. in approved graduate-level course work; courses numbered

below 100 may not be used to satisfy this requirement. Students who choose the thesis program earn 6 s.h. in 052:199 M.S. Thesis Research: Chemical and Biochemical Engineering. Nonthesis students earn 6 s.h. in additional approved course work and must complete and pass a final written exam on the basic core material.

M.S. students must have a graduate g.p.a. of at least 3.00 in order to graduate. Each student must pass a final M.S. examination.

There is no foreign language requirement.

Graduate students who receive assistantships, fellowships, or other financial support awarded with the understanding that they would pursue an advanced degree with thesis are not eligible to elect the nonthesis option.

Graduate students in the nonthesis program may petition for entry into the thesis program or the Ph.D. program by requesting a change of status through the Graduate College. The request is reviewed by the graduate admissions committee. If it is approved by the committee, it is forwarded to the chemical and biochemical engineering faculty for final approval. Students then are assigned to research advisors as though they were newly admitted graduate students. For a detailed description of program requirements, see the Department of Chemical and Biochemical Engineering web site.

Doctor of Philosophy

The Ph.D. in chemical and biochemical engineering requires a minimum of 72 s.h. of graduate credit. However, the degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours. Candidates usually are expected to have completed three academic years in residence, or two years if they already hold a recognized master's degree. All candidates must complete a core course requirement, which consists of a course in transport phenomena, a course in reaction engineering, a course on proposal writing, and a thermodynamics course, as well as six additional courses (30 s.h.).

Ph.D. candidates are expected to maintain a g.p.a. of at least 3.25.

All doctoral students are required to satisfy a qualifying requirement and pass a comprehensive examination before they can become candidates for the degree. The Ph.D. comprehensive examination is the presentation and defense of the candidate's Ph.D. research proposal. These

examinations are arranged by members of the examining committee and may be repeated at the committee's discretion. Comprehensive examination policies are published in the Manual of Rules and Regulations of the Graduate College (see the Graduate College in the Catalog). There is no foreign language requirement. A final examination, which is a defense of the thesis, completes the doctoral program. For a detailed description of program requirements, visit the Department of Chemical and Biochemical Engineering web site.

Admission

Applicants must meet the admission requirements of the Graduate College; for detailed information about Graduate College policies, see Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants should have a B.S. in chemical engineering, with satisfactory grades, from a recognized American college or university, and a g.p.a. of at least 2.80. Students who do not meet these requirements may be granted conditional admission, with the department chair's approval. Graduates of foreign universities may be accepted, depending on evaluation of their records.

Applicants must submit their verbal and quantitative scores on the Graduate Record Examination (GRE) General Test with their application.

Graduate courses in chemical and biochemical engineering are designed for students who have an undergraduate background in chemical engineering. Exceptional students from other areas also may apply for admission to the M.S. or the Ph.D. program in chemical and biochemical engineering. If admitted, they may be required to take specific undergraduate courses to prepare them for graduate course work.

Financial Support

A number of fellowships, assistantships, and scholarships are awarded on a competitive basis to graduate students who qualify.

Graduate students have the opportunity to receive interdisciplinary research training in several fellowship programs administered through the Center for Biocatalysis and Bioprocessing (CBB). The program provides research training in areas that combine basic and applied research. Each year the center offers

fellowships to doctoral students in biotechnology. These are funded by grants from the National Institute of General Medical Sciences, National Institutes of Health (NIH), National Science Foundation (NSF), and the CBB with funding from the State of Iowa. Through these programs, chemical and biochemical engineering students interact with students and faculty members from biochemistry, biological sciences, chemistry, civil and environmental engineering, medicinal and natural products chemistry, and microbiology.

Special Facilities and Laboratories

Undergraduate Core

MATERIALS SCIENCE LABORATORY

The Materials Science Laboratory is equipped with optical microscopes and facilities for metallographic preparation. Mechanical tensile testing instruments, heat treatment and sintering furnaces, and hardness testing machines also are available. Teaching aids include metallography specimen kits and crystallography packages.

Required Undergraduate Laboratories

CHEMICAL ENGINEERING LABORATORY

The Chemical Engineering Laboratory provides instruction for undergraduate students. It is equipped for experimentation in transport phenomena, heat transfer, fluid flow, chemical engineering unit operations, and reaction kinetics and catalysis. The laboratory includes pilot plant equipment, such as a distillation column, wiped film evaporator, shell-and-tube heat exchanger, jacketed kettle, and agitated extractor. Other equipment includes a computer-controlled stirred-tank reactor system, packed-bed catalytic reactor, concentric tube heat exchanger, reciprocating plate extractor, membrane gas separator, microbial fermentor, and a tangential flow filtration system. Analytical equipment includes gas chromatographs, UV/visible spectrophotometers, and HPLC.

The laboratory is continuously updated to reflect advances at the forefront of chemical engineering technology. Additionally, a wide array of small equipment is available to support laboratory projects and demonstrations in chemical engineering courses and for use by students performing independent investigations.

PROCESS CONTROL LABORATORY

The Process Control Laboratory is a modern, computer-based instructional laboratory that is integral to the senior process control course. The laboratory consists of computer control of a shell-and-tube heat exchanger, a stirred-tank reactor, and a three-tank flow process. Additional laboratories include instruction in the use of analog controllers.

The Computer Control Laboratory offers an ensemble of learning experiences with the same equipment, to provide analogies and better insight into the control process. Topics include determination of the gain and time constants for single capacitance systems; determination of gain, time constant, and damping factor of second-order processes; determination of the open-loop and closed-loop response to step and ramp changes in input for single capacitance and multicapitance processes; approximations of multicapitance systems as first-order and second-order processes with dead-time through experimental evaluation; analysis of instrumentation characteristics and transfer functions; tuning and optimization of feedback control parameters (P, PI, and PID); system identification through frequency response methods; determination of system stability; and development of feed-forward control schemes.

Experimental arrangements in the laboratory are simple enough in design to be easily understood, yet complicated enough to help students appreciate system characteristics inherent in industrial processes (e.g., large time lags, error in parameter estimation).

CHEMICAL PROCESS SAFETY LABORATORY

The Chemical Process Safety Laboratory is an integral part of 052:187 Chemical Process Safety. It is equipped with two flash-point testers, a reactive system screening tool (RSST), a flammability limits tester, a Hartmann tube, a Van de Graaff generator, a high impedance electrometer, a field meter, a Faraday cage, and relief sizing software. This equipment is used in a series of experiments to demonstrate the principles of flammability, reactivity, explosions, relief valve sizing, and electrostatics relevant to industry.

Graduate Facilities and Laboratories

The department offers a wide variety of facilities to support and develop research activities.

COMPUTER FACILITIES

The departmental computer facilities contain a variety of graphics workstations, printers, and microcomputers. The department is supported by the college's Computer Systems Support (CSS). CSS maintains a large network of high performance UNIX and Windows XP workstations along with extensive commercial and public domain software. The department also has access to the University's central research facility in high-speed vector computation. This facility has SGI Power Challenger mini-supercomputers and provides nodes for external links for access to supercomputers.

SEPARATION AND BIOSEPARATION PROCESSES

Equipment available for purification of biological molecules and the study of separation processes includes an ultra speed centrifuge; a microfluidizer; a French pressure cell homogenizer; a large-scale, continuous-rotating, annular bed electrophoresis column; a packed-bed electrophoresis column; a Waters Delta Prep 3000 HPLC system; an Amicon DC 30 ultrafiltration system; a small-scale hollow fiber and spiral wound membrane pilot system; membrane permeability measurement apparatus; immobilized reactor-separators; and facilities for the fabrication of membranes. The laboratory is supported by additional gas and liquid chromatographs, several UV-Vis scanning spectrophotometers, computerized data acquisition systems, and other analytical equipment. The department also has pilot plant equipment for the study of filtration, distillation, extraction, and other equilibrium stage processes.

CRYSTALLIZATION STUDIES

Equipment for crystallization studies includes a dedicated Rigaku RU300 rotating anode generator and RAXIS-II area detector for conducting X-ray diffraction studies, an ALV dual static/dynamic laser light scattering goniometer, an ALV DR1 differential refractometer, a high precision Bellingham & Stanley Abbe refractometer, three microscopic digital imaging systems, a CSC isothermal titration calorimeter, a CSC differential scanning calorimeter, a Perkin-Elmer Pyris cryogenic calorimeter, and typical protein chemistry tools (e.g., liquid chromatography, gel electrophoresis, centrifuges, and so forth).

BIOCHEMICAL ENGINEERING

Facilities in the Biochemical Engineering Laboratory include a three-liter agitated bioreactor and a 6-liter airlift fully controlled bioreactor, gas and liquid chromatographs, UV-Vis

spectrophotometers, centrifuges, carbon dioxide incubators, Class II-A safety cabinets, microscopes, Coulter particle counter, rotary shaker, autoclave, 2-D gel electrophoresis equipment, and laboratory computers.

Through collaborative research agreements, graduate students also have access to specialized facilities for electron microscopy, protein structure, and recombinant DNA research; the Flow Cytometry Facility; the High Resolution Mass Spectrometry Facility; the Large-Scale Fermentation Facility; and the Tissue Culture/Hybridoma Core Facility.

AIR POLLUTION MODELING AND VISUALIZATION

The Geographic Information Systems (GIS) Laboratory, located in the Center for Global and Regional Environmental Research, provides state-of-the-art computer hardware and software for management, analysis, and visualization of environmental data. The equipment includes modern multiprocessor workstations with advanced graphic capabilities, as well as Macintosh and Windows PCs. Peripheral equipment includes zip, jaz, CD, and digital tape drives, a high-quality color printer, a laser printer, and a CD writer. A Pyramid Systems Immersadesk provides for 3D immersive (virtual reality) visualization of data on a 4-by-5-foot screen.

A local network links the machines to each other and to the campuswide network, through which the laboratory accesses University mainframe computers and other on- and off-campus computing resources. A variety of software packages and programming languages, including Arc/Info, Arcview, NCAR Graphics, Matlab, S-Plus, and Vis5d are available for data analysis and display. Mapping grade GPS equipment produces highly accurate data, which can be used by GIS software for analysis and visualization.

The GIS laboratory also uses an SGI-Onix multiprocessor system with 8 processors. Each processor is an MIPS R4000 running at 150 MHz. It has 512 megabytes of memory and 2 gigabytes of local disk space. The operating system is IRIX 5.3. Some of the implementations use the native IRIX support for parallel programming, others use MPI (Message Passing Interface). Some automatic tools for generating parallel MPI programs using the SUIF compiler (Stanford University Intermediate Format) are under development. A recently acquired SGU-Power Challenge machine has 16 R4400 processors running at 200MHz with 512 megabytes of memory and 18 gigabytes of local disk space that runs IRIX 6.1.

FUNDAMENTALS AND APPLICATIONS OF PHOTOPOLYMERIZATION

The Photopolymerization Center was established to advance fundamental understanding of the kinetics and mechanisms of photopolymerizations. To this end, the center provides unique opportunities for collaborations by industrial and academic investigators to explore photopolymerization processes and develop novel applications based upon photopolymerizations.

The center provides equipment and instrumentation for the characterization of photopolymerization systems on the molecular, microscopic, and macroscopic levels. Center researchers pursue understanding of fundamental photophysical and photochemical processes involved in the photoinitiation reaction; characterization of high-speed propagation and termination kinetics that lead to the polymer structure; and evaluation of material properties through the course of the photopolymerization reaction. Both radical and cationic photopolymerizations are studied with state-of-the-art experimental techniques to elucidate the complex chemical and physical mechanisms that control the initiation, propagation, and termination of the active centers.

Courses

General Topics

- 052:000 Cooperative Education Training Assignment: Chemical Engineering** 0 s.h.
 Chemical engineering students participating in the Cooperative Education Program register for this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Prerequisites: admission to Cooperative Education Program and consent of co-op faculty advisor.
- 052:029 First-Year Seminar** 1 s.h.
 Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.
- 052:041 Process Calculations** 3 s.h.
 Solutions of industrial problems using material and energy balances; stoichiometric and nonstoichiometric chemical reactions, changes of state, solutions, mixing problems; computer applications. Recommended: 22M:031 or equivalent.
- 052:090 CBE Departmental Seminar** 0 s.h.
 Introduction to the profession; presentations, visits to laboratories, industries.
- 052:091 Professional Seminar: Chemical Engineering** 0 s.h.
 Professional aspects of chemical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Prerequisite: sophomore standing.

052:092 Senior Enriching Activities Seminar 0 s.h.
Experiences to develop multidisciplinary team skills and increase understanding of the impact of engineering practice both locally and globally; written and oral discussion of student enrichment. Prerequisite: senior standing.

052:098 Individual Investigations: Chemical Engineering arr.
Individual projects for chemical engineering undergraduate students, such as laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisite: consent of faculty advisor.

052:103 Chemical Engineering Thermodynamics 3 s.h.
Applications of thermodynamic principles to chemical and physical processes; prediction of material properties; phase equilibria and chemical equilibrium applied to mixtures and reacting systems. Corequisite: 052:041 or consent of instructor.

052:107 Sustainable Systems 3 s.h.
New and emerging concepts in sustainable systems design and assessment. Same as 053:107.

052:109 CEBC Colloquium 1 s.h.
Sustainable development issues addressed by guest speakers from chemical industries; process economics, environmental impact assessment.

052:117 Intermediate Thermodynamics 3 s.h.
Fundamental principles of thermodynamics as applied to phase equilibrium; properties of fluids, first and second law, variable composition systems, behavior of real fluids, mathematical techniques for solution thermodynamics. Prerequisite: 052:103 or 058:040 or graduate standing. Same as 058:140.

052:118 Mathematical Methods in Engineering 3 s.h.
Same as 053:113, 058:113.

052:171 Thermodynamics/Transport Laboratory 3 s.h.
Error analysis, propagation of errors, experimental design, data collection techniques, report writing, oral presentations, laboratory safety; laboratory investigations of thermodynamics, fluid flow, heat transfer, fluid rheology. Prerequisites: 052:103 and 052:151.

052:172 Chemical Reaction Engineering/Separations Laboratory 2 s.h.
Experimental design, data collection techniques, report writing, oral presentations; laboratory investigations of chemical reaction engineering and separations; experiments with plug flow and batch reactors, CSTRs, distillation, extraction, evaporation. Prerequisite: 052:171. Corequisite: 052:105.

052:173 Senior Laboratory Experience 2 s.h.
Experimental design, emphasis on communication skills; open-ended independent laboratory projects consistent with elective focus area. Prerequisite: 052:172.

052:187 Chemical Process Safety 3 s.h.
Application of transport phenomena, thermodynamics, chemical kinetics to study of safety, health, loss prevention; government regulations, toxicology/industrial hygiene, relief sizing, runaway reactions, toxic release and dispersion models, source models, fires and explosions, risk assessment, hazard identification, case studies and accident investigation, incorporation of safety into design; laboratory experiments. Prerequisite: 052:161. Corequisite: 052:105.

052:192 Special Topics 1 s.h.
Research techniques for graduate students in chemical and biochemical engineering. Prerequisite: graduate standing or consent of instructor.

052:195 Contemporary Topics: Chemical and Biochemical Engineering arr.
Research techniques for graduate students in chemical and biochemical engineering. Prerequisite: graduate standing or consent of instructor.

052:196 Photopolymerization Topics 1 s.h.
Seminars presented by faculty members, research assistants, students.

052:215 Introduction to Literature Review and Proposal Writing 3 s.h.
Tools for reviewing literature, skills for critical reading of publications, training in successful proposal writing; experience drafting a proposal that can be used as a starting point for the Ph.D. comprehensive.

Biochemical Engineering

052:108 Introduction to Biochemical Engineering 3 s.h.
Biochemistry, cellular biology, recombinant DNA and hybridoma technologies; emphasis on engineering aspects of biotechnology, including enzyme kinetics, cell growth kinetics, transport phenomena in bioreactors, bioreactor design, bioseparations, formulation and sterilization of growth media, commercial applications of biotechnology. Prerequisites: 004:121 and 22M:031.

052:181 Bioseparations 3 s.h.
Introduction to separation/purification techniques in biochemical engineering; filtration, centrifugation, chromatography, extraction, electrophoresis, crystallization, cell disruption for intracellular product recovery. Prerequisite: 052:161 or consent of instructor.

052:222 Advanced Biochemical Engineering 3 s.h.
Advanced concepts in the behavior of biological systems used in modern technologies (e.g., food processing, pharmaceutical production, environmental remediation, chemical synthesis); application of biochemical engineering principles to design, development, and analysis of processes that use biocatalysis.

052:223 Introduction to Biocatalysis 3 s.h.
Applications of biological catalysis in varied industries; potential of biological catalysis to address future challenges in science and engineering.

052:225 Biotechnology of Extremophiles 3 s.h.
Evolution and engineering of biocatalysis under extreme conditions; physiological, kinetic, and molecular behavior of systems that perform under extremes of temperature, pH, salinity, pressure, solvent concentrations.

052:226 Engineering Aspects of Animal Cell Culture 3 s.h.
Applications of animal cell culture (insect and mammalian) in biochemical engineering, with emphasis on recombinant protein synthesis; special considerations of animal cell cultures (e.g., sensitivity to hydrodynamic stress), scale-up of attachment-dependent and attachment-independent cell cultures, medium development, hybridoma cultures, protein processing in animal cells. Prerequisite: 052:222 or consent of instructor.

052:227 Tissue Engineering 3 s.h.
Introduction to tissue engineering; scaffolds, fundamentals, principles. Same as 046:290, 051:175.

052:275 Perspectives in Biocatalysis 1-3 s.h.
Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Repeatable. Prerequisite: graduate standing. Same as 004:275, 046:275, 053:275, 061:275, 099:275.

Environmental Engineering

052:231 Environmental Chemistry I 3 s.h.

Principles of general, physical, organic chemistry applied in water and air systems; emphasis on qualitative and quantitative understanding of chemical kinetics and equilibrium; acid-base reactions, complex formation, precipitation, dissolution, oxidation-reduction reactions, organic nomenclature. Prerequisite: 004:012. Same as 053:152.

052:235 Air Pollution Control Technology 3 s.h.

Sources, environmental and health impacts, regulations and modeling of air pollution; processes and alternative strategies for control; global climate considerations. Prerequisite: 053:050 or consent of instructor. Same as 053:159.

052:236 Atmospheric Chemistry and Physics 3 s.h.

Principal chemical and physical processes affecting atmospheric trace gas and pollutant cycles; emphasis on atmospheric photochemistry, aerosol science, major sources, removal processes. Prerequisite: consent of instructor. Same as 053:161.

052:237 Green Chemical Engineering 3 s.h.

Strategies for pollution prevention for chemical processes studied at the macroscale (industrial sector), the mesoscale (unit operations), and the microscale (molecular level); case studies.

Reaction Engineering

052:105 Chemical Reaction Engineering 3 s.h.

Application of chemical reaction kinetics to design of chemical reactors: batch reactors, mixed flow reactors, plug flow reactors; reversible and irreversible single reactions; parallel, series, and mixed reactions; temperature and pressure effects on reactor design; heterogeneous catalysis; transport in porous catalysts. Prerequisites: 052:103 and 052:161, or consent of instructor.

052:211 Intermediate Chemical Reaction Kinetics 3 s.h.

Stoichiometry and equilibria of multiple reactions, kinetics of elementary and composite reactions, heterogeneous catalytic kinetics, transition-state theory, linear free-energy relations, reactor analysis, transport in porous catalysts. Prerequisite: 052:105.

Transport Phenomena

052:151 Engineering Flow and Heat Exchange 3 s.h.

Fundamentals of fluid flow and heat transfer; fluid rheology, boundary layer theory, potential flow, dimensional analysis, laminar and turbulent flow in pipes, flow through packed beds, fluidized beds, pumps, flow measurement, filtration, heat exchanger design, evaporator design, and conductive, convective, and radiative heat transfer. Prerequisite: 052:041 or consent of instructor.

052:161 Mass Transfer and Separations 3 s.h.

Mechanisms of diffusional and convective mass transfer; solution of industrial problems, including the design of distillation, extraction, absorption, leaching, humidification, adsorption, drying, and chromatography processes; mechanical separations. Prerequisite: 052:151 or consent of instructor.

052:217 Transport Phenomena I 3 s.h.

Unified treatment of momentum, mass, energy transport in chemical engineering problems; use of vector and tensor notations in expressing equations of continuity, motion, energy.

052:271 Transport Phenomena in Biomedical Engineering 3 s.h.

Momentum, mass, and energy transport applied to problems associated with biomedical engineering; topics ranging from fluid mechanics of blood flow to insulin response of the bioartificial pancreas. Same as 051:160.

052:272 Diffusive Transport 3 s.h.

Diffusive transport of heat, mass, and momentum; phenomenological laws and analogies, analytical and numerical solution techniques, inverse heat conduction, multiphase and multicomponent systems. Prerequisite: 058:145 or consent of instructor. Same as 058:245.

Materials Science

052:156 Scanning Electron Microscopy and X-Ray Microanalysis arr.

Theory, operation, application of scanning electron microscopy and X-ray microanalysis for advanced students, staff, investigators who use these techniques in their research. Same as 012:156, 060:156.

052:240 Polymer Fundamentals 1 s.h.

Basic knowledge of polymers required as a foundation for other UI courses on polymers: basic polymer terminology, polymer groups, polymerization mechanisms, molecular weight determination. Five weeks.

052:241 Polymer Science and Technology 3 s.h.

Uses, properties of industrially important polymeric materials; polymer chemistry, polymer structure, characterization, polymer processing. Recommended: 004:122.

052:242 Polymer Chemistry 3 s.h.

Monomer reactivity and polymerization reactions; step, radical, ionic, and ring-opening polymerizations. Recommended: 004:122 and 052:241.

Process Dynamics, Design, Analysis

052:147 Modeling Analysis 3 s.h.

052:185 Process Dynamics and Control in Design 3 s.h.

Theory and application of process dynamics to the design of chemical process control systems; mathematical models of unit operations, transfer functions, feedback and feed-forward control, stability, instrumentation, digital control systems; computer methods, including simulation and commercial software use; laboratory focus on process analysis and design. Prerequisite: 052:105.

052:186 Chemical Engineering Process Design 3 s.h.

Design of chemical process plants, including application of process calculations, thermodynamics, kinetics, process synthesis, energy efficiency in separations, heat-exchanger network synthesis, physical property estimation, safety, computer-aided design, unit operations theory, process control, economics, economic optimization. Prerequisite: 052:105. Recommended: 052:187.

Graduate Seminars, Advanced Topics, Research

052:191 Seminar in Chemical and Biochemical Engineering 0 s.h.

Presentation and discussion of recent advances and research in chemical and biochemical engineering by guest lecturers, faculty, students. Prerequisite: graduate standing.

052:198 Individual Investigations: Chemical and Biochemical Engineering arr.

Individual projects for chemical and biochemical engineering graduate students; may include laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of supervising faculty advisor.

052:199 M.S. Thesis Research: Chemical and Biochemical Engineering arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in chemical and biochemical engineering. Prerequisites: graduate standing and consent of faculty advisor.

052:299 Research: Chemical and Biochemical Engineering Ph.D. Dissertation arr.

Experimental and/or analytical investigation of an approved topic for Ph.D. in chemical and biochemical engineering. Prerequisite: consent of advisor.

Civil and Environmental Engineering

Chair: Robert Ettema

Professors: Jasbir S. Arora, Gregory R. Carmichael, William E. Eichinger, Robert Ettema, David Forkenbrock, Witold F. Krajewski, Wilfrid A. Nixon, A. Jacob Odgaard, Gene F. Parkin, V.C. Patel, Jerald L. Schnoor, Peter S. Thorne, Richard L. Valentine, Ge Wang, Han-Chin Wu

Professors emeriti: Dan E. Branson, Forrest M. Holly Jr., Subhash C. Jain, Harrison Kane, Wayne L. Paulson

Adjunct professors: Konstantine P. Georgakakos, Tatsuaiki Nakato

Associate professors: M. Asghar Bhatti, A. Allen Bradley, Keri Hornbuckle, Hosin David Lee, Patrick O'Shaughnessy, Thanos Papanicolaou, Michelle Scherer, James W. Stoner, Colby C. Swan, Larry J. Weber, Frank Weirich, Y.K. Zhang

Adjunct associate professors: Anton Kruger, Louis A. Licht, Marian Muste, John Nestler

Assistant professors: George Constantinescu, Paul Hanley, Walter Illman, Tim Mattes

Adjunct assistant professors: Craig Just, Ken Lloyd, Doug Schnoebelen

Adjunct lecturer: Don Guckert

Undergraduate degree: B.S.E. in Civil Engineering

Graduate degrees: M.S., Ph.D. in Civil and Environmental Engineering

Web site: <http://www.cce.engineering.uiowa.edu>

Civil engineering is one of the three largest fields of engineering. It traditionally has been concerned with infrastructure facilities that are both large in scale and essential to modern life. Civil and environmental engineering projects include transportation systems and their components, such as bridges, highways, public transit systems, railways, harbors, airports, seaports, and even spaceports; large-scale structures and office buildings that provide enclosed working and living space; environmental and hydraulic systems that provide clean water and air, including filtration plants and distribution systems for municipal and industrial water supplies, wastewater treatment plants, dams, levees, and irrigation systems.

Growth areas of civil and environmental engineering include infrastructure development, construction management, computer-aided design, hazardous waste management, and engineered environmental systems. In the future, civil and environmental engineers will be called upon to design structures for earth and outer space, prevent erosion and sedimentation of our rivers, predict effects of global climate change on the environment, provide modern and efficient

transportation systems, and ensure the quality of our air and our surface waters and groundwaters.

In planning and design, civil and environmental engineers work with other engineers, architects, landscape architects, planners, economists, financiers, sociologists, lawyers, and other specialists as members of the design team. Some civil engineers work in engineering offices; others may be called upon to construct or supervise outdoor projects they have designed. These field assignments, many of which are in remote and fascinating parts of the world, are particularly appealing to many civil and environmental engineers. There also is significant entrepreneurial potential for civil and environmental engineers as they start their own companies.

Undergraduate Program

The department offers the Bachelor of Science in Engineering in civil engineering. The program's objective is to provide a well-rounded, superior engineering education that:

- provides students with appropriate proficiency in the civil engineering subdisciplines of structures, water-resources engineering, transportation, and environmental engineering;
- ensures that students are knowledgeable about the importance, procedures, and benefits of professional licensure and continuing education;
- offers design experiences that include projects in the curriculum that are offered by and guided in part by the professional community; and
- provides research opportunities to undergraduate students through the department's connections with on-campus research entities including IIHR—Hydrosience and Engineering, the Center for Global and Regional Environmental Research, the Public Policy Center, the Center for Computer Aided Design, the Center for Biocatalysis and Bioprocessing, and the Center for Health Effects of Environmental Contamination.

Bachelor of Science in Engineering

The B.S.E. in civil engineering requires a minimum of 128 s.h. The curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005-059:006 Engineering Problem Solving I-II and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. See "Curriculum Stems" and "General Education Component" under "Bachelor of Science in Engineering" in the College of Engineering section of the Catalog.

Elective focus area courses must be selected according to guidelines established by the Department of Civil and Environmental Engineering. See "Elective Focus Area" after the following curriculum list.

Students choose one of two subtracks: civil, which provides breadth in the discipline, or environmental, which provides a concentration. Subtrack requirements are the same for the first semester of the first year but are different beginning with the second semester.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

FIRST YEAR

First Semester

004:011 Principles of Chemistry I	4 s.h.
010:003 Accelerated Rhetoric	4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus	4 s.h.
053:010 CEE First-Year Seminar	0 s.h.
059:005 Engineering Problem Solving I	3 s.h.

Civil Subtrack

FIRST YEAR

Second Semester

22M:032 Engineering Mathematics II: Multivariable Calculus	4 s.h.
22M:033 Engineering Mathematics III: Matrix Algebra	2 s.h.
029:081 Introductory Physics I	4 s.h.
059:006 Engineering Problem Solving II	3 s.h.
General education component course	3 s.h.

SECOND YEAR

First Semester

22M:034 Engineering Mathematics IV: Differential Equations	3 s.h.
029:082 Introductory Physics II	3-4 s.h.
053:015 Civil and Environmental Engineering Practice	2 s.h.
059:007 Engineering Fundamentals I: Statics	2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits	3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics	3 s.h.

Second Semester

22S:039 Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
053:020 CEE Sophomore Seminar	0 s.h.
053:050 Natural Environmental Systems	3 s.h.
053:105 Engineering Geology	3 s.h.
057:010 Dynamics	3 s.h.
057:019 Mechanics of Deformable Bodies	3 s.h.

THIRD YEAR

First Semester

053:030 Soil Mechanics	3 s.h.
053:033 Principles of Structural Engineering	3 s.h.
053:063 Principles of Transportation Engineering	3 s.h.
053:091 Professional Seminar: Civil Engineering	0 s.h.
053:168 Civil Infrastructure	3 s.h.
057:020 Fluid Mechanics	4 s.h.

Second Semester

053:055 Principles of Environmental Engineering	4 s.h.
053:071 Principles of Hydraulics and Hydrology	3 s.h.
053:086 Civil Engineering Materials	3 s.h.
053:091 Professional Seminar: Civil Engineering	0 s.h.
Elective focus area course	3 s.h.
General Education component course	3 s.h.

FOURTH YEAR

First Semester

053:091 Professional Seminar: Civil Engineering	0 s.h.
General education component course	3 s.h.
Two elective focus area courses	6 s.h.
Two of these:	
053:034 Structural Design I	3 s.h.

053:157 Environmental Engineering Design 3 s.h.
 053:174 Water Resource Design 3 s.h.

Second Semester

053:084 Project Design and Management in Civil Engineering 3 s.h.
 053:091 Professional Seminar: Civil Engineering 0 s.h.
 General education component course 3 s.h.
 Three elective focus area courses 9 s.h.

Environmental Subtrack

FIRST YEAR

Second Semester

004:012 Principles of Chemistry II 4 s.h.
 22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.
 22M:033 Engineering Mathematics III: Matrix Algebra 2 s.h.
 029:081 Introductory Physics I 4 s.h.
 059:006 Engineering Problem Solving II 3 s.h.

SECOND YEAR

First Semester

22M:034 Engineering Mathematics IV: Differential Equations 3 s.h.
 053:015 Civil and Environmental Engineering Practice 2 s.h.
 059:007 Engineering Fundamentals I: Statics 2 s.h.
 059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.
 059:009 Engineering Fundamentals III: Thermodynamics 3 s.h.
 General education component course 3 s.h.

Second Semester

22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
 053:020 CEE Sophomore Seminar 0 s.h.
 053:105 Engineering Geology 3 s.h.
 053:050 Natural Environmental Systems 3 s.h.
 057:010 Dynamics 3 s.h.
 057:019 Mechanics of Deformable Bodies 3 s.h.
 General education component course 3 s.h.

THIRD YEAR

First Semester

053:030 Soil Mechanics 3 s.h.
 053:033 Principles of Structural Engineering 3 s.h.

053:063 Principles of Transportation Engineering 3 s.h.
 053:091 Professional Seminar: Civil Engineering 0 s.h.
 053:168 Civil Infrastructure 3 s.h.
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 053:071 Principles of Hydraulics and Hydrology 3 s.h.
 053:086 Civil Engineering Materials 3 s.h.
 053:091 Professional Seminar: Civil Engineering 0 s.h.
 Elective focus area course 3 s.h.
 General education component course 3 s.h.

FOURTH YEAR

First Semester

053:091 Professional Seminar: Civil Engineering 0 s.h.
 General education component course 3 s.h.
 Two elective focus area courses 6 s.h.
 Two of these:
 053:034 Structural Design I 3 s.h.
 053:157 Environmental Engineering Design 3 s.h.
 053:174 Water Resource Design 3 s.h.

Second Semester

053:084 Project Design and Management in Civil Engineering 3 s.h.
 053:091 Professional Seminar: Civil Engineering 0 s.h.
 General education component course 3 s.h.
 Three elective focus area courses 9 s.h.

Elective Focus Area

Civil engineering students may choose from several standard elective focus areas developed by the department, a focus area offered jointly with another engineering department, or an individual focus area tailored to the student's interests.

Standard elective focus areas are offered in environmental engineering; hydraulics and water resources; structures, mechanics, and materials; transportation; urban and regional planning; and in the broad field of civil engineering. Elective focus areas offered jointly with other engineering departments cut across programs (e.g., computer-aided engineering, design and optimization, environmental processes).

Civil engineering students must take one general education component course related to their elective focus area.

For more detailed information about elective focus areas, see “Bachelor of Science in Engineering”/“Elective Focus Area” in the College of Engineering section of the Catalog. For a list of standard elective focus area options and guidelines for tailored elective focus areas in civil engineering, see the Department of Civil and Environmental Engineering web site.

Combined B.S.E./M.S.

Students who wish to complete a Bachelor of Science in Engineering and a Master of Science in civil and environmental engineering at The University of Iowa can apply to the fast-track B.S.E./M.S. program. Fast-track students receive a B.S.E. in civil engineering once they have completed all of the requirements for the B.S.E., and they continue work toward the M.S.

Admission is based on the student’s academic record. Applicants must have completed at least 80 s.h. (typically by the end of the fifth semester of undergraduate study) and have a cumulative g.p.a. of at least 3.25. They must submit a completed fast-track program application form and a letter stating their proposed area of specialization and the name of a department faculty member willing to be their primary M.S. advisor. They also must identify a faculty sponsor who can guide them from at least the second semester of their senior year until they complete the M.S.

Applications are due by March 1.

Graduate Programs

The Department of Civil and Environmental Engineering offers the Master of Science and Doctor of Philosophy. Both programs prepare students for professional careers and further study. The principal concentration areas are environmental engineering and science; global and regional environmental research; hydraulics, hydrology, and water resources; structures, mechanics, and materials; and transportation and infrastructure systems.

Research and Study Areas

ENVIRONMENTAL ENGINEERING AND SCIENCE

The environmental engineering and science curriculum provides a comprehensive base of course work and research in the areas of air- and

water-quality management, environmental chemistry and microbiology, natural systems modeling, and processes for water supply, pollution control, and solid and hazardous waste management. Interdisciplinary specialization and study are conducted with programs including IIHR—Hydroscience & Engineering, the Center for Global and Regional Environmental Research, the Center for Health Effects of Environmental Contamination, the Hazardous Substances Research Center, the Center for Biocatalysis and Bioprocessing; the Departments of Chemical and Biochemical Engineering, Geography, Geoscience, Microbiology, Occupational and Environmental Health; and the Urban and Regional Planning Program. New areas of interdisciplinary focus include groundwater contamination, biotechnology, global climate change, and hazardous substances.

GLOBAL AND REGIONAL ENVIRONMENTAL RESEARCH

The department has an active interdisciplinary research program in the environmental areas of air pollution, water pollution, groundwater remediation, global atmospheric change, and hazardous waste management. Particular emphasis is placed on the microbiology, chemistry, and physics of local, regional, and global air, soil, and water quality problems. Research includes sophisticated environmental quality analysis, high-speed computing, and detailed sensitivity analysis. The Department of Chemical and Biochemical Engineering and the Center for Global and Regional Environmental Research also collaborate in these endeavors.

HYDRAULICS, HYDROLOGY, AND WATER RESOURCES

The hydraulics, hydrology, and water resources curriculum is associated with IIHR—Hydroscience & Engineering, a world-renowned research institute. Senior staff members of the institute are professors in the program; they devote about half of their time to teaching.

IIHR offers unique opportunities for students to participate actively in the research, analysis, and design aspects of real-world problems. Considerable attention is given to the use of computers in mathematical modeling and in data acquisition and processing. IIHR high-speed computer facilities and advanced graphics and communication software complement the hydrology, hydraulics, and water resources curriculum.

STRUCTURES, MECHANICS, AND MATERIALS

The structures, mechanics, and materials curriculum is designed for students who wish to gain knowledge and skill in the mechanics of solids and structures that they can apply to civil infrastructure systems and other fields. The program concentrates on developing appropriate methodologies for tackling broad, complex issues related to civil infrastructure systems, and on educating engineers in the implementation and application of methodologies to actual engineering projects. Faculty members have expertise in structural engineering, design optimization, solid mechanics, and computational methods.

TRANSPORTATION AND INFRASTRUCTURE SYSTEMS

The transportation and infrastructure systems curriculum aims at graduating students interested in developing specialized knowledge and skills applicable to diverse set of issues associated with transportation. Faculty members have expertise in traffic engineering, infrastructure management systems, pavement engineering, advanced construction materials, dynamic load and pavement simulation, optimal design, winter highway maintenance, real-time simulation, human factors, intelligent sensors, nondestructive testing, transportation planning, and travel demand modeling.

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the area or areas of the student's choice. Graduates are placed in advanced technical positions in industry, consulting firms, or government, or they may continue their graduate study. Current and projected demand for M.S. graduates is excellent.

The M.S. requires a minimum of 30 s.h. and is offered with or without thesis. Students who choose the thesis program earn up to 6 s.h. for the thesis. Nonthesis students in the environmental engineering and science curriculum earn an additional 3 s.h.

With the approval of their advisor, students develop a study plan that satisfies the requirements of their chosen curriculum.

All M.S. students must have a g.p.a. of at least 3.00, pass an oral examination, and in some program options, a written examination.

Doctor of Philosophy

The Ph.D. requires a minimum of 72 s.h.; the semester-hour requirements for some curriculum areas are higher. The doctoral degree is granted primarily on the basis of achievement rather than on a prescribed course of study. Students usually need at least three years of full-time work beyond the baccalaureate to complete the degree. One year is devoted to the preparation of a dissertation that contributes to knowledge in the field. In some specialty areas, a qualifying examination may be required.

All doctoral students are required to pass a written and oral comprehensive examination before being formally admitted to candidacy for the degree. This examination usually is taken after all required course work has been completed.

The program culminates in a final examination, in which candidates must successfully defend their dissertation.

Ph.D. students must maintain a g.p.a. of at least 3.00 throughout the program.

Interdisciplinary Ph.D.

The Department of Civil and Environmental Engineering cooperates in interdisciplinary doctoral programs with the Program in Applied Mathematical and Computational Sciences; see Applied Mathematical and Computational Sciences (Graduate College) in the Catalog.

Admission

Applicants must meet the admission requirements of the Graduate College; for detailed information about Graduate College policies, see Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Each of the program's curricula is flexible; students may be admitted from all disciplines of engineering as well as from the mathematical and basic sciences.

Applicants to the M.S. program should have a cumulative undergraduate g.p.a. of at least 3.00. Ph.D. applicants should have a graduate g.p.a. of at least 3.00. Applicants whose grade-point average is slightly lower should contact the department.

Applicants should have a combined verbal and quantitative score of at least 1100 on the Graduate Record Examination (GRE) General

Test. Lower scores are considered with other evidence of academic promise (recommendation letters, grade-point average). GRE General Test scores also are used in financial aid decisions.

Financial Support

A significant number of research assistantships are available on a variety of research projects, as are a limited number of teaching assistantships. Selection of recipients usually is based on scholastic achievement and research interest.

Special Facilities and Laboratories

Undergraduate Core

The first-year engineering course 059:005 Engineering Problem Solving I includes an introduction to the college's Computer Systems Support (CSS). Students in the course use computer-aided design tools on engineering work stations. All civil engineering courses require knowledge of personal computers and contain significant computer content.

For information about laboratories affiliated with core courses coordinated by other engineering departments, see the Catalog section for each of the departments.

Required and Elective Undergraduate Laboratories

053:030 Soil Mechanics (3 s.h.): equipped for determining the classification, seepage characteristics, stress-strain properties, and strength of soils.

053:050 Natural Environmental Systems (3 s.h.): environmental chemistry and biology of air, water, and soil quality, air and water pollution, limnology, global atmospheric change, fate and transport of pollutants; hazardous substances, risk analysis, standard setting.

053:055 Principles of Environmental Engineering (4 s.h.): conducted at the University Water Treatment Plant and Iowa City Wastewater Plant for demonstrations of unit operations and processes of water and wastewater treatment, and applications in environmental chemistry and microbiology.

053:071 Principles of Hydraulics and Hydrology (3 s.h.): hydraulics of pressure conduits and open channels, dimensional analysis, flow measurements, hydraulic machinery, with laboratory.

053:153 Environmental Chemistry Laboratory (3 s.h.): experiments to demonstrate fundamental principles of aquatic chemistry and chemical analyses for characterization of water and wastewater quality, conducted in the Environmental Engineering Laboratories.

053:154 Environmental Microbiology (3 s.h.): typical microorganisms isolated and their physiology and metabolic characteristics studied in the Environmental Engineering Laboratories.

053:156 and 053:151 Physical/Chemical and Biological Treatment Processes course laboratory (both 3 s.h.): unit operations, processes studied in bench scale experiments; use of typical process analytical parameters; experiments conducted in the Environmental Engineering Laboratories, University Water Plant, and Iowa City Wastewater Treatment Plant.

Graduate Laboratories

ENVIRONMENTAL ENGINEERING AND SCIENCE LABORATORIES

The Environmental Engineering and Science Laboratories provide state-of-the-art facilities, equipment, and expertise to support both undergraduate and graduate-level instruction and research. The laboratories support research in contaminant fate and transport in various media (air, water, soil, plants, and microbes), drinking water disinfection and distribution, wastewater treatment, geochemical-contaminant interactions, bioremediation, and phytoremediation. They also provide resources for analytical chemistry, electrochemistry, molecular biology, microscopy, computer modeling, and simulated environments on the bench- and pilot-scale levels.

The Environmental Engineering and Science Laboratories are affiliated with the University's Center for Health Effects of Environmental Contamination and its Center for Global and Regional Environmental Research, and with the UI Environmental Health Sciences Research Center, an affiliate of the National Institute of Environmental Health Sciences (NIEHS).

HYDRAULICS, HYDROLOGY, AND WATER RESOURCES LABORATORIES

The teaching and research functions of the department are closely connected to the research and contractual activities of IIHR—Hydroscience & Engineering, which also includes the Computational Laboratory for Hydrometeorology and Water Resources.

The institute houses some of the most modern research facilities in the world, including a 330-foot towing tank, several hydraulic flumes and wind tunnels, a dispersion flume, a wave tank, three special low-temperature flow facilities for investigation of ice phenomena, an environmental hydraulic flume for modeling of atmospheric flows, a refrigerated wind tunnel, a computer-controlled data handling system, 2-D and 3-D laser doppler anemometers for microscale velocity measurements, and extensive computational facilities.

The Computational Laboratory for Hydrometeorology and Water Resources uses a Hewlett-Packard DN10000 super-minicomputer, several Hewlett-Packard high-speed workstations, and graphic terminals and peripherals. It is equipped with advanced graphic software, communication software, mathematical software packages, and a Geographic Information System (GIS).

STRUCTURES, MECHANICS, AND TRANSPORTATION LABORATORIES

Laboratories for computational solid mechanics, construction materials, optimal design, plasticity, soils testing, structural materials testing, and ice engineering are available for teaching and research. The Optimal Design Laboratory and the Computational Solid Mechanics Laboratory have state-of-the-art networks of Hewlett-Packard and Silicon-Graphics workstations and other peripherals. These labs are used to conduct research on modern computational methods for analysis and design optimization of complex structural systems.

The Construction Materials, Soils, and Plasticity Labs are equipped for the determination of physical and mechanical properties of metals, concrete, soils, plastics, and bituminous materials. Equipment includes a computer-controlled MTS axial-torsional test system, universal testing machine, and a creep machine.

The Construction Materials Laboratory contains testing equipment for concrete, asphalt, and other materials used in infrastructure construction.

The Ice Engineering Research Lab has a uniaxial MTS test system with a state-of-the-art data acquisition system. There also is a Tinnius Olson testing machine, two ice tanks, a milling machine (in a cold room for preparation of ice samples), and a variety of other equipment to allow testing of the mechanical properties of ice and of ice/structure interaction processes.

Courses

Special Topics

053:000 Cooperative Education Training Assignment: Civil Engineering 0 s.h.

Civil engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record card. Prerequisites: admission to the Cooperative Education Program and consent of faculty advisor.

053:010 CEE First-Year Seminar 0 s.h.

Introduction to civil and environmental engineering curriculum and profession; presentations by senior undergraduate students, graduate students, faculty; laboratory visits. Prerequisite: first-year standing.

053:015 Civil and Environmental Engineering Practice 2 s.h.

Concepts of the built environment and the natural environment; infrastructure life cycle; engineering communication (plans, engineering drawings and information systems, computer-aided drafting); field trip to major city. Prerequisite: sophomore standing in civil engineering.

053:020 CEE Sophomore Seminar 0 s.h.

Introduction to civil and environmental engineering curriculum and profession; presentations by senior undergraduate students, graduate students, faculty; laboratory visits. Prerequisite: sophomore standing.

053:083 Surveying and Remote Sensing 3 s.h.

Engineering surveying measurements, methods, computations. Prerequisite: 059:005.

053:084 Project Design and Management in Civil Engineering 3 s.h.

Design of civil engineering systems, individual and team design projects oriented toward the solution of local problems, project management, construction management, contracts, budgeting, bidding. Prerequisites: 053:033, 053:050, 053:063, 053:071, and senior standing.

053:091 Professional Seminar: Civil Engineering 0 s.h.

Professional aspects of civil engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Prerequisite: junior standing.

053:098 Individual Investigations: Civil Engineering arr.

Individual projects for civil engineering undergraduate students: laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisite: consent of faculty advisor.

053:101 International Business and Infrastructure 3 s.h.

Differences between international and domestic businesses; how differences in infrastructure in the international environment influence business operations; effects of infrastructure on international commerce and business practices; case studies, site visits.

053:107 Sustainable Systems 3 s.h.

New and emerging concepts in sustainable systems design and assessment. Same as 052:107.

053:111 Numerical Calculations 3 s.h.

Development of algorithms for functional approximations, numerical differentiation, integration; solution of algebraic and differential equations, with emphasis on digital computations; initial and boundary value problems. Prerequisite: 22M:034. Same as 058:111.

053:112 Engineering Design Optimization 3 s.h.

Engineering design projects involving modeling, formulation, and analysis using optimization concepts and principles; linear and nonlinear models, optimality conditions, numerical methods. Prerequisites: 22M:033, 059:007, and junior standing. Same as 058:112.

053:113 Mathematical Methods in Engineering 3 s.h.

Matrices, vector spaces, eigenvalue problems, quadratic forms, series solutions of differential equations, special functions, function spaces, Fourier series, equations of mathematical physics, multiple integral theorems, first- and second-order partial differential equations. Prerequisites: 22M:033 and 22M:034. Same as 052:118, 058:113.

053:115 Computer-Aided Engineering 3 s.h.

Fundamentals of computer graphics, visualization of engineering design and analysis data, solid modeling, window-based user interface development; applications of these techniques to engineering problems. Prerequisite: working knowledge of FORTRAN or Pascal. Same as 058:110.

053:168 Civil Infrastructure 3 s.h.

Analytical methods for developing Infrastructure Management Systems (IMS); evaluation of infrastructure condition, performance modeling, rehabilitation optimization, development of the IMS; basic concepts of information technology applied in solving civil infrastructure management problems. Prerequisite: 053:015.

053:182 Statistics for Engineers 3 s.h.

Application of statistical techniques for evaluation and optimization of engineering designs; use of spreadsheets, statistical software; design and analysis of experiments; regression analysis; system optimization; modeling deterministic and stochastic systems. Prerequisite: 22S:039 or equivalent.

053:210 Developing Professional Service Business 2-3 s.h.

Exposes broad range of engineering, medical, and business students to the unique challenges of creating a specialized business; how professional skills and functional knowledge can be combined in a customer-oriented enterprise. Prerequisite: open only to M.B.A., engineering, or health science enrollment or consent of instructor. Same as 06T:210.

053:214 Analytical Methods in Mechanical Systems 3 s.h.

Functional analysis applied in mechanics and dynamics; calculus of variations; variational methods, such as Ritz and Galerkin methods; ordinary differential equations; boundary and initial value problems; stability theorem; perturbation of linear systems. Prerequisite: 053:113. Same as 058:214.

Structures, Mechanics, and Transportation

053:030 Soil Mechanics 3 s.h.

Identification and classification of earth materials; hydraulic and mechanical properties of soils; soil improvement; laboratory testing. Prerequisite: 057:019.

053:033 Principles of Structural Engineering 3 s.h.

Fundamental principles of structural analysis applied to statically determinate and indeterminate structures, continuous beams, trusses, and frames; external and internal equilibrium, compatibility of deformation, influence lines, virtual work; parallel use of classical and matrix formulation; slope deflection, flexibility and stiffness methods; use of computers. Prerequisite: 057:019.

053:034 Structural Design I 3 s.h.

Fundamental analysis and design of reinforced concrete members and structures, flexure, shear, bond, continuity, beams, one-way slab system; columns. Prerequisite: 053:033.

053:063 Principles of Transportation Engineering 3 s.h.

History of transportation modes, new transport technologies, traffic operations and control, economic evaluation of transport

alternatives, transportation planning, roadway design and construction, route location, preventive maintenance strategies. Prerequisite: 22S:039.

053:086 Civil Engineering Materials 3 s.h.

Structure, strength and failure, durability, deformation, practice, and processing for primary construction materials systems, including steel, aluminum, concrete, asphalt, fiber-reinforced composites, masonry, timber. Prerequisites: 057:019 and 059:008. Corequisites: 053:030 and 057:019.

053:130 Construction Materials 3 s.h.

Structure, strength and failure, durability, deformation, practice, and processing for primary construction materials systems including steel, aluminum, concrete, asphalt, fiber-reinforced composites, masonry, timber. Prerequisites: 053:030, 057:015, and 057:019.

053:132 Fundamentals of Vibrations 3 s.h.

Fundamental aspects of the vibration of linear discrete and continuous mechanical and structural systems; harmonic, periodic, arbitrary excitation; modal analysis; applications. Prerequisite: 057:019. Same as 058:153.

053:133 Finite Element I 3 s.h.

One- and two-dimensional boundary value problems; heat flow, fluid flow, torsion of bars; trusses and frames; isoparametric mapping; higher order elements; elasticity problems; use of commercial software. Prerequisite: 057:019. Same as 058:115.

053:134 Structural Design II 3 s.h.

Concepts and procedures in steel design; LRFD (load and resistance factor design) methodology for beams/columns; analysis and design of indeterminate structures. Prerequisite: 053:033.

053:138 Prestressed Concrete Structures 3 s.h.

Initial and time-dependent deformation of concrete structures; analysis and design of statically determinate and indeterminate prestressed concrete structures; flexure, shear, torsion, deflections; beams, slabs, composite members, columns, tension members, buildings, bridges, tanks, shells; use of computers. Prerequisite: 053:034.

053:139 Foundations of Structures 3 s.h.

Application of soil mechanics to analysis of structural foundations; slope stability analysis; bearing capacity and settlement of shallow and deep foundations; retaining structures, braced cuts, reinforced earth structures; usage of computational models; subsurface exploration methods. Prerequisite: 053:030.

053:140 Intermediate Mechanics of Deformable Bodies 3 s.h.

Application of equilibrium analyses, strain-displacement relations and constitutive relationships to practical structural systems and elementary plane elasticity problems. Prerequisite: 057:019. Same as 051:151, 058:150.

053:148 Fatigue/Durability in Design 3 s.h.

Macro- and micromechanisms of fatigue, behavior, design of engineering materials/components/structures subjected to cyclic loading, with emphasis on metals; stress-life, strain-life, linear elastic fracture mechanics approach to fatigue crack growth; safe-life, fail-safe, damage tolerant design; constant, variable amplitude life predictions; notches, residual stress, corrosion, temperature, multiaxial, weldments. Prerequisite: 051:085 or 058:055 or 058:150 or equivalent. Same as 058:158.

053:149 Fracture Mechanics 3 s.h.

Definition and criteria for failure, yield phenomena, linear elastic fracture mechanics, plane stress and plane strain fracture toughness, J-integral, COD, fatigue, safe-life, fail-safe, damage tolerant design, corrosion, creep-rupture design. Prerequisite: 051:085 or 058:055 or 058:150 or equivalent. Same as 058:159.

053:162 Design of Transportation Systems 3 s.h.

Application of CAD/CAE tools to transportation systems design; review of CAD tools, derivation of standards for geometric design,

roadway design software, cross-sectional and longitudinal geometric design of highways, applications to visualization and animation. Prerequisite: 053:063 or graduate standing.

053:163 Traffic Engineering 3 s.h.

Design of traffic control devices; evaluation and analysis of intersections and transportation networks using appropriate computer software.

053:164 Winter Highway Maintenance 3 s.h.

Aspects of winter highway maintenance; current and innovative practices and the theory that underpins them.

053:165 Pavement Analysis and Design 3 s.h.

Fundamental design principles, including pavement analysis and characterization and testing of asphalt and concrete pavement materials. Prerequisite: 053:063.

053:166 Infrastructure Management System 3 s.h.

Aspects of infrastructure management system development; data collection, analysis methodology, graphic outputs. Prerequisite: 053:063.

053:194 Graduate Seminar: Transportation 0 s.h.

Recent advances and research in transportation engineering. Prerequisite: senior or graduate standing.

053:233 Finite Element II 3 s.h.

Computer implementation; plate and shell elements; mixed and hybrid formulations; nonlinear analysis; recent development; introduction to boundary element method. Prerequisite: 053:133. Same as 058:215.

053:235 Applied Optimal Design 3 s.h.

Optimal design problem formulation; optimality conditions; linear, quadratic, convex, and nonlinear programming; Lagrangian duality; numerical algorithms for unconstrained and constrained design problems, design sensitivity analysis, engineering applications. Prerequisites: 053:113 or equivalent, and senior standing.

053:236 Optimization of Structural Systems 3 s.h.

Advanced topics; optimization of structural topology, shape, and material; finite dimensional dynamic response optimization, sensitivity analysis, distributed parameter systems; projects. Prerequisite: 053:235.

053:241 Continuum Mechanics and Elasticity 3 s.h.

Cartesian tensors and geometrical foundations; concept of stress, strain, motion; fundamental physical laws; constitutive equations and finite elasticity; equations of linear elasticity, elastic extension, torsion and bending of bars. Prerequisite: 057:019. Corequisite: 053:113 or graduate standing. Same as 058:279.

053:243 Computational Inelasticity 3 s.h.

Computational techniques and implementations for elastic, hyperelastic, elasto-plastic, visco-elastic, and viscoplastic material models; development of sound numerical integration algorithms from rate constitutive equations. Prerequisite: 053:241. Same as 058:251.

053:244 Energy Principles in Structural Mechanics 3 s.h.

Principles of virtual work, stationary and minimum potential energy; calculus of variations; Ritz method, Galerkin's method; beams and plates; Hamilton's principle; elastic stability; extremum principle of plasticity. Prerequisites: 053:113 and 053:140. Same as 058:254.

053:245 Micromechanics of Solids 3 s.h.

Local micromechanics and Eshelby's inclusion theory; homogenization procedures of heterogeneous materials; effective elastic, visco-elastic, and plastic behavior of composites; micromechanics of other advanced materials; computational micromechanics. Prerequisite: 053:241 or 058:279. Same as 058:270.

053:246 Continuum Mechanics and Plasticity 3 s.h.

Finite strain measures and rate of deformation; principles of

isotropy and materials indifference; constitutive equations of elastic and inelastic materials; internal variable theory of thermodynamics; endochronic theory of plasticity. Prerequisite: 053:241 or equivalent. Same as 058:258.

053:247 Advanced Continuum Mechanics 3 s.h.

Same as 058:252.

053:248 Elastic Waves in Solids 3 s.h.

Propagation mechanisms of elastic waves in solids; tools used to detect oil and gas deposits and earthquake activities, study the Earth's geological structure; test, design, and control structural and mechanical components, diagnose medical phenomena in human body. Prerequisite: 053:132 or 053:140 or 053:241. Same as 051:248, 058:271.

053:249 Multiscale Modeling 3 s.h.

Same as 058:255.

053:250 Advanced Fracture Mechanics 3 s.h.

Same as 058:250.

053:262 Transportation Demand Analysis 3 s.h.

Application of city planning procedures and traffic engineering techniques to solution of transportation problems; travel characteristics, forecasting methods, trip generation, distribution, assignment models. Prerequisite: 22S:039. Same as 102:262.

053:263 Application Simulation to Transportation 3 s.h.

Transportation system management and traffic engineering; application of real-time simulation and visualization. Prerequisite: 053:063 or 053:163. Same as 102:263.

Environmental Engineering and Science

053:050 Natural Environmental Systems 3-4 s.h.

Environmental chemistry and biology of air, water, and soil quality, air and water pollution, limnology, global atmospheric change, fate and transport of pollutants; hazardous substances, risk analysis, standard setting. Prerequisite: 004:011.

053:055 Principles of Environmental Engineering 4 s.h.

Water supply and treatment processes; wastewater treatment processes; processes for air pollution control, groundwater remediation; solid and hazardous waste management. Prerequisite: 053:050 or consent of instructor. Same as 152:162.

053:102 Groundwater 3 s.h.

Groundwater quality and quantity; Darcy's Law, 2-D flow equation, unsaturated zone, contaminant transport, redox reactions, drinking water quality, bioremediation; laboratories in permeameter testing, porous media grain size analysis, pump testing, monitoring well installation. Prerequisite: engineering graduate standing.

053:104 Groundwater Modeling 3 s.h.

Principles and equations of groundwater flow and contaminant transport in aquifers; analytical solutions, numerical methods, stochastic approaches, applications of groundwater modeling software. Prerequisites: 22M:026 and 012:166. Same as 012:184.

053:105 Engineering Geology 3 s.h.

Prerequisite: engineering sophomore standing. Same as 012:179.

053:141 Design for the Developing World 3 s.h.

Sustainable design for the developing world principles and practice; water resources, sanitation, energy, food security.

053:151 Biological Treatment Processes 3 s.h.

Applied microbiology and fundamental principles of aerobic and anaerobic biological wastewater treatment processes; sludge processing and advanced wastewater treatment and bioremediation; lectures and laboratory. Prerequisites: 053:050, 053:152, and 053:154. Corequisites: 053:055 and 053:156.

053:152 Environmental Chemistry I 3 s.h.

Principles of general, physical, organic chemistry applied in water and air systems; emphasis on qualitative and quantitative understanding of chemical kinetics and equilibrium; acid-base reactions, complex formation, precipitation, dissolution, and oxidation-reduction reactions; organic nomenclature. Prerequisite: 004:012. Same as 052:231.

053:153 Environmental Chemistry Laboratory 3 s.h.

Laboratory experiments to demonstrate important concepts in environmental chemistry and to familiarize students with procedures used to characterize water and wastewater and evaluate certain treatment processes. Prerequisite: 004:016 or equivalent. Corequisite: 053:152.

053:154 Environmental Microbiology 3 s.h.

Fundamentals of microbiology and microbial ecology with application in water quality and biodegradation of priority pollutants; lectures and laboratory. Corequisite: 053:152.

053:156 Physical-Chemical Process Fundamentals 3 s.h.

Theory of physical and chemical operations and processes in water and wastewater treatment, including fundamental aspects of process dynamics; lectures, laboratory. Prerequisites: 053:050 and 053:152. Corequisite: 053:055.

053:157 Environmental Engineering Design 3 s.h.

Application of physical, chemical, and biological operations and processes to the design of water and wastewater treatment systems; applications in solid and hazardous waste treatment. Prerequisites: 053:050, 053:071, and 053:055.

053:158 Solid and Hazardous Wastes 3 s.h.

Sources, characteristics, collection, disposal of solid and hazardous wastes; environmental impacts of hazardous waste management; resource recovery systems. Prerequisite: 053:050. Same as 175:198.

053:159 Air Pollution Control Technology 3 s.h.

Sources, environmental and health impacts, regulations, modeling of air pollution; processes and alternative strategies for control; global climate considerations. Prerequisite: 053:050 or consent of instructor. Same as 052:235.

053:161 Atmospheric Chemistry and Physics 3 s.h.

Principal chemical and physical processes affecting atmospheric trace gas and pollutant cycles; emphasis on atmospheric photochemistry, aerosol science, major sources and removal processes. Prerequisite: consent of instructor. Same as 052:236.

053:204 Environmental Health Policy 3 s.h.

Major concerns about environment and human health and basis on which legislation has been enacted to deal with these concerns; emphasis on contemporary legislation that has major effects on environmental policy. Prerequisite: 053:050. Same as 152:252, 175:252.

053:225 Environmental Processing of Organic Chemicals 3 s.h.

Environmental organic chemistry, with focus on toxic and persistent organic compounds; bioaccumulation in food webs; chemical diagenesis in air, water, sediment and biomaterials, global/regional transport mechanisms. Prerequisite: 053:152 or 053:252 or consent of instructor.

053:251 Environmental Systems Modeling 3 s.h.

Mathematical modeling of environmental systems, including rivers, lakes, estuaries, treatment systems for conventional and toxic pollutants. Prerequisites: 053:050, 053:055, and 053:152; or consent of instructor.

053:252 Environmental Chemistry II 3 s.h.

Solid-liquid interface problems, heterogenous equilibria, environmental organic chemistry, modeling chemical equilibrium and kinetics, redox chemistry, atmospheric chemistry. Prerequisite: 053:152.

053:274 Foundations in Bioremediation 3 s.h.

Xenobiotic degradation mechanisms with focus on the relationship between chemical structure and biochemical reactivity; process optimization through engineered control of the environment; bioremediation case studies emphasizing site characterization, system selection, design, operation, trouble-shooting. Prerequisite: 053:151 or equivalent.

053:275 Perspectives in Biocatalysis 1-3 s.h.

Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Repeatable. Prerequisite: graduate standing. Same as 004:275, 046:275, 052:275, 061:275, 099:275.

Hydraulics, Hydrology, and Water Resources

053:071 Principles of Hydraulics and Hydrology 3 s.h.

Hydraulics of pressure conduits and open channels, dimensional analysis, flow measurements, hydraulic machinery, laboratory. Prerequisite: 057:020.

053:103 Water Quality 3 s.h.

Sources, availability, uses, characteristics, criteria, best management practices for surface waters; protection of waters impaired by eutrophication, soil erosion and sedimentation; pathogenic organisms, habitat destruction, wastewater discharges, contaminated sediments, atmospheric deposition, watershed development, invasive species, irrigation return flows, stormwater discharges, nonpoint sources, agricultural runoff; laboratory component, measurement of water quality characteristics in the field.

053:116 Probabilistic Methods in Hydroscience 3 s.h.

Common probabilistic models used in hydrology, hydraulics, and water resources; derived distributions; multivariate models and estimation of model parameters; analysis of data and model building; uncertainty analysis. Prerequisites: 22M:034 and 22S:039.

053:117 Remote Sensing 3 s.h.

Fundamentals of electromagnetic waves, atmospheric radiative transfer, passive remote sensing, weather radar, hydrologic application of remote sensing. Prerequisite: 053:116 or consent of instructor.

053:128 Fluvial Geomorphology 3 s.h.

Hydrological principles; stream channel processes; fluvial geomorphology within the drainage basin system; spatial and temporal variations in water distribution; analyses of hydrological data; flow mechanisms, sediment transport; forecasting procedures; hydrograph construction, and modeling. Prerequisite: consent of instructor. Same as 012:138.

053:169 Intermediate Mechanics of Fluids 3 s.h.

Basic concepts and definitions; pressure distribution in a fluid; governing equations and boundary conditions; integral and differential analysis; dimensional analysis and similarity; experimental analysis; laminar and turbulent internal and external flows; potential flows; engineering applications. Prerequisite: 057:020. Same as 058:160.

053:170 Flow in Open Channels 3 s.h.

Energy and momentum principles in open channel flow; uniform flow; gradually varied flow; rapidly varied flow; unsteady flow; flood routing. Prerequisite: 053:071.

053:171 Water Resources Engineering 3 s.h.

Planning and economics of water resources projects; stochastic basis of design; flood control; river navigation works; hydraulic machinery; hydroelectric power systems; classification, functions of hydraulic structures; hydraulic design of spillways, energy dissipators, gates, outlet works; design of canal, other water conveyance structures; design of municipal and industrial outfall structures. Prerequisite: 053:174.

053:172 Experimental Methods in Fluid Mechanics and Heat Transfer 3 s.h.

Review of theory; importance of experiments; modeling and scaling laws; experimental environment and facilities; measurements at full scale and on scaled models; use of wind and water tunnels, towing tanks, hydraulic flumes; instruments for measuring pressure, temperature, velocity, turbulence; error analysis; data acquisition and processing; laboratory demonstrations, hands-on experiments, project. Prerequisite: 058:080 or equivalent. Same as 058:162.

053:173 Mechanics of Sediment Transport 3 s.h.

Laws governing fall velocity, applications to particle-size analysis; incipient motion, bed forms, bed load, suspended load, natural river processes; theory and practice of movable-bed model experiments. Prerequisite: 053:170.

053:174 Water Resource Design 3 s.h.

Storage reservoirs, design of dams and control works, water and wastewater transfer systems; computer applications. Prerequisites: 22S:039 and 053:071.

053:175 Environmental Fluid Dynamics 3 s.h.

Same as 058:163.

053:177 Theory and Practice of Hydraulic Modeling 3 s.h.

Theoretical bases for hydraulic models developed from governing equations; theory of dimension analysis; practical aspects of construction and operation of Froude and Reynolds models; modeling of hydraulic machinery, rivers, tidal flows, heated discharges, ice phenomena; modern instrumentation and data-handling techniques. Prerequisite: 053:071.

053:178 Hydrometeorology 3 s.h.

Atmospheric thermodynamics; precipitation processes; evaporation; infiltration; surface runoff; hydrographs, runoff relations; runoff hydrography; storage problems; frequency, intensity, duration studies of storms, floods, droughts; hydrometeorological observations and network design; watershed modeling; urban hydrology climate.

053:179 Hydroclimatology 3 s.h.

Thermodynamic and flow characteristics of the atmosphere; occurrence of precipitation associated with mid-latitude weather systems, evaporation, measuring precipitation and evaporation, floods and droughts, regional precipitation climatology, atmospheric dynamics.

053:180 Field Methods: Environmental Processes 2-4 s.h.

Problem definition and research design; sampling theory, procedures; sensor and recording methods for collection of primary data, data analysis; interpretation of physical and environmental processes. Repeatable: may be taken six times. Prerequisite: consent of instructor. Same as 012:195.

053:181 Vadose Zone Hydrology 3 s.h.

Same as 012:187.

053:183 Introduction to Comp Flow in Pipes and Channels 3 s.h.

General review of numerical methods in hydraulics (finite-difference, finite-element, and method of characteristics); stability and accuracy of numerical schemes; steady free surface flows; flow transients in pipelines and channels. Prerequisite: 053:169.

053:186 Contaminant Hydrogeology 3 s.h.

Same as 012:186.

053:270 Coastal Hydrodynamics 3 s.h.

Waves, tides, harbor oscillations; coastal structures, estuary dynamics, salinity intrusion, sediment transportation in estuaries; beach processes and evolution. Prerequisite: 053:169.

053:272 Environmental Dispersion Processes 3 s.h.

Review of classical diffusion theories; longitudinal dispersion, transverse and vertical mixing in free-surface turbulent shear

flow; application to natural channels; selected topics including stream-tube models, mixing and dispersion of heated effluents. Corequisite: 053:169.

053:273 Computational Hydraulics 3 s.h.

Fundamentals of discretization techniques; 2-D depth averaged unsteady free surface flows; advective schemes for scalar transport, turbulence models; 2-D contaminant transport in free surface flows, effects of stratification, 3-D hydrostatic flow models used in river and coastal engineering. Prerequisite: 053:182.

053:276 Viscous Flow 3 s.h.

Equations of compressible viscous flow; classical exact analytical and numerical solutions; flow regimes and approximations; laminar boundary layers: equations, solution methods, applications; introduction to stability theory; incompressible turbulent flow: mean-flow and Reynolds-stress equations, modeling, solution procedures, and applications; compressible boundary layers. Prerequisite: 053:169. Same as 058:260.

053:277 Inviscid Flow 3 s.h.

Flow of an inviscid, incompressible fluid; steady and unsteady, two- and three-dimensional flows, irrotational flows; forces and moments acting on bodies; conformal mapping; method of images; separation of variables; slender body theory; Green's functions and integral equations; numerical methods; inviscid compressible flow; shock waves. Prerequisite: 053:169. Same as 058:262.

053:279 Advanced Computational Hydraulics and Environmental Fluid Mechanics 3 s.h.

053:280 Hydrosystems Design and Operation 3 s.h.

Spatial estimation of hydrologic variables; design of sampling networks; derived distributions of hydrologic variables; flood frequency analysis; real-time hydrometeorologic forecasting; statistical inference applications to surface and groundwater models; stochastic optimization and control of water resources systems; multiobjective analysis. Prerequisites: 053:116 and 053:178.

Graduate Seminars, Advanced Topics, Research

053:190 Readings in Civil and Environmental Engineering arr.

For graduate nonmajors who want to earn credit in undergraduate civil and environmental engineering courses. Prerequisites: nonengineering graduate standing and consent of instructor.

053:191 Graduate Seminar: Structures, Mechanics, Materials 0 s.h.

Presentation and discussions of recent advances and research in structures, mechanics, and materials engineering by guest lecturers, faculty, students. Prerequisite: senior or graduate standing.

053:192 Environmental Engineering Seminar 0 s.h.

Presentation and discussion of current topics, case studies, and research in environmental science and engineering by students, guest lecturers, faculty. Prerequisite: senior or graduate standing.

053:193 Graduate Seminar: Hydraulics, Hydrology, and Water Resources 0 s.h.

Presentation and discussions of recent advances and research in hydraulics, hydrology, and water resources by guest lecturers, faculty, students. Prerequisite: senior or graduate standing.

053:195 Contemporary Topics in Civil and Environmental Engineering arr.

New topics or areas of study not formally offered in other civil and environmental courses; ice engineering, chaos and strange attractors, remote sensing, nonlinear dynamics of hydrologic processes, advanced water and wastewater treatment processes,

hazardous waste control, global climate change, damage mechanics; based on faculty/student interest. Prerequisite: senior standing.

053:196 Advanced Subsurface Hydrology 3 s.h.
Same as 012:196.

053:198 Individual Investigations: Civil and Environmental Engineering arr.
Individual projects for civil and environmental engineering graduate students: laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of faculty advisor.

053:199 Research: Civil and Environmental Engineering M.S. Thesis arr.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for the M.S. with thesis in civil and environmental engineering. Prerequisites: graduate standing and consent of faculty advisor.

053:299 Research: Civil and Environmental Engineering Ph.D. Dissertation arr.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for the Ph.D. in civil and environmental engineering. Prerequisite: consent of faculty advisor.

Electrical and Computer Engineering

Chair: Jon G. Kuhl

Professors: David R. Andersen, Er-Wei Bai, Thomas F. Boggess, Thomas L. Casavant, Steve M. Collins, Soura Dasgupta, Michael Flatté, Jon G. Kuhl, Karl E. Lonngren, Sudhakar M. Reddy, John P. Robinson, David J. Skorton, Arthur L. Smirl, Milan Sonka, Ge Wang

Professors emeriti: Earl D. Eyman, Adrianus Korpel, Norbert R. Malik

Associate professors: Mark S. Andersland, Gary Christensen, Tom Schnell

Assistant professors: Michael Abramoff, Zhiqiang Liu, Daniel Thedens, Xiaodong Wu

Undergraduate degree: B.S.E. in Electrical Engineering

Graduate degrees: M.S., Ph.D. in Electrical and Computer Engineering

Web site: <http://www.engineering.uiowa.edu/ece>

Electrical engineers and computer engineers make vital contributions to nearly all facets of modern society through their work in areas such as computer systems, medical imaging, robotics, wireless communications, and fiber optics. From the World Wide Web to high-definition television, cellular telephones, and computer networks, the contributions of electrical and computer engineers are changing everyday life.

Many benefits that have sprung from electrical engineering technology now are taken for granted—noninvasive imaging of the brain and other internal organs, astonishing views of the solar system's outer planets, and wireless telecommunications. Electrical engineers also play crucial roles in major emerging technologies, such as wireless Internet, optical communications, and mapping of the human genome.

As the United States strives to retain or enlarge its share of national and international markets, electrical engineers are certain to play an important role in improving productivity through automation, increased efficiency, and new technologies.

Electrical and computer engineers work in research, design, development, manufacturing, sales, market analysis, consulting, field service, and management. They are employed in computer, semiconductor, software, aerospace, telecommunication, medical, radio, television, and power industries.

Undergraduate Program

The department offers the Bachelor of Science in Engineering in electrical engineering. The program's objective is to produce graduates who:

- contribute to society in a broad range of careers;
- function professionally in an increasingly international and rapidly changing world;
- effectively understand, use, and develop modern electrical and computer engineering technologies and concepts; and
- achieve success throughout their careers.

Bachelor of Science in Engineering

The electrical engineering curriculum provides technical depth and breadth as well as flexibility and the opportunity for students to customize their programs according to their own goals. Students complete a common core of electrical and computer engineering courses, then select one of three tracks. The electrical engineering track provides a broad background in electrical engineering concepts and practice, preparing students for careers in a wide range of industries and organizations. The computer engineering track provides focus and depth for students preparing for careers or graduate study in computer systems hardware or software engineering. The information engineering track prepares students for careers or advanced study in telecommunications or information technology.

The B.S.E. in electrical engineering requires a minimum of 128 s.h. The curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005-059:006 Engineering Problem Solving I-II and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. See "Curriculum Stems" and "General Education Component" under "Bachelor of Science in Engineering" in the College of Engineering section of the Catalog.

Elective focus area courses must be selected according to guidelines established by the Department of Electrical and Computer Engineering. See “Elective Focus Area” after the following curriculum list.

Electrical engineering students take five required track courses and two track electives. See “Track Breadth and Depth Electives” after the following curriculum list.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

FIRST YEAR

First Semester

004:011 Principles of Chemistry I	4 s.h.
010:003 Accelerated Rhetoric (or 010:001-010:002)	4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus	4 s.h.
055:090 Electrical Engineering Orientation Seminar	0 s.h.
059:005 Engineering Problem Solving I	3 s.h.

Second Semester

22M:032 Engineering Mathematics II: Multivariable Calculus	4 s.h.
22M:033 Engineering Mathematics III: Matrix Algebra	2 s.h.
029:081 Introductory Physics I	4 s.h.
059:006 Engineering Problem Solving II	3 s.h.
General education component course	3 s.h.

SECOND YEAR

First Semester

22M:034 Engineering Mathematics IV: Differential Equations	3 s.h.
029:082 Introductory Physics II	3-4 s.h.
059:007 Engineering Fundamentals I: Statics	2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits	3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics	3 s.h.

Second Semester

22M:037 Engineering Mathematics V: Vector Calculus	3 s.h.
055:040 Linear Systems I	3 s.h.
057:017 Computers in Engineering	3 s.h.
057:018 Principles of Electronic Instrumentation	4 s.h.
General education component course	3 s.h.

THIRD YEAR

First Semester

22S:039 Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
055:032 Introduction to Digital Design	3 s.h.
055:070 Electromagnetic Theory	3 s.h.
055:091 Professional Seminar: Electrical Engineering	0 s.h.
Two required track courses	6 s.h.

Second Semester

Three required track courses	9 s.h.
Two elective focus area courses	6 s.h.
General education component course	3 s.h.

FOURTH YEAR

First Semester

055:088 Principles of Electrical Engineering Design	3 s.h.
Track breadth elective	3 s.h.
Three elective focus area courses	9 s.h.
General education component course	3 s.h.

Second Semester

055:089 Senior Electrical Engineering Design	3 s.h.
Track depth elective	3 s.h.
Two elective focus area courses	6 s.h.
General education component course	3 s.h.

Required Track Courses

Each electrical engineering curriculum track requires five track courses, as follows.

Computer Engineering Track

22C:019 Discrete Structures	3 s.h.
22C:031 Algorithms	3 s.h.
055:033 Introduction to Software Design	3 s.h.
055:035 Computer Architecture and Organization	3 s.h.
055:036 Embedded Systems and Systems Software	3 s.h.

Electrical Engineering Track

055:041 Electronic Circuits	4 s.h.
055:043 Linear Systems II	3 s.h.
055:050 Communication Systems	3 s.h.
055:060 Control Systems	3 s.h.
055:072 Electrical Engineering Materials and Devices	3 s.h.

Information Engineering Track

055:043 Linear Systems II	3 s.h.
055:046 Digital Signal Processing	3 s.h.

055:050 Communication Systems	3 s.h.
055:051 Randomness and Information	3 s.h.
055:054 Communication Networks	3 s.h.

TRACK BREADTH AND DEPTH ELECTIVES

Students choose one track breadth elective from the courses required for one of the other two tracks.

Students also choose one track depth elective, which must be an advanced course in a subject area within the student's track—normally a 100-level course for which one of the required track courses is a prerequisite. For a complete list of depth electives for each track, see the Department of Electrical and Computer Engineering web site.

Elective Focus Area

The elective focus area provides access to the broad range of course work in the department, the college, and the University. Each student works with his or her academic advisor to develop an elective focus area tailored to his her own goals—for example, additional technical depth in one or more areas of electrical engineering, completion of a minor in a relevant area, completion of the Certificate in Technological Entrepreneurship, or pursuit of interdisciplinary experience.

The elective focus area must include at least 15 s.h. of technical course work, at least 6 s.h. of which must be earned in 100-level electrical and computer engineering courses. Students earning a minor in business or a Certificate in Technical Entrepreneurship may apply up to 6 s.h. of the required technical course work to the minor or certificate. All students must demonstrate an ability to work on multidisciplinary teams.

All elective focus area plans must be approved in advance by the department.

For more detailed information about elective focus areas, see “Bachelor of Science in Engineering”/“Elective Focus Area” in the College of Engineering section of the Catalog. For more information about the department's elective focus area guidelines, see the Department of Electrical and Computer Engineering web site.

Graduate Programs

The Department of Electrical and Computer Engineering offers the Master of Science and Doctor of Philosophy, and an M.S. subtrack in software engineering. Excellence in scholarship

and research is stimulated by close contact with the faculty throughout graduate study and through programs tailored to fit individual needs.

Students select an advisor and, with the advisor, plan an individual program bounded only by the broad guidelines of the Graduate College and the program. The department maintains close interdisciplinary ties with other University of Iowa departments, especially with the Departments of Physics and Astronomy, Computer Science, Mechanical and Industrial Engineering, and Biomedical Engineering, and the Carver College of Medicine. Principal areas of graduate study include waves and materials, computer systems, wireless communications, signal and image processing, computational genomics, and control systems and robotics.

Research and Study Areas**WAVES AND MATERIALS**

Research in this area is carried out primarily in the Iowa Advanced Technology Laboratories, a well-equipped, modern facility two blocks from the Engineering Building, and in Van Allen Hall. Current research topics are optical and electronic properties of semiconductors, semiconductor devices, electro-optics, nonlinear optics, nonlinear wave propagation in plasmas, nanotechnology, and medical devices.

Much work is done in collaboration with other University of Iowa departments, including the Departments of Physics and Astronomy, Chemistry, Internal Medicine, and Neurosurgery. Facilities include two molecular beam epitaxy reactors (in physics and astronomy), a microfabrication laboratory with micrometer resolution capabilities, electrical characterization capability to 22 GHz, several Ti-sapphire lasers, a mid-infrared optical parametric oscillator, and plasma equipment for nonlinear wave plasma interaction studies.

Examples of current projects are the design and fabrication of diode lasers based on the bandgap engineering of antimony and arsenic-based III-V compound semiconductors, phase control of laser arrays, development of an all-optical power equalizer, characterization of quantum well devices, nonlinear waveguide devices, development of a noncontact method to measure transport properties, plasma and optical soliton excitation and propagation, development of cellular probes, and a noninvasive glucose sensor for medical research.

COMPUTER SYSTEMS AND VLSI CIRCUITS

Research emphasis is directed toward design and test of very-large-scale integrated (VLSI) circuits, high-performance computing and networking, and intelligent agent systems. Research in the VLSI area involves development of techniques and algorithms that assist in synthesis and testing of large-scale logic circuits, and incorporation of these techniques into computer-aided design tools. Current projects include new pattern sources for built-in-test, efficient test pattern generation, generation of compact test sets, and methods for reducing test data volumes.

High-performance computing research involves development of collaborative and parallel computing environments and associated software tools, and use of these facilities and tools in varied application domains, including image processing and computational biology. Current work in networking focuses on protocols and layer-integration schemes that support high-performance wireless networking, and on control and coordination of mobile ad hoc networks. Current research facilities in these areas include several large cluster computers and an experimental asynchronous transfer mode (ATM) network.

Agent technologies research is directed toward development of autonomous software and robotic agents capable of engaging in distributed collaborations that support varied application domains. Current work focuses on development of methods to reconcile diverse agent ontologies and application of agent technologies to medically related problems, including collaborative classification of macular degeneration characteristics and computer engineering education.

Departmental facilities that support this work include a network of SUN, HP, SGI, and Linux workstations, and high-speed network connections to collegiate, University, and national facilities, including an NSF-funded, dedicated ATM network of high-performance workstations, the college's Computer Systems Support (CSS), the University's Information Technology Services, national supercomputer centers, federal laboratories, and facilities at other universities.

BIOINFORMATICS AND COMPUTATIONAL GENOMICS

The Coordinated Laboratory for Computational Genomics (CLCG) is a collaborative effort of the Department of Electrical and Computer Engineering and the Carver College of Medicine. The laboratory's joint research projects include clustering and cDNA/EST sequencing, web-based tools for genetic linkage analysis, gene

discovery and mapping, microarray hybridization, gene expression, and high-throughput genotyping. This lab is recognized worldwide for its contribution to the Human Genome Project.

The CLCG's computational infrastructure consists of more than 126 computing systems, 178 CPUs, 100+ gigabytes of RAM, and 2.5 terabytes of disk space. The laboratory has four separate dedicated server clusters of 36, 32, 18, and 8 CPUs running Linux operating systems. This includes four dedicated, dual fiber channel, redundant disk storage systems (RAID) of 412 GB usable. CLCG is wired for 10- and 100-megabit Ethernet networking.

SIGNAL AND IMAGE PROCESSING

Research in image processing and basic and applied signal processing is supported by a digital signal processing laboratory and an image analysis laboratory. Collaborative research with faculty in the Departments of Radiology, Neurology, Psychiatry, Internal Medicine, and Biomedical Engineering is directed at quantitative analysis of medical images.

In the area of signal processing, current projects include analysis and design of efficient adaptive algorithms for signal processing, efficient coding and transmission of speech, speech processing aids for the hearing-impaired, robust equalization of uncertain channels, application of neural networks to communications systems, multirate signal processing, and subband coding and channel equalization.

Current projects in image processing include automated detection of vessel borders and coronary trees in angiograms using artificial intelligence techniques, detection and tracking of cardiac motion from magnetic resonance images, analysis of cardiac motion patterns, automated analysis of intravascular ultrasound images, semantic approaches to segmentation of three-dimensional brain images based on genetic optimization algorithms, knowledge-based techniques for identification of pulmonary airway trees from CT images, and three-dimensional segmentation techniques for quantification of lung disease.

Additional projects include medical image registration using deformable shape models; modeling normal versus abnormal anatomical shape as imaged via MRI, CT, and PET; tracking growth and regression of cancer tumors before and after treatment; 3-D measurement and visualization of normal and abnormal infant skull shape; development of parallel algorithms to reduce computation time; and novel sampling and reconstruction techniques for magnetic resonance imaging acquisitions.

The E.C.E. Medical Image Analysis Laboratory is a specialized facility for digital image processing equipped with state-of-the-art equipment. It is equipped with two Silicon Graphic Onyx, three Alpha Linux, and 15 high-end dual-CPU Windows XP and Linux computers with 4 GB of RAM each. High-quality I/O devices for image digitization and visualization are available. High-capacity computer storage disk arrays offer more than 900 GB online hard disk space.

CONTROL SYSTEMS AND ROBOTICS

Current research emphasizes optimal, adaptive, digital, robust and stochastic control and the control of discrete event dynamical systems. Recent work has concerned the estimation, identification, and robust control of linear and nonlinear dynamical systems; set membership identification, control over wireless communication channels; coordinated fault tolerant control of unmanned vehicles; use of control theory to analyze distributed computing, communications, and manufacturing systems; interplay between communications and control; design of fast digital controllers using subband coding; and multirate control systems.

WIRELESS COMMUNICATION SYSTEMS

Current research activities in communication systems focus on design and analysis of receivers for digital wireless communications, especially on the development of effective and practical receivers for multi-user wireless cellular systems in multipath channels. Projects include the removal of intersymbol interference by blind identification/equalization, multi-user detection in CDMA without power control, receiver structures for 3G wireless cellular systems, ad hoc wireless networks, space time coding; resource allocation in OFDM systems; and scheduling in wireless networks. Fundamental theoretical issues and practical implementation are emphasized.

Master of Science

The M.S. in electrical and computer engineering is offered with and without thesis; either option may precede Ph.D. study. The thesis option requires 30 s.h. of graduate course work, including at least 12 s.h. from an approved list of electrical and computer engineering courses and 6 s.h. in 055:199 Research: Electrical and Computer Engineering M.S. Thesis. The nonthesis option requires 36 s.h. of graduate course work, including at least 18 s.h. from an approved list of electrical and computer engineering courses; nonthesis students may

count no more than 3 s.h. of independent study toward the degree. Courses required for the B.S.E. in electrical engineering do not count toward the M.S. requirements.

M.S. students must successfully complete a final examination, which is conducted by a committee of at least three faculty members. One part of the final examination for thesis students consists of an oral defense of the thesis. In order to graduate, M.S. students must have a cumulative g.p.a. of at least 3.00.

M.S. Subtrack in Software Engineering

An M.S. subtrack in software engineering is available to both thesis and nonthesis students. Successful completion of the subtrack results in the designation “with specialization in software engineering” on the student’s transcript.

The thesis subtrack requires a minimum of 30 s.h.; the nonthesis option requires 36 s.h. Both options require the following course work.

- All of these:
- 055:180 Fundamentals of Software Engineering 3 s.h.
 - 055:181 Formal Methods in Software Engineering 3 s.h.
 - 055:182 Software Engineering Languages and Tools 3 s.h.
 - 055:183 Software Engineering Project 3 s.h.
- At least three of these:
- 22C:162 Advanced Operating Systems 3 s.h.
 - 055:131 Introduction to VLSI Design 3 s.h.
 - 055:132 High Performance Computer Architecture 3 s.h.
 - 055:133 Graph Algorithms and Combinatorial Optimization 3 s.h.
 - 055:134 Computer Communications 3 s.h.
 - 055:185 Autonomous Agents and Multiagent Systems 3 s.h.

The thesis option requires an additional 3 s.h. of course work from the approved list of electrical and computer engineering courses; the nonthesis option requires an additional 6 s.h. All rules for additional credit and the M.S. final examination are the same as for the nonsubtrack M.S.

Doctor of Philosophy

The Ph.D. in electrical and computer engineering requires at least 72 s.h. of graduate credit. At least 45 s.h. must be earned in formal course work (not thesis or other independent study), including 30 s.h. from an approved list of electrical and computer engineering courses.

Each Ph.D. student's study plan must be approved by the student's advisor and by the graduate committee.

Ph.D. students take a Ph.D. qualifying examination and a Ph.D. comprehensive examination. Then they must successfully complete a research program that includes a minimum of 18 s.h. of Ph.D. research and culminates in the preparation of a thesis. Finally, the candidate must present a successful oral defense of the thesis.

Ph.D. students must maintain a cumulative g.p.a. of 3.25 or higher in all graduate course work.

Acceptance to the Ph.D. program requires successful completion of the Ph.D. qualifying examination. This all-day written exam is given once a year, late in the spring semester. It covers four areas chosen by the student from a list of six. Students normally are expected to take the qualifying examination within the first 30 s.h. of graduate studies. A cumulative g.p.a. of at least 3.25 is required for admittance to the exam. In the event of failure, the examination may be retaken only once, the next time it is offered.

Following successful completion of the Ph.D. qualifying examination and invitation to the Ph.D. program, a student must complete a three-part Ph.D. comprehensive examination that consists of a take-home exam set by the student's advisor and Ph.D. committee, preparation of a written thesis proposal, and an oral exam that includes presentation and defense of the proposal. A minimum of six months must separate completion of the first and last portions of the comprehensive examination. The final requirement for completion of the Ph.D. program is the preparation and successful defense of the Ph.D. thesis. This must be completed no sooner than six months but no longer than three years after completion of the comprehensive examination.

Admission

Applicants must meet the admission requirements of the Graduate College; for detailed information about Graduate College policies, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

M.S. applicants must have a g.p.a. of at least 3.00, and Ph.D. applicants must have a g.p.a. of at least 3.25, on all electrical and computer engineering, mathematics, and physics course work. M.S. applicants with a g.p.a. between 2.75 and 3.00 in electrical and computer

engineering, mathematics, and physics course work may be admitted on probation, if warranted by other aspects of their academic records.

Students with baccalaureate degrees in related areas (e.g., physics, mathematics, and computer science) may be admitted on conditional status. They may be required to complete additional course work, without earning graduate credit, before being granted regular status.

Each application is reviewed individually. Extenuating circumstances may permit deviations from the usual standards.

Financial Support

A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

Special Facilities and Laboratories

Undergraduate Core

Electrical and computer engineering provides core instruction for the college in electrical circuits, electronics, instrumentation, and computers. A key part of this core teaching responsibility lies in providing students with an early opportunity to use engineering laboratory instrumentation.

Undergraduate Laboratories

The undergraduate laboratories include facilities for the study of electrical and electronic circuits, signals and systems, microprocessor-based computers and systems, measurement automation, communication systems, control systems, computer-aided design of VLSI circuits, image processing, robotics, and optics.

An electronic classroom devoted to image acquisition, processing, transmission, and analysis is the newest addition to the list of state-of-the-art facilities available for undergraduate and graduate education. It is equipped with high-end Hewlett Packard UNIX workstations. Class material is taught in a collaborative learning environment in which students participate during lectures, acquiring practical hands-on experience.

Graduate Facilities and Laboratories

The department has laboratories intended primarily for graduate research in the areas of parallel processing, image processing, CAD for VLSI circuits, software engineering, electro-optics, plasma physics, control systems, cardiovascular image processing, and wireless communication. A network of SUN, IBM, and HP workstations and server nodes provides departmental computing support. This network is tied to the College of Engineering facilities, which consist of more than 100 Hewlett-Packard workstations. Connections are provided to central University facilities and national networks. Through cooperative arrangements, advanced computing facilities at national supercomputing centers, federal laboratories, and other universities are available for graduate research.

Courses

Special Topics

- 055:000 Cooperative Education Training Assignment: Electrical Engineering** 0 s.h.
Electrical engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Prerequisites: admission to Cooperative Education Program and consent of cooperative faculty advisor.
- 055:088 Principles of Electrical Engineering Design** 3 s.h.
Design problems requiring integration of subject matter from other required electrical and computer engineering courses. Prerequisite: senior standing.
- 055:089 Senior Electrical Engineering Design** 3 s.h.
Individual or team project; demonstration of completed project and formal engineering report. Prerequisite: senior standing. Corequisite: 055:088.
- 055:090 Electrical Engineering Orientation Seminar** 0 s.h.
Introduction to the electrical and computer engineering curriculum and profession; ethics and professionalism in the classroom and workplace. Prerequisite: first-year standing.
- 055:091 Professional Seminar: Electrical Engineering** 0 s.h.
Professional aspects of electrical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Repeatable. Prerequisite: junior standing.
- 055:098 Individual Investigations: Electrical Engineering** arr.
Individual projects for electrical engineering undergraduate students: laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisite: consent of supervising faculty instructor.

Digital Systems, Computers, Software Engineering

- 055:032 Introduction to Digital Design** 3 s.h.
Modern design and analysis of digital switching circuits; combinational logic; sequential circuits and system controllers; interfacing and busing techniques; design methodologies using medium- and large-scale integrated circuits; lab arranged. Prerequisite: sophomore standing.
- 055:033 Introduction to Software Design** 3 s.h.
Design of software for engineering systems; algorithm design and structured programming; data structures; introduction to object-oriented programming in JAVA; applications to engineering problems; lab arranged. Prerequisite: 057:017.
- 055:035 Computer Architecture and Organization** 3 s.h.
Basic concepts; computer evolution, register transfer level design, simulation techniques, instruction sets (CISC and RISC), assembly language programming, ALU design, arithmetic algorithms and realization of arithmetic functions, hardwired and microprogrammed control, memory hierarchies, virtual memory, cache memory, interrupts and DMA, input/output; introduction to high-performance techniques, pipelining, multiprocessing; introduction to hardware description languages (Verilog, VHDL); students design and simulate a simple processor. Offered fall semesters. Prerequisites: 055:032 and 057:017.
- 055:036 Embedded Systems and Systems Software** 3 s.h.
Microprocessors and microcontrollers as components in engineering systems; embedded system design processes; microcontroller/microprocessor architecture; interrupts and traps; memory and device interfacing; low-level and high-level software design for embedded systems; examples of embedded system architecture and design; fundamentals of operating systems; tasks and processes; context switching and scheduling; memory and file management, interprocess communication; device drivers. Prerequisite: 057:017. Corequisite: 055:035.
- 055:121 Introduction to Bioinformatics** 4 s.h.
Same as 002:169, 051:121.
- 055:122 Computational Genomics** 3 s.h.
Same as 002:174, 051:122, 127:173.
- 055:130 Switching Theory** 3 s.h.
Switching algebras; combinational circuits—hazards, minimization, multiple-output networks; sequential circuits—critical races, essential hazards, fundamental-mode, pulse-mode, synchronous circuits-state assignment, state reduction; Input-output experiments. Prerequisite: 055:032.
- 055:131 Introduction to VLSI Design** 3 s.h.
MOS devices and circuits; MOS transistor theory, MOS processing technologies, MOS device models; timing and power considerations; performance issues; scaling; various logic schemes; circuit techniques; clocking strategies; I/O structures; design styles; ASIC design; MOS subsystem design; system case studies, use of electronic design automation tools, introduction to hardware description languages, design synthesis, design projects; lab. Prerequisites: 055:032 and 055:041.
- 055:132 High Performance Computer Architecture** 3 s.h.
Problems involved in designing and analyzing current machine architectures using hardware description language (HDL) simulation and analysis, hierarchical memory design, pipeline processing, vector machines, numerical applications, multiprocessor architectures and parallel algorithm design techniques; evaluation methods to determine relationship between computer design and design goals. Prerequisite: 22C:112 or 22C:113 or 055:035. Same as 22C:160.
- 055:133 Graph Algorithms and Combinatorial Optimization** 3 s.h.
Combinatorial optimization problems; time complexity; graph theory and algorithms; combinatorial optimization algorithms; complexity theory and NP-completeness; approximation

algorithms; greedy algorithms and matroids. Prerequisite: 055:033 or equivalent.

055:134 Computer Communications **3 s.h.**

Computer networks, ISO model, network topology, communication of digital data, data link control; errors and error control; point-to-point networks; broadcast networks, local network architecture; transport services; wireless networking, internetworking; user services. Prerequisite: 22C:118 or 055:054 or equivalent. Same as 22C:168.

055:138 Testing Digital Logic Circuits **3 s.h.**

Logic models for faults; fault detection in combinational and sequential circuits; fault-diagnosis; design for testability; random testing, compressed data testing, built-in testing. Prerequisite: 055:032.

055:180 Fundamentals of Software Engineering **3 s.h.**

Problem analysis, requirements specification, design, implementation, testing/maintenance, integration, project management; human factors; management and technical communication; design methodologies; software validation and verification, group project. Prerequisites: 22C:022 or 055:033, and senior standing in electrical and computer engineering or computer science. Same as 22C:180.

055:181 Formal Methods in Software Engineering **3 s.h.**

Formal models and methods and their application in software engineering processes; operational, algebraic, model-based and property-based specification methods; verification of consistency and completeness of specifications; verification of properties of software; specification construction and verification using method-based tools. Prerequisite: grade of C- or higher in 22C:180 or 055:180. Same as 22C:181.

055:182 Software Engineering Languages and Tools **3 s.h.**

Object-oriented programming concepts (objects, classes, single and multiple inheritance, polymorphism and dynamic binding); object-oriented languages and environments such as JAVA and Eiffel; introduction to design patterns and software architectures such as Model-View-Controller and application frameworks; component-based software development; use of standard component frameworks such as CORBA and COM/DCOM. Prerequisites: 22C:180 or 055:180, experience with an object-oriented programming language, and consent of instructor. Same as 22C:182.

055:183 Software Engineering Project **3 s.h.**

Team software development project using concepts and methodologies learned in earlier software engineering classes; practical aspects of large-scale software development. Prerequisites: 22C:180 and 22C:182, or consent of instructor. Same as 22C:183.

055:185 Autonomous Agents and Multiagent Systems **3 s.h.**

Principles and architectures of autonomous agents and multiagent systems; distributed computing platforms and programming; knowledge representation and reasoning subsystems; agent communication language design; planning, coordination, adaptation, and learning in a multiagent system. Prerequisites: 055:033 and 057:017.

055:230 Advanced Logic Synthesis **3 s.h.**

Synthesis of multiple output circuits; finite state machines; algebraic factoring; testability preserving transformations; design verification; high-level synthesis. Prerequisites: 055:130 and 055:131, or consent of instructor.

Signal Processing

055:040 Linear Systems I **3 s.h.**

Introduction to continuous and discrete time signals and systems with emphasis on Fourier analysis; examples of signals and systems; notion of state and finite state machines; causality; linearity and time invariance; periodicity; Fourier transforms;

frequency response; convolution; IIR and FIR filters, continuous and discrete Fourier transforms; sampling and reconstruction; stability. Prerequisites: 22M:034 and 059:008.

055:041 Electronic Circuits **4 s.h.**

Design and analysis of FET and BJT amplifiers; low, midrange, high-frequency analysis; difference amplifiers; feedback amplifiers; SPICE simulation; power amplifiers; digital logic families. Prerequisites: 055:040 and 057:018.

055:043 Linear Systems II **3 s.h.**

Continuation of 055:040, emphasis on Laplace and Z-transform analysis; unilateral and bilateral Laplace transform; region of convergence; stability; block diagram algebra; first- and second-order continuous and discrete time systems; Bode plots. Prerequisite: 055:040.

055:046 Digital Signal Processing **3 s.h.**

Theory and techniques used in representation, analysis, and design of discrete-time signals, system concepts in frequency and sampling domains; discrete-time processing of continuous-time signals; FIR and IIR digital filter theory, design and realization techniques; theory and application of Fourier transforms. Prerequisite: 055:043.

055:143 Linear Integrated Electronics **3 s.h.**

Advanced topics in linear integrated circuits; active load concepts, noise models; analog voltage multipliers, phase-locked loops; case studies of op amps, regulators; MOS amplifier design. Prerequisite: 055:041.

055:144 Digital Integrated Electronics **3 s.h.**

Principles of operation of digital integrated circuits; logic families; use of four-state transistor models; sources of propagation delay; advanced design concepts; SPICE modeling; transmission line effects. Prerequisite: 055:041.

055:145 Pattern Recognition **3 s.h.**

Mathematical foundations and practical techniques of pattern recognition; adaptation, learning, description; statistical pattern recognition; syntactic pattern recognition, neural networks for recognition; fuzzy logic for recognition; nonstandard and combined pattern recognition approaches. Prerequisite: 055:040.

055:146 Digital Signal Processing **3 s.h.**

Theory, techniques used in representing discrete-time signals; system concepts in frequency and sampling domains; FIR and IIR digital filter theory, design and realization techniques; theory, application of discrete Fourier transforms/FFT. Prerequisites: 055:043 and 055:046.

055:148 Digital Image Processing **3 s.h.**

Mathematical foundations and practical techniques for digital manipulation of images; image sampling, compression, enhancement, linear and nonlinear filtering and restoration; Fourier domain analysis; image segmentation. Prerequisites: 051:040 or 055:040, and 051:060 or 055:043. Same as 051:148.

055:245 Magnetic Resonance Imaging Systems **3 s.h.**

Mathematical foundations and practical implementation for magnetic resonance imaging (MRI); principles of image formation using Fourier and projection techniques, non-Cartesian sampling, tomographic image reconstruction, sources of artifacts and their correction. Prerequisites: 055:146 and 055:148, or equivalents.

055:247 Image Analysis and Understanding **3 s.h.**

Mathematical foundations and practical techniques of digital image analysis and understanding; image segmentation (from edges and regions), object description (from boundaries, regions, scale, scale insensitive descriptions, 3-D shape, texture) pattern recognition (statistical and syntactic methods, cluster analysis), image understanding (knowledge representation, control strategies, matching, context, semantics), image analysis and understanding systems; lab arranged. Prerequisites: 055:146 and 055:148.

055:248 Advanced Digital Image Processing 3 s.h.
 Visual perception of images (light perception, monochrome vision model, color vision model); advanced image transforms (DCT, Hadamard, Haar, Karhunen-Loeve transforms); image restoration (modeling, spatial restoration techniques, spectral image restoration techniques); geometrical image modification; 3-D imaging; morphological image processing (connectivity, hit-or-miss transformations, thinning, dilation, erosion, closing, opening). Prerequisites: 055:146 and 055:148.

Communications and Information

055:050 Communication Systems 3 s.h.
 Fourier transform review, Hilbert transforms; narrow band signals, bandpass filters; amplitude and angle modulation systems; random processes, stationarity, ergodicity; noise, noise figure, noise analysis of CW systems; pulse analog modulation; design principles; lab arranged. Prerequisites: 22S:039 and 055:043.

055:051 Randomness and Information 3 s.h.
 Introduction to random sequences and processes and their use in modeling information bearing signals and noise; basic concepts from probability theory; random variables and vectors; discrete, continuous, and conditional distribution and density functions; independence; expectation; random sequence and process properties and examples; stationarity, correlation, and power spectral density; linear filtering; source coding; signal quantization, waveform coding. Prerequisite: 22S:039. Corequisite: 055:050.

055:054 Communication Networks 3 s.h.
 Communication networks, layered network architectures, applications, network programming interfaces (e.g., sockets), transport, congestion, routing, data link protocols, local area networks, emerging high-speed networks, multimedia networks, network security, Internet protocol; technology examples. Prerequisite: 057:017. Corequisite: 22S:039.

055:150 Communication Theory 3 s.h.
 Random processes, source coding, digital transmission at baseband, optimum receiver design for Gaussian noise, error probability and power spectrum analysis, signal design for bandwidth limited channels, digital carrier modulation, bandwidth/energy/error probability tradeoffs, coding for error detection and correction. Prerequisites: 055:050 and 055:051.

055:152 Introduction to Information and Coding Theories 3 s.h.
 Quantitative measure of information; source encoding; error detecting codes; block and convolutional codes, design of hardware and software implementations; Viterbi decoding. Prerequisite: 055:050.

Controls

055:060 Control Systems 3 s.h.
 Fundamental concepts of linear feedback control, mathematical modeling, transfer functions, system response, feedback effects, stability, root-locus and frequency response analysis and design, compensation, lab arranged. Prerequisite: 055:040.

055:160 Control Theory 3 s.h.
 State space approach; controllability, observability, canonical forms; design of Luenberger observers; feedback control via pole placement; stability, minimal realization; advanced topics. Prerequisite: 055:060. Same as 058:133.

055:163 Random Processes: Control and Communication 3 s.h.
 Probability, vector random variables, expectations and transformations; random sequences and limit theorems; discrete and continuous random processes; Poisson and multivariate Gaussian processes, Markov chains; spectral analysis, estimation, reliability, other applications. Prerequisites: 055:050 and 055:051.

055:164 Computer-Based Control Systems 3 s.h.
 Discrete and digital control systems; application of computers in control; sampling theorem; discrete time system models; analysis and design of discrete time systems; control design by state variable and input/output methods; advanced topics in digital controls; lab. Prerequisite: 055:060. Same as 058:134.

Waves and Materials

055:070 Electromagnetic Theory 3 s.h.
 Electric and magnetic forces, Maxwell's equations, wave propagation; applications, including radiation, transmission lines, circuit theory. Prerequisites: 22M:037 and 029:082.

055:072 Electrical Engineering Materials and Devices 3 s.h.
 Fundamentals of semiconductor physics and devices; principles of the p-n junction diode, bipolar transistor, field effect transistor. Prerequisites: 029:082 and 055:041.

055:170 Advanced Electromagnetic Theory 3 s.h.
 Time varying fields; plane wave propagation, reflection, refraction; waves in anisotropic media transmission lines, impedance matching, Smith chart; metallic and dielectric wave guides; resonators; antennas, antenna arrays. Prerequisite: 055:070.

055:172 Solid State Physical Electronics 3 s.h.
 Semiconductor physics, semiconducting devices; elementary quantum mechanics, statistics; transport; bipolar, MOS transistors; physics of device operation as it relates to circuit design. Prerequisites: 029:083 and 055:072.

055:173 Introductory Solid State Physics 3 s.h.
 Phenomena associated with solid state; classification of solids and crystal structures, electronic and vibrational properties in solids; thermal, optical, magnetic, dielectric properties of solids. Same as 029:193.

055:177 Introductory Optics 3 s.h.
 Geometrical and physical optics; interference; diffraction, polarization; microscopic origins of macroscopic optical properties of matter; optical activity; electro-optical, magneto-optical, acousto-optical phenomena; spontaneous Brillouin, Raman, Rayleigh scattering. Prerequisite: 029:130 or equivalent. Same as 029:180.

055:178 Optical Signal Processing 3 s.h.
 Linear systems description of optical propagation; diffraction and angular plane wave spectrum; lenses as Fourier transformers, lens configurations as generalized optical processors; lasers, coherence, spatial frequency analysis; holography; convolvers, correlators, matched filters; synthetic aperture radar; optical computing. Prerequisite: 055:070. Same as 029:184.

055:179 Electro-Optics 3 s.h.
 Wave equation solutions; optical birefringence; finite beam propagation in free space, dielectric waveguides and fibers; optical resonators; nonlinear phenomena; electro-optic, acousto-optic modulation; optical detection, noise; application to communication systems. Prerequisite: 055:070. Same as 029:182.

055:272 Quantum Electronics 3 s.h.
 Field and particle quantization, interaction of electromagnetic and acoustic fields with matter, noise statistics, single- and multiple-photon processes, nonlinear optics, losses in quantum electronics systems. Prerequisites: 029:140 and 055:172. Same as 029:226.

055:273 Semiconductor Physics 3 s.h.
 Electronic, optical, and materials properties of semiconductors. Prerequisites: 029:193 and 029:246. Same as 029:229.

055:274 Laser Principles 3 s.h.
 Laser theory, stimulated emission, dispersion theory, broadening mechanisms, rate equations, gain saturation, optical resonators,

mode-locking, Q-switching techniques, survey of laser types, modes of operation. Prerequisite: 055:170 or equivalent. Same as 029:224.

055:276 Nonlinear Optics **3 s.h.**
 Primarily classical treatment of second- and third-order optical nonlinearities; phase matching, harmonic generation, three and four wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Prerequisite: 029:130 or 055:170 or equivalent. Same as 029:222.

Graduate Seminars, Advanced Topics, Research

055:191 Graduate Seminar: Electrical and Computer Engineering **0 s.h.**
 Presentation and discussion of recent advances and research in electrical and computer engineering by guest lecturers, faculty, students. Prerequisite: graduate standing.

055:195 Contemporary Topics in Electrical and Computer Engineering **arr.**
 New topics or areas of study not offered in other electrical and computer engineering courses; based on faculty/student interest; not available for individual study. Prerequisite: senior standing.

055:198 Individual Investigations: Electrical and Computer Engineering **arr.**
 Individual projects for electrical and computer engineering graduate students; laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of faculty advisor.

055:199 Research: Electrical and Computer Engineering M.S. Thesis **arr.**
 Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for M.S. degree with thesis in electrical and computer engineering. Prerequisites: graduate standing and consent of faculty advisor.

055:291 Seminar: Plasma Physics **arr.**
 Discussion of current research. Prerequisite: consent of instructor. Same as 029:261.

055:295 Advanced Topics in Electrical and Computer Engineering **arr.**
 Discussion of current literature in electrical and computer engineering. Prerequisite: consent of instructor.

055:299 Research: Electrical and Computer Engineering Ph.D. Thesis **arr.**
 Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for Ph.D. in electrical and computer engineering. Prerequisite: consent of faculty advisor.

Mechanical and Industrial Engineering

Chair: Lea-Der Chen

Industrial engineering program coordinator:

Geb W. Thomas

Mechanical engineering program coordinator:

H.S. Udaykumar

Professors: Karim Abdel-Malek, Kurt M. Anstreicher, Jasbir S. Arora, Christoph Beckermann, P. Barry Butler, Krishnan B. Chandran, Lea-Der Chen, Kyung K. Choi, Warren G. Darling, Raymond P.S. Han, Andrew Kusiak, Jeffrey S. Marshall, Peter O'Grady, Joon B. Park, Virendra C. Patel, Sharif Rahman, Matthew Rizzo, Ralph I. Stephens, Frederick Stern

Professors emeriti: James G. Andrews, Dennis L. Bricker, Gary W. Fischer, Edward J. Haug, Robert G. Hering, George M. Lance, John M. Liittschwager, Enzo O. Macagno, Donald H. Madsen, J. Richard Simon, Theodore F. Smith

Associate professors: John D. Lee, Ching-Long Lin, Thomas Schnell, Geb W. Thomas, H.S. Udaykumar

Assistant professors: Linda N. Boyle, Yong Chen, Nagi Gebraeel, Pavlo Krokhmal, Jia Lu, Albert Ratner, Shaoping Xiao

Undergraduate degree: B.S.E. in Industrial Engineering, Mechanical Engineering

Graduate degrees: M.S., Ph.D. in Industrial Engineering, Mechanical Engineering

Web site: <http://www.mie.engineering.uiowa.edu/>

The Department of Mechanical and Industrial Engineering offers distinct undergraduate and graduate degrees and research programs in industrial engineering and in mechanical engineering.

Industrial Engineering

Industrial engineering is concerned with analysis, design, and implementation of systems through optimal use of resources—human, material, energy, information, and financial. Systems may range from small units to extremely large operations. In order to accomplish these activities, the industrial engineer must be skilled in mathematics, physical sciences, management, and human relations as well as manufacturing, computer systems, economics, optimization, human behavior, and systems analysis and design.

Industrial engineers have many opportunities for employment and service in industrial, government, research, and public service organizations. Employment opportunities are among the most varied in the engineering field. Industrial engineers hold positions as advisors to

management or may participate directly in management decisions. Representative job titles include industrial engineer, manufacturing engineer, systems analyst, quality specialist, operations research analyst, internal consultant, human factors specialist, supervisor, and manager. While most industrial engineers are employed by manufacturing firms, others work in government agencies or service organizations such as airlines, banks, hospitals, and consulting companies.

Mechanical Engineering

Mechanical engineering is broadly concerned with energy, manufacturing, and design of machines. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems—including complex human-machine systems—for energy conversion, environmental control, materials processing, transportation, materials handling, and other purposes. Major subspecialties of mechanical engineering include thermal-fluids engineering and mechanical systems engineering.

Thermal-fluid phenomena occur in many engineering systems and devices, such as aircraft; automobiles; off-road vehicles; ships; gas turbines; heat exchangers; material processes; heating, ventilating, air-conditioning, and refrigerating systems; hydraulic turbines; airbag inflators; fuel cells; environmental control devices; and biomedical systems. Mechanical systems and machines are the foundations of human technology. Examples are found in manufacturing equipment, medical equipment, automobiles, tractors, aircraft, ships, home appliances, packaging machinery, and robots.

Mechanical engineers find a wide variety of career opportunities in industry, government, and education. Mechanical engineers form an integral part of most industries, including aerospace firms, energy companies, automobile manufacturers, health care providers, food- and metal-processing industries, petroleum refineries, electronic and computer manufacturers, heavy construction and agricultural vehicle manufacturers, thermal comfort equipment firms, and farm equipment firms.

Undergraduate Programs

The department offers the Bachelor of Science in Engineering in industrial engineering, and the Bachelor of Science in Engineering in mechanical engineering.

Industrial Engineering

The objective of the B.S.E. program in industrial engineering is to produce graduates who:

- have a strong foundation of mathematical, scientific, and technical knowledge and are equipped with skills in problem solving, teamwork, and communication that will serve them throughout their careers;
- are able to pursue successful careers as practicing industrial engineers in manufacturing industries, medical institutions, and engineering consulting firms;
- are able to successfully pursue advanced studies in industrial engineering; in other engineering disciplines; or in diverse nontechnical fields such as medicine, law, or business; and
- are able to assume professional leadership roles.

Mechanical Engineering

The objective of the B.S.E. program in mechanical engineering is to produce graduates who:

- have a strong foundation of knowledge in mathematics, science, and mechanical engineering and are equipped with skills in problem solving, design, teamwork, and communication that will serve them throughout their careers;
- are able to pursue successful careers as practicing mechanical engineers in manufacturing industries, energy and utility companies, and engineering consulting firms;
- are able to successfully pursue advanced studies in mechanical engineering; in related technical areas such as physics, applied mathematics, and other engineering disciplines; and in other professional fields; and
- are able to assume professional leadership roles.

B.S.E. in Industrial Engineering

The undergraduate program in industrial engineering requires a strong foundation of courses in engineering science, mathematics, design, manufacturing, social science, and humanities. Advanced work includes specialty courses in human factors and ergonomics, management, information systems, concurrent engineering, production, manufacturing, quality control, reliability, and operations research. Design is an integral part of the undergraduate program; all students complete a comprehensive design experience.

The B.S.E. in industrial engineering requires a minimum of 128 s.h. The curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005-059:006 Engineering Problem Solving I-II and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. See “Curriculum Stems” and “General Education Component” under “Bachelor of Science in Engineering” in the College of Engineering section of the Catalog.

Elective focus area courses must be selected according to guidelines established by the Department of Mechanical and Industrial Engineering. See “Elective Focus Area” after the following curriculum list.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

FIRST YEAR

First Semester

004:011 Principles of Chemistry I	4 s.h.
010:003 Accelerated Rhetoric	4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus	4 s.h.
059:005 Engineering Problem Solving I	3 s.h.
059:090 First-Year Engineering Seminar	0 s.h.

Second Semester

22M:032 Engineering Mathematics II: Multivariable Calculus	4 s.h.
22M:033 Engineering Mathematics III: Matrix Algebra	2 s.h.
029:081 Introductory Physics I	4 s.h.

059:006 Engineering Problem Solving II 3 s.h.
 General education component course 3 s.h.

SECOND YEAR

First Semester

22M:034 Engineering Mathematics IV:
 Differential Equations 3 s.h.
 029:082 Introductory Physics II 3 s.h.
 031:001 Elementary Psychology 3 s.h.
 056:020 Industrial Engineering
 Sophomore Seminar 0 s.h.
 059:007 Engineering Fundamentals I:
 Statics 2 s.h.
 059:008 Engineering Fundamentals II:
 Electrical Circuits 3 s.h.
 059:009 Engineering Fundamentals III:
 Thermodynamics 3 s.h.

Second Semester

22S:039 Probability and Statistics for the
 Engineering and Physical Sciences 3 s.h.
 056:020 Industrial Engineering
 Sophomore Seminar 0 s.h.
 056:054 Engineering Economy 3 s.h.
 057:015 Materials Science 3 s.h.
 057:017 Computers in Engineering 3 s.h.
 Elective focus area course 3 s.h.

THIRD YEAR

First Semester

056:032 Design for Manufacturing 3 s.h.
 056:091 Professional Seminar: Industrial
 Engineering 0 s.h.
 056:144 Human Factors 3 s.h.
 056:171 Operations Research 4 s.h.
 Elective focus area course 3 s.h.
 General education component course
 (100 level) 3 s.h.

Second Semester

22S:030 Statistical Methods and
 Computing 3 s.h.
 056:091 Professional Seminar: Industrial
 Engineering 0 s.h.
 056:131 Manufacturing Systems 3 s.h.
 056:147 Ergonomics 3 s.h.
 056:150 Information Systems Design 3 s.h.
 056:178 Digital Systems Simulation 3 s.h.
 General education component course
 (100 level) 3 s.h.

FOURTH YEAR

First Semester

056:091 Professional Seminar: Industrial
 Engineering 0 s.h.

056:134 Process Engineering 3 s.h.
 056:162 Quality Control 3 s.h.
 056:166 Production Systems 3 s.h.
 Elective focus area course 3 s.h.
 General education component course
 (100 level) 3 s.h.

Second Semester

056:160 Operational Systems Design 4 s.h.
 Elective focus area courses (including
 math/science elective) 12 s.h.

Elective Focus Area

The industrial engineering program offers a variety of elective focus area options, including standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests. For more detailed information about elective focus areas, see “Bachelor of Science in Engineering”/“Elective Focus Area” in the College of Engineering section of the Catalog. For a list of standard industrial engineering elective focus area options and guidelines for tailored elective focus areas, see the Department of Mechanical and Industrial Engineering web site.

Combined B.S.E./M.S.

Qualified industrial engineering undergraduate students who plan to earn a master’s degree in industrial engineering may enroll in the program’s combined Bachelor of Science in Engineering/Master of Science program, which enables students to complete the master’s degree in two or three semesters after completing the bachelor’s degree. Students enter the program after the junior year and are allowed to take up to 12 s.h. of courses for graduate credit. Of these, up to 6 s.h. of 100- or 200-level courses can be counted toward both the B.S.E. and the M.S., with approval of the student’s graduate advisor.

To be admitted to the program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application to the chair of the Department of Mechanical and Industrial Engineering.

B.S.E. in Mechanical Engineering

Mechanical engineering students acquire a foundation in the basic disciplines of mathematics, physics, and chemistry and in the engineering sciences of statics, dynamics,

thermodynamics, mechanics of deformable bodies, mechanics of fluids and transfer processes, materials science, and electrical sciences. An understanding of these sciences enables mechanical engineers to design parts of systems and understand whole systems, plan the production and use of energy, plan and operate industrial manufacturing facilities, and design automatic control systems for machines and other mechanical systems. Students also gain an appreciation of social and humanistic issues relating to business, environment, government, history, language, religion, and international relations.

The B.S.E. in mechanical engineering requires a minimum of 128 s.h. The curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005-059:006 Engineering Problem Solving I-II and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. See “Curriculum Stems” and “General Education Component” under “Bachelor of Science in Engineering” in the College of Engineering section of the Catalog.

Elective focus area courses must be selected according to guidelines established by the Department of Mechanical and Industrial Engineering. See “Elective Focus Area” after the following curriculum list.

Upper-level students work on team projects in a senior capstone design course, 058:086 Mechanical Engineering Design Project. Participation in established research projects may be arranged.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

FIRST YEAR

First Semester

004:011 Principles of Chemistry I	4 s.h.
010:003 Accelerated Rhetoric	4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus	4 s.h.
059:005 Engineering Problem Solving I	3 s.h.
059:090 First-Year Engineering Seminar	0 s.h.

Second Semester

22M:032 Engineering Mathematics II: Multivariable Calculus	4 s.h.
22M:033 Engineering Mathematics III: Matrix Algebra	2 s.h.
029:081 Introductory Physics I	4 s.h.
059:006 Engineering Problem Solving II	3 s.h.
General education component course	3 s.h.

SECOND YEAR

First Semester

22M:034 Engineering Mathematics IV: Differential Equations	3 s.h.
029:082 Introductory Physics II	3 s.h.
058:020 Mechanical Engineering Sophomore Seminar	0 s.h.
059:007 Engineering Fundamentals I: Statics	2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits	3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics	3 s.h.
General education component course	3 s.h.

Second Semester

057:010 Dynamics	3 s.h.
057:015 Materials Science	3 s.h.
057:019 Mechanics of Deformable Bodies	3 s.h.
058:032 Design for Manufacturing	3 s.h.
Elective focus area course	3 s.h.

THIRD YEAR

First Semester

22M:037 Engineering Mathematics V: Vector Calculus	3 s.h.
22S:039 Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
057:018 Principles of Electronic Instrumentation	4 s.h.
057:020 Fluid Mechanics	4 s.h.
058:091 Professional Seminar: Mechanical Engineering	0 s.h.
Elective focus area course	3 s.h.

Second Semester

058:040 Thermodynamics II	3 s.h.
058:045 Heat Transfer	3 s.h.
058:052 Mechanical Systems	3 s.h.
Elective focus area course	3 s.h.
General education component course	3 s.h.

FOURTH YEAR

First Semester

058:048 Energy Systems Design	4 s.h.
058:055 Mechanical Systems Design	4 s.h.
058:091 Professional Seminar: Mechanical Engineering	0 s.h.
Elective focus area courses	6 s.h.
General education component course (100 level)	3 s.h.

Second Semester

058:080 Experimental Engineering	4 s.h.
058:086 Mechanical Engineering Design Project	3 s.h.
Elective focus area courses	6 s.h.
General education component course (100 level)	3 s.h.

Elective Focus Area

The mechanical engineering program offers a variety of elective focus area options, including standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests. For more detailed information about elective focus areas, see "Bachelor of Science in Engineering"/"Elective Focus Area" in the College of Engineering section of the Catalog. For a list of standard mechanical engineering elective focus area options and guidelines for tailored elective focus areas, see the Department of Mechanical and Industrial Engineering web site.

Combined B.S.E./M.S.

Qualified mechanical engineering undergraduate students who plan to earn a master's degree in mechanical engineering may enroll in the program's combined Bachelor of Science in Engineering/Master of Science program, which enables students to complete the master's degree in two or three semesters after completing the bachelor's degree. Students enter the program after the junior year and are allowed to take up to 12 s.h. of courses for graduate credit. Of these, up to 6 s.h. of 100- or 200-level courses can be counted toward both the B.S.E. and the M.S., with approval of the student's graduate advisor.

To be admitted to the program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application to the chair of the Department of Mechanical and Industrial Engineering.

Graduate Programs

The Department of Mechanical and Industrial Engineering offers the Master of Science and the Doctor of Philosophy in industrial engineering and in mechanical engineering.

Research and Study in Industrial Engineering

Graduate study in industrial engineering is tailored individually. Each student's study program is based on his or her background and career objectives and is designed according to sound academic practice. The curriculum is highly flexible; the goal is academic excellence.

The program offers six principal academic focus areas: design and manufacturing, human factors engineering and ergonomics, engineering management, reliability and production systems, operations research and applied statistics, and information systems. Graduate students participate in research in their academic concentration areas.

MANUFACTURING

Ongoing manufacturing research consists of flexible manufacturing systems, optimum control of processes, and reliability assessment. Manufacturing courses, denoted by the 30 series, delve into selecting appropriate manufacturing methods, planning processing operations, devising control strategies, and designing products and manufacturing systems. Contemporary topics include computer-aided process planning, computer-aided design, computer-controlled manufacturing, concurrent engineering, and applications of artificial intelligence in manufacturing.

HUMAN FACTORS AND ERGONOMICS

Current research in human factors and ergonomics includes investigation of the effects of visual and auditory displays on human information processing and development of computer systems that ease the challenges of controlling complex medical and robotic systems. This work examines how engineers should shape information technology to enhance productivity, safety, and customer satisfaction. Industrial engineering faculty members and students work to improve the effectiveness of robot systems for exploration of Mars and the Moon, to improve driving safety, and to design new cockpit interfaces. The department has several medical, flight, and driving simulators. It also conducts research in other facilities, including National

Advanced Driving Simulator, the most advanced simulation facility in the world.

Human factors and ergonomics studies concentrate on designing systems compatible with human capabilities and limitations. Human factors engineering integrates components from the fields of psychology, cognitive sciences, physiology, statistics, and technical sciences to address issues of human-interface design and human-systems design. Specific considerations include human cognitive abilities and limitations, visual performance, error reduction, workload assessment and mitigation, design of jobs in the industrial environment, information acquisition and processing, choice of action, operator performance measurement, and economic concerns. This area is covered by courses in the 40 series.

ENGINEERING MANAGEMENT

Current research in engineering management consists of entrepreneurship, parametric cash flow analysis, strategic management, and economic risk analysis. Engineering management studies concentrate on engineering administration, engineering economics, and information systems. This area is covered by courses in the 50 series.

QUALITY CONTROL AND PRODUCTION SYSTEMS

Current research in quality control and production systems focuses on measures for corporate quality and reliability, computer-aided layout and scheduling, just-in-time production, inspection, and online expert systems in process control. Studies of quality control and production systems focus on reliability engineering, quality control, and production systems. This area is covered by courses in the 60 series.

OPERATIONS RESEARCH AND APPLIED STATISTICS

Ongoing research in operations research and applied statistics deals with the application of optimization techniques for informed decision making in the public and private sectors. The primary focus of this work is modeling, simulating, and optimizing the design and operation of systems such as logistics, communications, health care, and manufacturing. Studies in operations research and applied statistics concentrate on mathematical programming, statistical, and computer sciences for modeling, analyzing, and optimizing systems. Various methodologies in this area include mathematical programming, heuristic optimization, statistical analysis, and digital systems simulation. This area is covered by courses in the 70 series.

INFORMATION SYSTEMS

Studies in information systems concentrate on system design. Design problems involve devising information systems that meet a diverse set of requirements. Contemporary topics include network-based systems, client/server systems, internet systems, and medical informatics.

Research and Study in Mechanical Engineering

The graduate programs in mechanical engineering educate students in more depth and breadth than is possible at the baccalaureate level. This prepares the graduate to use contemporary methods at advanced levels in professional careers in engineering design, development, teaching, and research. Each student's plan of study is based on his or her background and career objectives, and is designed according to sound academic practice. Faculty members in the program have teaching and research expertise in energy conversion, fluid and thermal sciences, solid mechanics, mechanical systems, and related areas.

Students may develop programs emphasizing fluid mechanics, thermodynamics, heat transfer, fatigue and fracture mechanics, and mechanical systems. Some may pursue more general programs that combine emphases. Others may specialize in interdisciplinary areas (e.g., energy engineering, materials engineering, automatic control, chemical processes), which involve a combination of departmental courses and appropriate electives from other departments of the College of Engineering and the University. Ph.D. programs may center on any one of these areas through choice of appropriate course work and research topic.

For more information, see the Mechanical Engineering Graduate Student Handbook, available from the department.

The mechanical engineering program offers the following research and study areas.

FLUID MECHANICS

The graduate program in fluid mechanics provides a rigorous and broad foundation in theoretical, numerical, and experimental aspects of the subject. It is especially suitable for those seeking careers in teaching and/or research in academic and industrial organizations. The program focuses on fundamental principles and techniques of solving problems in the varied fields of fluids engineering. It emphasizes computer use, both in mathematical modeling of flow phenomena and in acquisition and processing of experimental data.

Although most of the relevant courses are offered by the Department of Mechanical and Industrial Engineering, students are strongly encouraged to take applied mathematics and classical mechanics courses offered by the Departments of Mathematics and Physics and Astronomy in the College of Liberal Arts and Sciences and by other College of Engineering departments.

Current research projects include computational modeling of viscous and turbulent flows; vortex dynamics; unsteady flows; biofluid dynamics; flow separation and control; atmospheric flows; environmental flows; ship hydrodynamics; thin liquid films; viscous flow around ships; propulsor flow and propulsor-body interactions; free-surface effects; nonlinear wave theory; hydraulic turbines; quantitative flow visualization and image processing; computational fluid dynamics; LDV and thermal anemometry for flow analysis; and uncertainty analysis.

THERMAL SCIENCES

The graduate program in thermal sciences and systems is designed to provide students with a rigorous and broad foundation in theoretical and experimental aspects of the subject. It prepares future graduates for careers in industry, teaching, and government. The program emphasizes fundamentals of thermodynamics and heat transfer, and associated analytical, numerical, and experimental methods used in energy conversion systems. Areas of concentration include fluid mechanics, thermodynamics, heat transfer, phase-change, combustion, and fuel cell.

Most courses relevant to the specialization areas are offered by the Department of Mechanical and Industrial Engineering. Students are encouraged to supplement these with courses from other areas, such as mathematics and physics, and courses offered by other College of Engineering departments in order to balance their programs.

Current research projects include analytical, numerical, and experimental investigations of convective and radiative heat transfer in absorbing and scattering media; laminar and turbulent heat transfer; turbulent combustion; combustion of biomaterials; natural convection; spray atomization and combustion; microgravity diffusion flames; transport modeling of fuel cells; transport phenomena in materials processing, melting, and solidification; optimal control of thermal systems; and flow visualization of complex convection processes.

MECHANICAL SYSTEMS

The graduate program in mechanical systems is designed to provide students with a broad, strong

background in theoretical, computational, experimental, and applied aspects of the subject. It prepares future graduates for careers in industry, teaching, and government. The program emphasizes fundamental principles, computational techniques, and experimentation used to analyze and design mechanical systems. Areas of concentration include machine and vehicle dynamics, operator-in-the-loop simulation, optimal design, structural optimization, computational solid mechanics, probabilistic mechanics and reliability, reliability-based design and optimization, and fatigue and fracture mechanics.

Although most courses relevant to the specialization areas are offered by the Department of Mechanical and Industrial Engineering, students are encouraged to consider appropriate courses from other areas, such as mathematics, statistics, physics, and other College of Engineering departments.

Current research projects include design sensitivity analysis of rigid and flexible mechanical systems; computer-aided design; mechanism and manipulator workspace analysis; real-time dynamic simulation; vehicle system dynamics; finite element and meshfree methods for nonlinear mechanics, multiphysics, and multiple-scale problems; stochastic meshfree and finite element methods; design sensitivity analysis of nonlinear structural systems; reliability-based design optimization; shape optimal design of elastoplastic materials; optimal design of metal stamping process; multibody dynamics; probabilistic and elastic-plastic fracture mechanics; damage-tolerant design; and fatigue behavior and life prediction under constant and variable amplitude loading.

M.S. in Industrial Engineering

The Master of Science is offered with and without thesis. Students who intend to pursue a Ph.D. should select the thesis option; those who hold research or teaching assistantships normally are required to select the thesis option.

The M.S. with thesis requires a minimum of 30 s.h. of 100- or 200-level courses, including a minimum of 9 s.h. in 200-level courses and a maximum of 6 s.h. of research. Students in the thesis option must take at least one course from each of three focus areas: human factors, reliability and production systems, and operations research. Thesis students who wish to pursue a Ph.D. at The University of Iowa may wish to select two 200-level courses in each of the focus areas to complete the Ph.D. breadth requirement before entering the Ph.D. program.

The M.S. without thesis requires a minimum of 36 s.h. of course work at the 100 level or above, including at least 9 s.h. of industrial engineering course work at either the 200 level or at the 100 level with the designation “advanced” in the course title.

All M.S. students must earn two-thirds of the required semester hours for the degree in the industrial engineering program. To be eligible for the M.S., students are required to maintain a g.p.a. of 3.00 on all graduate course work at The University of Iowa.

M.S. students must have strong verbal and written skills in English. They also should have strong background in their intended program area; those with insufficient background must take course work beyond the minimum M.S. requirements.

Entering students in all M.S. program areas must have background in computer programming (e.g., Java, C++, C, Pascal, or FORTRAN), probability, statistics, and mathematics equivalent to that required by accredited undergraduate engineering programs. Engineering management and human factors students find psychology and engineering economics to be useful preparation. Students with insufficient academic background must take remedial courses in addition to course work normally required for the M.S.

Entering students are advised by the department chair or by a designated faculty advisor. During the first fall or spring semester of the student’s residence, a regular advisor is assigned by the department chair or the graduate program coordinator.

During that semester, the student and the advisor prepare a study plan, which they submit to the program chair for approval. Once the plan is approved, it is filed with the student’s record. It is the student’s responsibility to assure that a study plan is submitted to the program chair.

M.S. students must pass a final comprehensive examination, as specified by the student’s examination committee, which consists of at least three Graduate College faculty members and must be approved by the department chair.

The comprehensive examination may consist of both oral and written parts. Its purpose is to assess the adequacy of the student’s defense of thesis and/or course preparation. The final study plan, approved by the department chair and the Graduate College dean, is prerequisite to the exam.

It is the student’s responsibility to submit a degree application to the Graduate College by the

college’s deadline. The student should consult with his or her advisor on the composition of the advisory/examination committee and the time and place for the exam.

Ph.D. in Industrial Engineering

The Ph.D. in industrial engineering requires a minimum of 72 s.h. It is granted upon demonstration of comprehensive knowledge and scholarly work at the highest level.

The degree requires broad background as well as considerable depth in at least one area of specialization. Ph.D. students must complete a series of written and oral examinations and a written dissertation based upon the results of original investigation. They also must spend at least two semesters in residence at The University of Iowa.

Students must satisfy the requirements for the M.S. in industrial engineering before they may be admitted to the Ph.D. program. A maximum of 36 s.h. earned toward the M.S. may be counted toward the 72 s.h. required for the Ph.D.

Requirements for each student’s study plan are specified by the student’s advisory committee. There is no foreign language or special research technique requirement. Admission to degree candidacy requires a g.p.a. of at least 3.25 on all graduate work taken at The University of Iowa, demonstration of capacity for individual achievement, and successful completion of the comprehensive examination.

Entering students are advised by the department chair or by a designated faculty advisor. During the first regular semester of the student’s residence, an advisor is assigned by the department chair or the graduate program coordinator.

During that semester, the student and his or her advisor prepare a study plan, which they submit to the department chair for approval. Once the plan is approved, it is filed with the student’s record. It is the student’s responsibility to assure that a study plan is submitted to the program chair.

Upon completing the course work specified by the advisor and advisory committee, the student is admitted to the comprehensive examination, which includes both written and oral components. Part of the exam usually includes presentation of the dissertation proposal, so that the advisory committee can evaluate the student’s academic preparation in light of the

research to be performed. Upon satisfactorily completing the comprehensive exam, the student is accepted as a candidate for the Ph.D. and usually has only to complete and defend the dissertation.

Part-time Ph.D. study is discouraged.

Requirements for the degree are as follows.

INDUSTRIAL ENGINEERING BREADTH REQUIREMENT

Each Ph.D. student must pass at least two 200-level industrial engineering courses in each of three focus areas: human factors, operations research, and reliability and production systems. Students who have earned an M.S. in the program may already have satisfied this requirement.

QUALIFYING EXAM

Each student must satisfy the qualifying exam requirement in two of the three focus areas. The requirement for each focus area can be satisfied by passing a written qualifying exam in the focus area or by earning a grade of A in each of two 200-level industrial engineering courses in the focus area.

FOCUS AREA STUDY

Students take at least two more 200-level industrial engineering courses in one of the three focus areas.

COMPREHENSIVE EXAMINATION

Each student must demonstrate his or her ability to carry out creative individual research by completing and defending his or her dissertation research proposal in a comprehensive examination. The exam is conducted by a committee of industrial engineering and Graduate College faculty members. It is scheduled only after the qualifying examination requirement has been satisfied. The examining committee determines whether the student is ready to begin dissertation research. Once the student has completed the comprehensive examination satisfactorily, he or she is accepted as a candidate for the Ph.D. and begins work on the dissertation.

FINAL EXAMINATION (THESIS DEFENSE)

Each student must defend his or her completed dissertation in the final examination, which is conducted by the examining committee.

Health Informatics Certificate

Graduate students in industrial engineering may elect to earn the Certificate in Health

Informatics. The certificate program is an interdisciplinary collaboration among the health sciences, engineering, computer science, information science, management science, and statistics. Students in the program are trained to analyze health care data, evaluate information and knowledge, and study health care research, education, and practice. Certificate students complete a minimum of 20 s.h., including 056:186 and 056:287 Health Informatics I-II and approved electives.

The certificate may be earned in conjunction with the M.S. or Ph.D., or as postgraduate study. Completion of the Certificate in Health Informatics is noted on the student's transcript.

M.S. in Mechanical Engineering

The M.S. in mechanical engineering requires a minimum of 30 s.h. and is offered with and without thesis. Thesis students may count 6-9 s.h. earned for thesis research and writing toward the degree. Each student determines a study plan in consultation with an advisor and submits the plan to the department chair for approval.

All M.S. students must register for 058:191 Graduate Seminar: Mechanical Engineering each semester.

To earn the M.S., the student must maintain a g.p.a. of at least 3.00 on graduate work used to satisfy the degree requirements and must be successful in the final examination. This examination is administered by the student's committee, which consists of at least three faculty members, including at least one with primary appointment in the Department of Mechanical and Industrial Engineering.

The requirements for the M.S. may be completed within one calendar year. However, students with assistantship duties or other constraints may take up to two calendar years to complete the degree.

Ph.D. in Mechanical Engineering

The Ph.D. in mechanical engineering requires 72 s.h. beyond the baccalaureate, including at least 54 s.h. in course work (excluding thesis research) and at least 12 s.h. earned for Ph.D. thesis research. Students must pass the qualifying examination administered by the program to be formally admitted to the doctoral program.

Each student takes the comprehensive examination after passing the qualifying

examination and when the course work specified in the study plan is nearly completed; in any case, the comprehensive examination should be taken no later than 28 months after the first registration in the Ph.D. program. To be admitted to the comprehensive examination, a student must be in good academic standing and must be recommended by his or her advisor. The exam is administered by the student's committee. Admission to Ph.D. candidacy is recognized upon successful completion of the comprehensive examination.

Having satisfactorily completed the exam, the student usually has only to complete and defend the dissertation at the final examination.

Requirements for the Ph.D. usually can be completed in three to four years beyond the M.S.

Admission

Applicants must meet the admission requirements of the Graduate College; for detailed information about Graduate College policies, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Industrial Engineering

Reference letters, student research interests, grade-point average for previous graduate study, and factors such as faculty availability are considered in admission decisions.

M.S. applicants may be admitted from an ABET-accredited baccalaureate curriculum in any engineering discipline, or in the mathematical sciences, the physical sciences, or the computer sciences with a g.p.a. of at least 3.00 and an acceptable score on the Graduate Record Examination (GRE) General Test. Applicants from institutions outside the United States must meet equivalent conditions for regular admission. Students with lesser qualifications may be considered for conditional admission.

Students from business or social science programs who have mathematical preparation similar to that of engineering students are considered for regular or conditional admission. Students on conditional status must achieve regular status within two sessions of their first registration by attaining an acceptable grade-point average and gaining regular acceptance by the industrial engineering program faculty; otherwise, they are dismissed. Admissions may be limited by available resources.

Ph.D. applicants may be admitted from an ABET-accredited baccalaureate curriculum or a postbaccalaureate curriculum in any engineering discipline or in the mathematical sciences, computer science, or physical sciences with a g.p.a. of at least 3.25 and an acceptable GRE General Test score. Applicants from outside the United States must meet equivalent standards for regular admission as determined by The University of Iowa. Students also may be admitted from business or social science programs as determined individually.

Applicants who intend to pursue a Ph.D. and who have a B.S. or an M.S. without thesis usually are admitted first to the M.S. program. All admissions to the Ph.D. program are reviewed by the graduate studies committee.

Mechanical Engineering

Applicants who have earned a baccalaureate or master's degree in engineering curriculum or in the mathematical or physical sciences are eligible to be considered for admission to graduate study in mechanical engineering. In order to be considered for regular admission, applicants must have a g.p.a. of at least 3.00 on all previous college-level work and Graduate Record Examination (GRE) General Test scores of at least 500 verbal, 750 quantitative, and 4.5 analytical writing. Students whose first language is not English must score at least 550 (paper-based) or at least 213 (computer-based) on the Test of English as a Foreign Language (TOEFL).

Applicants with a lower grade-point average and/or GRE or TOEFL test scores may be considered for conditional admission, under exceptional circumstances. Applicants admitted conditionally must achieve regular standing within one semester (excluding summer sessions) after admission by attaining a g.p.a. of at least 3.00 on their first 9 s.h. at The University of Iowa. The Graduate College cancels registration for the subsequent semester for students who have not submitted their GRE and/or TOEFL scores by the end of the first semester after admission.

Financial Support

Industrial Engineering

A number of one-quarter-time and one-half-time graduate student teaching and research assistantships are available. Awards are based on students' academic records and assessment of their potential contribution to the research and

teaching goals of the program. Advanced graduate students also may qualify for appointments as graduate teaching fellows. Contact the chair of the Department of Mechanical and Industrial Engineering for details.

Mechanical Engineering

Financial support is available to M.S. and Ph.D. students, primarily through teaching and research assistantships from the Department of Mechanical and Industrial Engineering, the Center for Computer-Aided Design, IIHR—Hydrosience and Engineering, and the National Advanced Driving Simulator. These awards may be made on a semester, academic year, or calendar year basis. Awards and reappointments are competitive and are based on the student's potential contribution to the teaching and research goals of the department. Students who fulfill their assistantship responsibilities and continue to make satisfactory progress toward their degree objective receive preference in new assistantship awards. All applications for financial support should be submitted directly to the department chair.

M.S. students with a one-quarter-time or more appointment are required to register for a minimum of 9 s.h. during fall and spring semesters until they have completed 30 s.h. of course and research work beyond the baccalaureate degree. Ph.D. students with one-quarter-time or more appointments must register for a minimum of 9 s.h. during fall and spring semesters until they have completed 72 s.h. of course and research work beyond the baccalaureate degree. Once they meet these minimums, graduate students must register for a graduate seminar each semester until they have successfully completed their final examination or thesis defense. All registrations should accurately reflect the amount and type of work undertaken, the use of University facilities, and the amount of consultation with the faculty.

Special Facilities and Laboratories

Industrial Engineering: Undergraduate and Graduate Facilities

For information about laboratories affiliated with core courses coordinated by other College of Engineering departments, see the departments' Catalog sections.

ACTIVE LEARNING FACILITY

The Active Learning Facility (ALF) uses a project-oriented, team-based, hands-on approach to education. The facility provides NT servers, personal computers, and remote plug-ins for students' laptops. It also offers a variety of software for project management, presentations, and data analysis and reporting.

ADVANCED SYSTEM LABORATORY

The Advanced Systems Laboratory houses research on development and implementation of computational algorithms for the optimization of complex systems.

COGNITIVE SYSTEMS LABORATORY

The Cognitive Systems Laboratory is devoted to examining the safety, performance, and user acceptance implications of technology insertion into complex systems. The laboratory has networked computers, a video editing workstation, a process control simulation, and a low-cost driving simulator. The simulator is equipped with five cameras, instrumentation to record all driver activity, and an eye tracking system. The Cognitive Systems Laboratory shares the driving simulator and an instrumented vehicle with the Operator Performance Laboratory. The equipment supports class projects, system development, and undergraduate and graduate research.

ESPIRIT LAB

The ESPIRIT (Engineering Science Preparation and Introductory Training) Lab is the home of an accelerated educational program that selects a small group of engineering students during their first year and nurtures them throughout their study at Iowa. ESPIRIT introduces young engineers to the world of the engineering laboratory, teaches the practical and technical skills that most often prove useful in the lab, and helps students develop the research habits of self-reliance and self-discipline. The program also promotes effective teamwork, journaling, and technical writing. ESPIRIT emphasizes open-ended program solving, analytic skills, and scientific rigor, preparing students to address significant, challenging problems throughout their careers.

GROK LABORATORY

The GROK Laboratory develops computer software and mechanical devices to improve human performance with complex tasks. The laboratory has developed technologies used by NASA to control robots exploring South America

and Mars. It also designs and develops microsurgery and dental simulators to train new surgeons and dentists.

OPERATOR PERFORMANCE LABORATORY

Research in the Operator Performance Laboratory (OPL) focuses on determining human performance in a variety of situations, with particular emphasis on driving and flight deck environments. Much of the research is performed in the field using a state-of-the-art instrumented vehicle that is equipped with five cameras, eye movement equipment, two computers, video equipment, and a suite of sensors. The OPL also features a scale Boeing 737-400 fixed-base flight simulator with six channels of visuals. The flight simulator is equipped with a remote eye-tracking device that allows the activation of selected virtual controls in the flight deck. A specially designed stimulus presentation booth is used for color research and for photometry applications. Computer models of operator performance are designed based on the data obtained in the laboratory and field research.

E-COMMERCE LABORATORY

The E-Commerce Laboratory provides a facility for advanced research on Internet technologies and educational programs in key Internet subjects. The laboratory contains the full facilities necessary for a strong Internet capability, including Windows NT workstations, PCs and Macs, UNIX workstations, Internet server software for each platform, Java, VRML, JavaScript, ActiveX and VBScript programming facilities, videoconferencing cameras and group collaboration software, CAD systems software, and database systems.

Activities at the E-Commerce Laboratory include working with companies to improve their use of the Internet; providing assistance in advanced uses of the World Wide Web; providing seminars and workshops to improve Internet education; and carrying out research in key Internet technologies.

Research is under way in a number of key areas, including videoconferencing using the Internet; rapid product development through Internet links with suppliers and customers; virtual reality over the Internet; use of remote databases to access corporate data; use of the Internet to support team-based activities; security of Internet-based activities; and CAD file viewing and manipulation through the World Wide Web.

COMPUTER NUMERICAL CONTROL MACHINING LABORATORY

The Computer Numerical Control (CNC) Machining Laboratory gives undergraduate and graduate students hands-on experience in programming and operating a CNC lathe, a CNC milling machine, and a coordinate measuring machine. CNC programs can be developed through the machine control keyboard or downloaded via RS232C data link from the college's network. Research on the machinability of metals for cutting tool and machining parameters are conducted in the lab. A machine vision system is used to evaluate tool wear patterns.

ADVANCED WELDING LABORATORY

The Advanced Welding Laboratory provides improved facilities and automated equipment for automated arc welding. Gas metal arc welding (GMAW or MIG) systems are used in undergraduate courses to demonstrate process control issues, and in research to investigate process relationships and process control algorithms during high-speed welding. Two full-size Yaskawa Motoman SV3 seven-axis welding robot systems are used for demonstrations, for the investigation of the weld process variable control, and for off-line programming.

The laboratory also includes four Scorbot III and one Scorbot V small-scale material handling robots, various sensing devices, microcomputers of various types, precision controller devices, programmable controllers, and actuation devices.

INTELLIGENT SYSTEMS LABORATORY

The Intelligent Systems Laboratory provides facilities for research in computational intelligence leading to applications in industry, service organizations, and health care. Research in the laboratory is funded by government agencies and industrial corporations. Solutions to practical problems and enhancement of engineering education are emphasized. Most of the laboratory's recent projects concentrate on development of software tools for product development, manufacturing, and health care applications.

The Intelligent Systems Laboratory is furnished with the latest computer technology to support research on numerous computing platforms. Diverse software is available for modeling, design, and construction of intelligent systems—for example, data mining software, neural networks, expert systems, and simulation software.

Mechanical Engineering: Undergraduate Instruction

ENGINEERING CORE

The laboratories for fluid flows and transport processes contain a wind tunnel; a water flume; a water table; four water channels with porous media; three air-jet tables; various air, water, and oil flow devices; and facilities for numerous small-scale experiments to demonstrate the principles of mass, momentum, and energy transfer.

For information about laboratories affiliated with core courses coordinated by other College of Engineering departments, see the departments' Catalog sections.

REQUIRED AND ELECTIVE COURSE LABORATORIES

The mechanical engineering laboratory for experimental engineering provides undergraduate students with exposure to contemporary measurement theory, sensors, signal conditioners, instrumentation, and computer-aided data acquisition systems.

The laboratory for mechanical engineering design projects provides for either team or individual project activities in mechanical engineering design, construction of mechanisms, and testing.

The thermal and heat transfer laboratory is equipped with data acquisition systems to process data online on computers. Experiments in heat transfer measurements are made in this laboratory.

Mechanical Engineering: Graduate Facilities

FLUID MECHANICS

The program in fluid mechanics is conducted in close collaboration with IIHR—Hydroscience & Engineering. The equipment available to graduate students includes several wind tunnels and hydraulic flumes, an environmental flow facility, a towing tank, two special low-temperature flow facilities for investigation of ice phenomena, hot-wire and laser anemometer systems, particle-image velocimetry systems, and computer-based data acquisition systems.

Facilities available in the department include a flow visualization and imaging system with CCD (charge-coupled devices) camera, and a low-speed wind tunnel. IIHR and College of Engineering shops provide the necessary support. In addition to using in-house workstations and computers, the department's faculty members

and students make extensive use of supercomputers at national centers.

THERMAL SCIENCES

Facilities for research in the thermal sciences and systems consist of a low-pressure combustion chamber, a high-pressure continuous flow combustion chamber, a high-pressure chamber for atomization study, a test rig for heat transfer to near supercritical fluids, a diffusion flame test rig, an enclosed laminar flame test rig, a 20-liter explosion vessel, an airbag inflator test rig, an air atomization spray apparatus, test stands for melting and solidification studies, various optical measurement systems, and two fuel cell test rigs. Laser-based diagnostics (e.g., laser-induced fluorescence, imaging, and laser Doppler anemometry) are available for solidification, turbulent flow, heat transfer, and combustion studies. Flow visualization and imaging by CCD camera are available for the study of complex fluid motion and heat convection, and combustion flows.

MECHANICAL SYSTEMS

Experimental facilities for the department's fatigue and fracture mechanics study include access to a scanning electron microscope, a field computer data acquisition system, state-of-the-art computer controlled servo-hydraulic closed-loop fatigue test equipment, and equipment for characterization of material properties. Conventional strength of materials test equipment also is available.

Computer-based simulation research activities in the mechanical systems area are carried out mainly in the Center for Computer-Aided Design (CCAD). CCAD maintains a variety of high-performance computer systems in support of its technology research and development efforts. General computing services are supported by a number of UNIX and Windows applications servers connected to centralized file servers. CAD/CAE, software development, virtual prototyping, and virtual environment development applications are hosted on numerous high-performance workstations. Standard desktop, multimedia, and office productivity applications are hosted on a network of more than 40 workstations.

Courses

Industrial Engineering

Special Topics

056:000 Cooperative Education Training Assignment: Industrial Engineering 0 s.h.

Industrial engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Prerequisites: admission to Cooperative Education Program and consent of faculty advisor.

056:010 Industrial Engineering Freshman Seminar 0 s.h.

Introduction to curriculum and profession; ethics and professionalism in classroom and workplace. Prerequisite: first-year or transfer standing in engineering.

056:020 Industrial Engineering Sophomore Seminar 0 s.h.

Curriculum and profession; ethics and professionalism in classroom and workplace. Prerequisite: sophomore or transfer standing in engineering.

056:091 Professional Seminar: Industrial Engineering 0 s.h.

Professional aspects of industrial engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Repeatable. Prerequisite: junior standing.

056:098 Individual Investigations: Industrial Engineering arr.

Independent projects in industrial engineering for undergraduate students, including laboratory study, an engineering design project, analysis and simulation of an engineering system, computer software development, CAD/CAM applications, or research. Prerequisite: consent of course advisor.

Manufacturing

056:032 Design for Manufacturing 3 s.h.

Fundamentals of design, engineering graphics, and manufacturing processing; computer graphics using Pro/ENGINEER for CAD and CAM; typical industrial processes, including fundamentals of casting, welding, machining, forming; computer numerical control (CNC) machining; laboratory exercises and projects. Corequisite: 057:015. Same as 058:032.

056:131 Manufacturing Systems 3 s.h.

Manufacturing as systems consisting of computer and microprocessor-based control systems; manufacturing and logistics systems; supply chain management; quality function deployment; MRP/ERP systems; lean manufacturing; concurrent engineering; value stream mapping and six sigma. Offered spring semesters. Prerequisites: 056:032 and 056:171, or consent of instructor. Same as 058:131.

056:132 Introduction to Industrial Robotics 3 s.h.

Operation and control of robot systems; robotic sensors and data acquisition subsystems; machine vision; software for robot control; design of robotic workcells; laboratory projects; manufacturing process control theory and application. Prerequisite: 059:006.

056:134 Process Engineering 3 s.h.

Methodologies, algorithms, and tools for processing modeling, analysis, and reengineering; modeling issues in product and component design, product and process modularity, quality, reliability, agility. Prerequisite: 056:171.

056:233 E-Commerce: Product Development 3 s.h.

Computer and experimental methods for analyzing product development using electronic commerce; software for product development; information systems; collaborative design. Prerequisite: 056:131.

056:235 Computational Intelligence 3 s.h.

Concepts, models, algorithms, and tools for development of intelligent systems; data mining, expert systems, neural networks for engineering, medical and systems applications. Prerequisite: 056:171. Same as 096:313.

056:238 Evolutionary Computation 3 s.h.

Evolutionary computation, genetic programming, development of evolutionary systems for applications in industry, medicine, and nonstructured environments; case studies. Prerequisite: 056:171.

Human Factors and Ergonomics

056:144 Human Factors 3 s.h.

Design of human-machine systems; development of optimum work environments by applying principles of behavioral science and basic knowledge of human capacities and limits. Prerequisite: 031:001.

056:147 Ergonomics 3 s.h.

Ergonomic design of jobs and products in an industrial and consumer market setting; principles of good design, examples of poor design; consequences of poor job and product design; principles of work sampling, usability studies, performance rating, sizing and planning of workstations, hand tool design, ergonomic design in transportation; related group project.

056:148 Human-Centered System Design 3 s.h.

Design strategies for creating customer-centered systems; interview and observation techniques for gathering customer requirements and creating work models; tools for restructuring work and prototype development. Prerequisite: 056:144.

056:240 Human Performance in Engineering Systems 3 s.h.

Human performance limits and capabilities relevant to design of engineering systems; focus on cognitive limits associated with information processing. Prerequisites: 056:144 and 056:147.

056:241 Research Methods in Human Factors Engineering 3 s.h.

Logic and methods for research and for analysis and evaluation of complex human-machine systems; advanced techniques for enhancement of human interaction with advanced information technology; emphasis on cognitive task analysis techniques for innovative design, understanding of how technology affects safety, performance, user acceptance. Prerequisite: 056:240 or intermediate statistics course or consent of instructor.

056:242 Human/Computer Interaction 3 s.h.

Development of projects using human factors principles in the design of computer interfaces.

056:243 Modeling Operator Performance 3 s.h.

Modeling techniques that support design and analysis of the human role in complex systems; process and concepts associated with model development and application. Corequisite: 056:240 or consent of instructor.

056:244 Human Factors in Transportation 3 s.h.

Human capabilities and limitation in transportation context; human factors design from automobiles to spacecraft, transportation environment, air traffic control, crew resource management; related semester project. Corequisite: 056:240 or 056:241 or consent of instructor.

056:245 Human Factors in Aviation 3 s.h.

Measuring, modeling, and optimizing human visual performance; display design for optimal legibility, research in visibility, legibility, conspicuity, and camouflage; visibility model development. Corequisite: 056:240 or 056:241 or consent of instructor.

056:246 The Design of Virtual Environments 3 s.h.
Development of techniques for designing and creating three-dimensional representations of information for simulation, scientific visualization, and engineering; emphasis on human factors issues, software. Corequisite: 056:240 or consent of instructor.

056:248 Analytical Methods in Human Factors Engineering 3 s.h.
How analytical techniques can be used to analyze human factors data, how techniques complement each other; techniques used across disciplines (e.g., behavioral science, civil and industrial engineering, economics, epidemiology, marketing); case studies; experience designing a survey and using statistical analysis software to analyze survey data. Prerequisites: 22S:039 and 056:144.

Engineering Management

056:054 Engineering Economy 3 s.h.
Basic concepts of engineering economy: time value of money, cash flow equivalence, depreciation, tax considerations, continuous cash flows, cost accounting overview; main analysis techniques—present worth, uniform annual cost, rate of return, benefit/cost ratio, replacement and break-even analysis. Corequisite: 22S:039.

056:056 Leadership in Engineering 1 s.h.
How to balance aspects of college life, explore a personal mission, and set priorities. Prerequisite: consent of instructor.

056:150 Information Systems Design 3 s.h.
Structure and design of computer-based information systems; concepts of information systems, decision making; computer hardware, software, data structures; methods for determining system requirements; designing, implementing, evaluating, managing information systems; applied projects. Prerequisites: 057:017 and 059:006.

056:153 Engineering Administration I 3 s.h.
Current readings, cases in engineering management; methods for organizing, planning, funding, controlling engineering efforts; nature of the engineering and management function. Offered fall semesters. Prerequisite: 056:054.

Quality Control and Production Systems

056:160 Operational Systems Design 4 s.h.
Projects involving the design of products and related operational systems in an industrial or service organization, including associated entrepreneurial or intrapreneurial planning. Offered spring semesters. Prerequisites: 056:054, 056:134, and senior standing.

056:161 Enhanced Design Experience 3 s.h.
Real-world, in-depth design experience in student teams, working with engineers at major companies in the region; application of industrial engineering knowledge and skills to design products and related operational systems. Prerequisite: senior standing.

056:162 Quality Control 3 s.h.
Basic techniques of statistical quality control; application of control charts for process control variables; design of inspection plans and industrial experimentation; modern management aspects of quality assurance systems. Offered fall semesters. Prerequisite: 22S:030 or 22S:039. Same as 22S:133.

056:166 Production Systems 3 s.h.
Models for design and operation of manufacturing systems; equipment selection, machine layout, group technology, process planning, production planning and scheduling, just-in-time concepts, concurrent engineering, intelligent systems. Offered fall semesters. Prerequisites: 056:032 and 056:171.

056:268 Reliability Theory and Applications 3 s.h.
Fundamental topics in reliability engineering, including system reliability modeling, statistical inference of lifetime data, basic preventive maintenance models; statistics and random process models, including Poisson processes, renewal processes, Markov processes. Prerequisites: 22M:033, and 22S:039 or equivalent.

Operations Research and Applied Statistics

056:171 Operations Research 4 s.h.
Operations research models and applications emphasizing both deterministic and probabilistic models: linear programming, duality, parametric analysis, dynamic programming, Markov chains, queueing theory. Offered fall semesters. Prerequisites: 22M:033 and 22S:039.

056:176 Applied Linear Regression 3 s.h.
Regression analysis with focus on applications; model formulation, checking, selection; interpretation and presentation of analysis results; simple and multiple linear regression; ANOVA; hands-on data analysis with SAS software. Prerequisite: 22S:030 or 22S:039 or 22S:120 or equivalent. Same as 22S:152.

056:178 Digital Systems Simulation 3 s.h.
Simulation modeling and analysis; emphasis on construction of models, interpretation of modeling results; input and output analysis; modeling discrete, continuous and hybrid systems; construction of model-related databases—hands-on usage of ARENA simulation software, manufacturing, health care, and service applications. Offered spring semesters. Prerequisite: 22S:030 or 22S:039 or graduate standing.

056:181 Internet Systems Design 3 s.h.
The Internet's background; how the net operates and can be used; design of Internet-based systems, programming in an Internet-based environment. Corequisite: 057:017 or consent of instructor.

056:186 Health Informatics I 3 s.h.
Technological tools that support health care administration, management, and decision making. Graduate standing or consent of instructor required. Same as 021:275, 050:283, 051:187, 074:191, 096:283, 174:226.

056:270 Linear Programming 3 s.h.
Formulation and solution of linear optimization problems; duality, sensitivity analysis, decomposition methods; simplex and interior algorithms; extensions to semidefinite and second-order cone optimization. Prerequisite: 056:171 or equivalent. Same as 06K:286.

056:271 Nonlinear Optimization 3 s.h.
Mathematical models, theory, algorithms for constrained and unconstrained optimization; nonlinear, geometric, quadratic, dynamic programming; optimality conditions; aspects of duality theory. Prerequisite: 056:171 or equivalent.

056:272 Integer Programming and Network Flows 3 s.h.
Theory, applications, algorithms for combinatorial optimization problems, including integer and mixed-integer mathematical programming problems as well as problems formulated in a network or graph setting, including routing of vehicles, location of facilities in networks and scheduling. Offered fall semesters. Prerequisite: 056:171 or equivalent.

056:273 Stochastic Systems 3 s.h.
Probabilistic operations research models and algorithms, with emphasis on applications in manufacturing and production planning; random processes; Markov chains and applications; probabilistic dynamic programming; Markov decision problems; queueing models. Prerequisites: 056:171 and an introductory course in probability models.

056:275 Statistical Pattern Recognition 3 s.h.
 Fundamental mathematical tools for multivariate statistical analysis and decision-making processes in pattern recognition. Prerequisites: 22M:033 and 22S:039.

056:287 Health Informatics II 3 s.h.
 Journal articles on health informatics topics reviewed in seminar format with several faculty members; student group projects. Prerequisite: 056:186. Same as 021:280, 051:189, 074:192, 096:289.

Graduate Seminars, Advanced Topics, Research

056:191 Graduate Seminar: Industrial Engineering 0 s.h.
 Recent advances and research in industrial engineering presented by guest lecturers, faculty, students. Prerequisite: graduate standing.

056:195 Contemporary Topics in Industrial Engineering arr.
 New topics or areas of study not offered in other industrial engineering courses; topics based on faculty/student interest. Prerequisite: senior standing.

056:198 Individual Investigations: Industrial Engineering arr.
 Individual projects for industrial engineering graduate students: laboratory study, engineering design, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of advisor.

056:199 Research: Industrial Engineering M.S. Thesis arr.
 Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in industrial engineering. Prerequisites: graduate standing and consent of advisor.

056:295 Advanced Topics in Industrial Engineering arr.
 Discussion of current literature in industrial engineering. Prerequisite: consent of instructor.

056:298 Special Topics in Industrial Engineering arr.
 Prerequisite: consent of instructor.

056:299 Research: Industrial Engineering Ph.D. Dissertation arr.
 Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. in industrial engineering. Prerequisite: consent of advisor.

Mechanical Engineering

Special Topics

058:000 Cooperative Education Training Assignment: Mechanical Engineering 0 s.h.
 Mechanical engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Prerequisites: admission to the Cooperative Education Program and consent of the cooperative education faculty advisor.

058:020 Mechanical Engineering Sophomore Seminar 0 s.h.
 Introduction to the mechanical engineering profession and curriculum; ethics and professionalism in classroom and workplace; mentorship program and professional societies; visits to laboratories and local companies. Prerequisite: sophomore standing or transfer student.

058:080 Experimental Engineering 4 s.h.
 Principles of physical measurements; standards calibration, estimation of error; static and dynamic performance of measuring systems; laboratory experience, experiment planning, report writing. Prerequisite: 057:018. Corequisites: 058:045 and 058:052.

058:086 Mechanical Engineering Design Project 3 s.h.
 Application of mechanical, thermal, fluid systems design; student or team design projects initiated at various levels in the design process and carried through to higher levels; emphasis on synthesis, written and oral communication. Corequisite: 058:048 or 058:055.

058:090 Mechanical Engineering First-Year Seminar 0 s.h.
 Introduction to the mechanical engineering curriculum, profession; visits to laboratories, industries. Prerequisite: first-year or transfer standing.

058:091 Professional Seminar: Mechanical Engineering 0 s.h.
 Professional aspects of mechanical engineering: presentations, student/faculty interaction, professional society involvement, panel discussions, plant trip. Prerequisite: junior standing.

058:098 Individual Investigations: Mechanical Engineering arr.
 Individual projects for mechanical engineering undergraduate students; laboratory study; engineering design project; analysis, synthesis, simulation of an engineering system; computer software development, research. Prerequisite: consent of advisor.

General Topics

058:110 Computer-Aided Engineering 3 s.h.
 Computational engineering modeling and simulation, geometric modeling, grid generation, finite-element and finite-volume methods, uncertainty analysis, optimization, engineering applications. Prerequisites: 057:019 and 058:052, or equivalent. Same as 053:115.

058:111 Numerical Calculations 3 s.h.
 Development of algorithms for functional approximations, numerical differentiation and integration; solution of algebraic and differential equations, with emphasis on digital computations; initial and boundary value problems. Prerequisite: 22M:034. Same as 053:111.

058:112 Engineering Design Optimization 3 s.h.
 Same as 053:112.

058:113 Mathematical Methods in Engineering 3 s.h.
 Linear ordinary differential equations, series solutions of differential equations, special functions, Laplace transforms, Fourier series, matrices, linear systems, eigenvalue problems, second-order partial differential equations. Prerequisites: 22M:033 and 22M:034. Same as 052:118, 053:113.

058:115 Finite Element I 3 s.h.
 One- and two-dimensional boundary value problems; heat flow, fluid flow, torsion of bars; trusses and frames; isoparametric mapping; higher order elements; elasticity problems; use of commercial software. Prerequisite: 057:019. Same as 053:133.

058:131 Manufacturing Systems 3 s.h.
 Manufacturing as systems consisting of computer and microprocessor-based control systems; part design and manufacture using CAD/CAM, Pro/E; technical, quality, and economic trade-offs regarding the design, selection, and implementation of various degrees of computer aiding in manufacturing systems; computer numerical control (CNC) machining, automated material handling, automated assembly, flexible manufacturing systems. Offered spring semesters. Prerequisites: 056:032 and 056:171, or consent of instructor. Same as 056:131.

058:186 Enhanced Design Experience 3 s.h.

Experience working in teams on industry-sponsored design and product development projects scheduled for production; emphasis on practical experience with the complete design process, from conceptualization through prototyping, evaluation, testing, and production; written and oral communication. Prerequisites: 058:086 and consent of instructor.

058:214 Analytical Methods in Mechanical Systems 3 s.h.

Vector and function spaces; functionals and operators in Hilbert spaces; calculus of variations and functional analysis with application to mechanics; Ritz and Galerkin methods. Prerequisite: 058:113. Same as 053:214.

058:215 Finite Element II 3 s.h.

Computer implementation; plate and shell elements; mixed and hybrid formulations; nonlinear analysis; recent development; introduction to boundary element method. Prerequisite: 053:133. Same as 053:233.

Thermal Engineering and Fluids

058:040 Thermodynamics II 3 s.h.

Power and refrigeration cycles; mixtures of gases, psychrometric mixtures; availability; thermodynamics of combustion and chemical equilibrium. Prerequisite: 059:009.

058:045 Heat Transfer 3 s.h.

Principles of heat transfer by conduction, convection, radiation; analytical and numerical methods of solution; applications to engineering problems. Prerequisites: 22M:034 and 057:020.

058:048 Energy Systems Design 4 s.h.

Principles and design of energy conversion systems, including solar, wind, and geothermal power systems; design of thermal-fluid system components, modeling and simulation of systems, optimization techniques; design projects. Prerequisites: 058:040 and 058:045.

058:140 Intermediate Thermodynamics 3 s.h.

Thermodynamics principles applied to phase equilibrium; properties of fluids, first and second law, variable composition systems, behavior of real fluids, mathematical techniques for thermodynamics. Prerequisite: 052:103 or 058:040. Same as 052:117.

058:143 Computational Fluid and Thermal Engineering 3 s.h.

Governing equations of fluid flow and heat transfer; basic numerical techniques for solution of the governing equations; estimation of accuracy and stability of the approximations; boundary conditions; grid generation; applications to flows and heat transfer in engineering systems; familiarity with software for analysis and design of thermo-fluids systems. Prerequisite: 058:045.

058:145 Intermediate Heat Transfer 3 s.h.

Steady and unsteady conduction; forced and natural convection; surface and gaseous radiation; condensation and evaporation; analytical and numerical methods and applications. Prerequisite: 058:045.

058:146 Modeling of Materials Processing 3 s.h.

Manufacturing processes for metals, polymers, semiconductors; processing by casting, solidification, crystal growth, polymer molding and extrusion, welding, heat treating, application of optical (laser) and electromagnetic energy; processes that use momentum, heat, mass transfer principles; measurement and instrumentation for materials processing; current topics in materials processing. Prerequisite: 058:045 or consent of instructor.

058:147 Fuel Cells 3 s.h.

Introduction to fuel cell designs and performance evaluation; thermodynamics, transport phenomena, and reaction fundamentals essential to understanding of the processes and

phenomena that pose limits on fuel cell performance.

Prerequisites: 058:040 and 058:045.

058:148 Combustion and Propulsion Engineering 3 s.h.

Chemical kinetics, thermodynamic equilibrium, transport equations; thermodynamics of fluid flows; laminar flames; basic gas turbine cycles; propulsion systems—open gas turbine cycles, turboprop, turbofan, turbojet, ramjet; supersonic inlets; nozzle flows; contemporary propulsion concepts. Prerequisite: 058:040 or graduate standing.

058:160 Intermediate Mechanics of Fluids 3 s.h.

Basic concepts and definitions; pressure distribution in a fluid; governing equations and boundary conditions; integral and differential analysis; dimensional analysis and similarity; experimental analysis; laminar and turbulent internal and external flows; potential flows; engineering applications. Prerequisites: 057:020 and 058:040. Same as 053:169.

058:162 Experimental Methods in Fluid Mechanics and Heat Transfer 3 s.h.

Review of theory; importance of experiments; modeling and scaling laws; experimental environment and facilities; measurements at full scale and on scaled models; use of wind and water tunnels, towing tanks, and hydraulic flumes; instruments for measuring pressure, temperature, velocity, turbulence; error analysis; data acquisition and processing; laboratory demonstrations, hands-on experiments; project. Prerequisite: 058:080 or equivalent. Same as 053:172.

058:163 Environmental Fluid Dynamics 3 s.h.

Environmental fluid flows in atmosphere, oceans, lakes, and rivers; contaminant transport; mixing, reaction and particle dispersion processes; application to natural and engineering systems. Prerequisite: 057:020. Same as 053:175.

058:165 Elements of Gas Flows 3 s.h.

Thermodynamics of compressible fluid flow, with applications of continuity, momentum, energy equations; normal and oblique shock waves; Prandtl-Meyer expansion waves; flow with variable and constant area; Fanno flow; compressible flow with and without heat transfer. Prerequisites: 057:020 and 058:040.

058:245 Diffusive Transport 3 s.h.

Diffusive transport of heat, mass, and momentum; phenomenological laws and analogies; analytical and numerical solution techniques; inverse heat conduction; multiphase and multicomponent systems. Prerequisite: 058:145. Same as 052:272.

058:248 Combustion Theory 3 s.h.

Laminar flame theory; turbulent combustion; spray combustion; thermal ignition; pollutant formation, oxidation; combustion diagnostics. Prerequisites: 058:145, 058:160, and graduate standing.

058:260 Viscous Flow 3 s.h.

Equations of viscous flow; classical analytical and numerical solutions; flow regimes and approximations; laminar boundary layers—equations, solution methods, applications; stability theory and transition; incompressible turbulent flow—mean-flow and Reynolds-stress equations, modeling, turbulent boundary layers and free shear flows. Prerequisite: 058:160. Same as 053:276.

058:262 Inviscid Flow 3 s.h.

Derivation of governing equations for fluid flow; general theorems for motion of inviscid, incompressible flows; solution techniques for two- and three-dimensional irrotational flows; forces and moments acting on immersed bodies; inviscid flow with vorticity; inviscid compressible flow; numerical methods for solution of inviscid flows. Prerequisite: 058:160. Same as 053:277.

058:264 Vortex Dynamics 3 s.h.

Dynamics of vorticity transport in incompressible flows; vortex patches, sheets, rings; vortex filament models; viscous vortex flows; vorticity-based computational methods; vortex reconnection, breakdown; applications to wake flows, turbulent coherent structures and aerodynamics. Prerequisite: 058:262.

058:266 Interfacial Flows and Transport Processes 3 s.h.

Physics of fluid interfaces and numerical techniques to simulate interface dynamics; interfacial flow coupled with thermal-fluid transport, from molecular interactions to continuum approximations; development of computer code segments to track and represent interface-flow interactions. Prerequisites: 058:145 and 058:160.

058:267 Multiphase Flow and Transport 3 s.h.

Thermodynamic and mechanical aspects of interfacial phenomena and phase transitions; nucleation, phase-change, species transport, particulate flows, liquid-vapor systems, solidification, porous media. Prerequisites: 058:145 and 058:160.

058:268 Turbulent Flows 3 s.h.

Origin; need for modeling, averages, Reynolds equations, statistical description; experimental methods and analysis; turbulence modeling; free shear layers and boundary layers; complex shearflows; development of computational strategies; recent literature on theory and applications, chaos phenomena. Prerequisite: 058:160.

058:269 Computational Fluid Dynamics and Heat Transfer 3 s.h.

Development of numerical and algebraic approximations for elliptic, parabolic, hyperbolic partial differential equations; finite-volume, spectral, pseudo-spectral, Galerkin techniques; stability of numerical methods; CFL condition; stiff problems; adaptive grid generation and boundary-fitted coordinates; numerical solutions for one- and two-dimensional compressible and incompressible fluid flow and heat transfer problems. Prerequisites: 058:111, 058:160, and graduate standing.

058:296 Advanced Topics in Thermal and Fluid Engineering 3 s.h. att.

Thermodynamics, fluid mechanics, heat and mass transfer, related experimental and analytical techniques; selection of subject and content determined by instructor/student interest. Prerequisite: graduate standing.

Mechanical Systems

058:032 Design for Manufacturing 3 s.h.

Fundamentals of design, engineering graphics, and manufacturing processing; computer graphics using Pro/ENGINEER for CAD and CAM; typical industrial processes, including casting, welding, machining, forming; laboratory exercises and projects. Same as 050:032.

058:052 Mechanical Systems 3 s.h.

Topics in stress, deflection, stiffness, statistics, reliability, material behavior, manufacturing processes, static and variable loads, fatigue strength in design analysis of mechanical systems; introduction to finite element analysis using established software. Prerequisite: 057:019. Corequisites: 22S:039, 057:015, and 058:032.

058:055 Mechanical Systems Design 4 s.h.

Design considerations for mechanical engineering systems; strength, deformation, durability of mechanical elements; safe-life, fail-safe, damage-tolerant design; standards, products liability, ethics in design; data-acquisition/life-prediction experiment. Prerequisite: 058:052.

058:133 Control Theory 3 s.h.

State space approach; controllability, observability, canonical forms, Luenberger observers, feedback control via pole placement, stability, minimal realization and optimal control. Prerequisite: 055:060. Same as 055:160.

058:134 Computer-Based Control Systems 3 s.h.

Discrete and digital control systems; application of computers in control, sampling theorem, discrete time system models, analysis and design of discrete time systems, parameter estimation, examples of optimal and adaptive controls; lab arranged. Prerequisite: 055:060. Same as 055:164.

058:150 Intermediate Mechanics of Deformable Bodies 3 s.h.

Application of equilibrium analyses, strain-displacement relations, and constitutive relationships to practical structural systems and elementary plane elasticity problems. Prerequisite: 057:019. Same as 051:151, 053:140.

058:152 Vehicle Dynamics and Simulation 3 s.h.

Vehicle dynamic response; suspension, steering, braking, and powertrain system design; computer-aided system simulation; tire modeling; acceleration and steady-state turning performance. Prerequisite: 057:010.

058:153 Fundamentals of Vibrations 3 s.h.

Vibration of linear discrete and continuous mechanical and structural systems; harmonic, periodic, and arbitrary excitation; modal analysis; applications. Prerequisite: 057:019. Same as 053:132.

058:154 Intermediate Kinematics and Dynamics 3 s.h.

Kinematic and dynamic analysis of unconstrained and constrained planar mechanical systems; computational kinematics, variational and Lagrangian dynamics, constrained dynamics. Prerequisite: 057:010. Corequisite: 058:052.

058:156 Mechanics of Robotics 3 s.h.

Introduction to robot components, types, power systems, mechanics, and control; homogeneous transformations, Denavit-Hartenberg formulation for serial kinematic chains, direct and inverse kinematics of serial manipulators, differential rotations and translations, manipulator Jacobian and inverse Jacobian, trajectory planning, position and force control of manipulators. Prerequisites: 22M:034, 057:010, and consent of instructor.

058:157 Digital Human Modeling 3 s.h.

Computational methods used in modeling, simulating, and animating humans; multibody kinematics, dynamics of human kinematic chain; human-machine interaction. Prerequisites: 057:010 and 058:052.

058:158 Fatigue/Durability in Design 3 s.h.

Macro- and micromechanisms of fatigue behavior, design of engineering materials/components/structures subjected to cyclic loading, emphasis on metals; stress-life, strain-life, linear elastic fracture mechanics approach to fatigue crack growth; safe-life, fail-safe, damage tolerant design; constant and variable amplitude life predictions; notches, residual stress, corrosion, temperature, multiaxial, weldments. Prerequisite: 051:085 or 058:055 or 058:150 or equivalent. Same as 053:148.

058:159 Fracture Mechanics 3 s.h.

3-D stress states, definition and criteria for failure, nominal and local yield phenomena, linear elastic and elastic plastic fracture mechanics, plane stress and plane strain fracture toughness, J-Integral, crack opening displacement, environmental assisted cracking, fatigue crack growth, fail safe, and damage tolerant design. Prerequisite: 051:085 or 058:055 or 058:150 or equivalent. Same as 053:149.

058:250 Advanced Fracture Mechanics 3 s.h.

Fracture of modern engineering materials; linear-elastic fracture; computational methods; functionally graded materials; elastic-plastic fracture; multiscale fracture and fatigue crack initiation. Prerequisites: 058:113, 058:115, and 058:159. Same as 053:250.

058:251 Computational Inelasticity 3 s.h.

Computational techniques and implementations for elastic, hyperelastic, elasto-plastic, visco-elastic, and visco-plastic material models; development of sound numerical integration algorithms from rate constitutive equations. Prerequisite: 053:241. Same as 053:243.

058:252 Advanced Continuum Mechanics 3 s.h.

Continuum mechanics of fluids and solids, balance laws, invariance restrictions, continuum thermodynamics, constraint

theory, mixtures, materials with microstructure. Prerequisite: 058:262 or 058:279. Same as 053:247.

058:253 Computational Methods in Dynamics 3 s.h.

Computational methods for three-dimensional multirigid body systems; spatial kinematics and dynamics; constrained and recursive dynamics for closed-loop multi-chain systems. Prerequisite: 058:154.

058:254 Energy Principles in Structural Mechanics 3 s.h.

Principles of virtual work; stationary and minimum potential energy; calculus of variations; Ritz method, Galerkin's method; beams, plates; Hamilton's principle; elastic stability; extremum principle of plasticity. Prerequisites: 058:113 and 058:150. Same as 053:244.

058:255 Multiscale Modeling 3 s.h.

Computational modeling of engineering materials ranging from molecular to continuum scales, molecular dynamics and Monte Carlo methods, nanoscale continuum modeling, scale-coupling methods. Prerequisite: 058:115 or 058:143. Same as 053:249.

058:256 Computational Solid Mechanics 3 s.h.

Advanced computational methods for nonlinear and dynamic analysis of solids, structures; new space and time discretization methods for problems including highly nonlinearities, large deformation, contact/impact conditions. Prerequisites: 058:113 and 058:115, or equivalents.

058:257 Probabilistic Mechanics and Reliability 3 s.h.

Stochastic and reliability analysis of mechanical systems; computational methods for structural reliability; random eigenvalue problem; random field and stochastic finite element methods. Prerequisites: 058:113 and 058:115.

058:258 Continuum Mechanics and Plasticity 3 s.h.

Finite strain measures and rate of deformation; principles of isotropy and material indifference; constitutive equations of elastic and inelastic materials; internal variable theory of thermodynamics; endochronic theory of plasticity. Same as 053:246.

058:259 Mechanical Design in Structures 3 s.h.

Discrete and continuum variational equilibrium equations, discrete design sensitivity analysis for static responses and eigenvalues, interactive design workstation, continuum sizing design sensitivity analysis for static responses and eigenvalues, design sensitivity analysis of structural dynamics, differentiability theory, shape optimal design, shape design sensitivity analysis, design sensitivity of nonlinear structural systems. Prerequisites: 058:113, 058:115, and 058:150.

058:270 Micromechanics of Solids 3 s.h.

Local micromechanics and Eshelby's inclusion theory; homogenization procedures of heterogeneous materials; effective elastic, visco-elastic, and plastic behavior of composites; micromechanics of other advanced materials; computational micromechanics. Prerequisite: 053:241 or 058:279. Same as 053:245.

058:271 Elastic Waves in Solids 3 s.h.

Same as 051:248, 053:248.

058:279 Continuum Mechanics and Elasticity 3 s.h.

Cartesian tensors and geometrical foundations; concept of stress, strain, motion; fundamental physical laws; constitutive equations and finite elasticity; equations of linear elasticity, elastic extension, torsion and bending of bars. Prerequisite: 057:019. Corequisite: 058:113 or graduate standing. Same as 053:241.

058:295 Advanced Topics in Mechanical Systems 3 s.h.

Advanced contemporary topics in mechanical systems engineering not covered in other courses and determined by student/faculty interest.

Graduate Seminars, Advanced Topics, Research

058:191 Graduate Seminar: Mechanical Engineering 0 s.h.

Presentation and discussion of recent advances and research in mechanical engineering by guest lecturers, faculty, students. Prerequisite: graduate standing.

058:195 Contemporary Topics in Mechanical Engineering arr.

New topics in fluid and thermal sciences and mechanical systems not covered in other courses; topic and coverage determined by student/faculty interest. Prerequisite: junior standing.

058:198 Individual Investigations: Mechanical Engineering arr.

Individual project in mechanical engineering, for department graduate students; laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of advisor.

058:199 Research: Mechanical Engineering M.S. Thesis arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in mechanical engineering. Prerequisites: graduate standing and consent of advisor.

058:299 Research: Mechanical Engineering Ph.D. Dissertation arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. in mechanical engineering. Prerequisite: consent of advisor.

Graduate College

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Dean: John C. Keller
Associate deans: Sandra Barkan, Minnetta Gardinier, Dale Eric Wurster
Web site: <http://www.grad.uiowa.edu>

The University of Iowa has been a leading center of advanced study for more than a century. Presently, the Graduate College accounts for nearly one-fifth of the University's total enrollment. This high ratio reflects the breadth of the University's graduate programs and resources, the strength of a graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through its administration of scholarship, fellowship, and research assistantship funds, the college encourages research and strengthening of departments. In cooperation with the Office of the Vice President for Research, it offers assistance to individual faculty members in finding the resources necessary for research projects, and it works with the other colleges and departments of the University to formulate policies concerning selection, supervision, and support of graduate students.

The faculty of the Graduate College is made up of all University tenure-track faculty members at the ranks of assistant professor, associate professor, and professor. A 17-member Graduate Council, elected from and by the graduate faculty and the Graduate Student Senate, is the executive committee of the graduate faculty and is advisory to the dean of the Graduate College.

Degrees Offered

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Accountancy (M.Ac.), Master of Arts in Teaching (M.A.T.), Master of Computer Science (M.C.S.), Master of Fine Arts (M.F.A.), Master of Health Administration (M.H.A.), Master of Physical Therapy (M.P.T.), Master of Public Health (M.P.H.), Educational Specialist (Ed.S.), Master of Science in Nursing (M.S.N.), Master of Social

Work (M.S.W.), Master of Physician Assistant Studies (M.P.A.S.), Doctor of Philosophy (Ph.D.), Doctor of Musical Arts (D.M.A.), Doctor of Physical Therapy (D.P.T.), and Doctor of Audiology (Au.D.) degrees.

The college currently confers degrees in the following major fields.

Accounting—M.Ac.**
 African American World Studies—M.A.*
 American Studies—M.A.*, Ph.D.
 Anatomy and Cell Biology—M.S., Ph.D.
 Anthropology—M.A.*, Ph.D.
 Applied Mathematical and Computational Sciences—Ph.D.
 Art—M.A.*, M.F.A.
 Art History—M.A.*, Ph.D.
 Asian Civilizations—M.A.*
 Astronomy—M.S.*
 Biochemistry—M.S., Ph.D.
 Biology—M.S.*, Ph.D.
 Biomedical Engineering—M.S.*, Ph.D.
 Biostatistics—M.S.*, Ph.D.
 Business Administration—M.A.*, Ph.D.
 Chemical and Biochemical Engineering—M.S.*, Ph.D.
 Chemistry—M.S.*, Ph.D.
 Civil and Environmental Engineering—M.S.*, Ph.D.
 Classics—M.A.***, Ph.D.
 Clinical Investigation—M.S.*
 Communication Studies—M.A.*, Ph.D.
 Community and Behavioral Health—M.S., Ph.D.
 Comparative Literature—M.A.*, Ph.D.
 Comparative Literature-Translation—M.F.A.
 Computer Science—M.S.*, M.C.S.***, Ph.D.
 Counseling, Rehabilitation, and Student Development—M.A.*, Ph.D.
 Dance—M.F.A.
 Dental Public Health—M.S.
 Economics—M.A.*, Ph.D.
 Education—M.A.*, M.A.T.***, Ed.S.***, Ph.D.
 Educational Policy and Leadership Studies—M.A.*, Ed.S.***, Ph.D.
 Electrical and Computer Engineering—M.S.*, Ph.D.
 English—M.A.*, M.F.A., Ph.D.
 Epidemiology—M.S.*, Ph.D.
 Exercise Science—M.S.*, Ph.D.
 Film and Video Production—M.A.*, M.F.A.
 Film Studies—M.A.*, Ph.D.
 Free Radical and Radiation Biology—M.S.*, Ph.D.
 French—M.A.*, Ph.D.
 Genetics—Ph.D.
 Geography—M.A.*, Ph.D.
 Geoscience—M.S.*, Ph.D.
 German—M.A.*, Ph.D.

Greek—M.A.**
 Health and Sport Studies—M.A.*, Ph.D.
 Health Management and Policy—M.H.A.***, Ph.D.
 Health Services and Policy—Ph.D.
 History—M.A.*, Ph.D.
 Immunology—Ph.D.
 Industrial Engineering—M.S.*, Ph.D.
 Journalism—M.A.*
 Latin—M.A.**
 Leisure Studies—M.A.*
 Library and Information Science—M.A.*
 Linguistics—M.A.*, Ph.D.
 Mass Communications—Ph.D.
 Mathematics—M.S.*, Ph.D.
 Mechanical Engineering—M.S.*, Ph.D.
 Microbiology—M.S., Ph.D.
 Molecular and Cellular Biology—Ph.D.
 Music—M.A.*, M.F.A., D.M.A., Ph.D.
 Neuroscience—Ph.D.
 Nursing—M.S.N.*, Ph.D.
 Occupational and Environmental Health—M.S.*, Ph.D.
 Operative Dentistry—M.S.
 Oral and Maxillofacial Surgery—M.S.
 Oral Science—M.S., Ph.D.
 Orthodontics—M.S.
 Pathology—M.S.
 Pharmacology—M.S., Ph.D.
 Pharmacy—M.S.*, Ph.D.
 Philosophy—M.A.*, Ph.D.
 Physical Rehabilitation Science—Ph.D.
 Physical Therapy—M.A.*, D.P.T.
 Physician Assistant Studies—M.P.A.S.**
 Physics—M.S.*, Ph.D.
 Physiology and Biophysics—M.S.*, Ph.D.
 Political Science—M.A.*, Ph.D.
 Preventive Medicine and Environmental Health—M.S.*, Ph.D.
 Psychological and Quantitative Foundations—M.A.*, Ed.S.***, Ph.D.
 Psychology—M.A.*, Ph.D.
 Public Health—M.P.H.**
 Religious Studies—M.A.*, Ph.D.
 Russian—M.A.**
 Science Education—M.S.*, M.A.T.***, Ph.D.
 Second Language Acquisition—Ph.D.
 Social Studies—M.A.*
 Social Work—M.S.W.*, Ph.D.
 Sociology—M.A.*, Ph.D.
 Spanish—M.A.*, Ph.D.
 Speech and Hearing Science—Ph.D.
 Speech Pathology and Audiology—M.A.*, Au.D.
 Statistical Genetics—Ph.D.
 Statistics—M.S.*, Ph.D.
 Stomatology—M.S.
 Teaching and Learning—M.A.*, M.A.T.***, Ph.D.
 Theatre Arts—M.F.A.

Third World Development Support—M.A.***
 Translational Biomedicine—M.S.*, Ph.D.
 Urban and Regional Planning—M.A.*, M.S.*
 Women's Studies—Ph.D.

*Degree offered with or without thesis

**Nonthesis degree

***Student entry suspended

Interdisciplinary Degree Programs

The Graduate College participates in a number of University of Iowa interdisciplinary degree programs. Detailed information about the following master's and doctoral degree programs is provided later in this section of the Catalog: Applied Mathematical and Computational Sciences, Genetics, Immunology, Library and Information Science, Molecular and Cellular Biology, Neuroscience, Second Language Acquisition, Translational Biomedicine, and Urban and Regional Planning.

Interdisciplinary Master's and Doctoral Programs

In addition to the degree programs listed above, the graduate faculty has authorized the awarding of interdisciplinary master's and doctoral degrees. Students seeking approval for interdisciplinary master's and doctoral programs must previously have been admitted to and enrolled in a departmental program in the Graduate College. See sections X.A. and XII.D. in Manual of Rules and Regulations of the Graduate College on the college's web site or in this section of the Catalog.

Joint Degree Programs

Joint Law and Graduate Degrees

Joint programs under which students can pursue degrees simultaneously in the College of Law and the Graduate College have been developed with the law college and a number of departments in the Graduate College. See College of Law in the Catalog.

Joint Programs Offered Through the Graduate College

Various joint programs have been developed whereby students work simultaneously toward two advanced degrees. Consult the appropriate Catalog sections for more information. Established joint programs include business administration/library and information science; health management and policy/business administration; health management and policy/urban and regional planning; social work/urban and regional planning; occupational and environmental health/urban and regional planning; public health/nursing; public health/medicine; and business administration/nursing.

Joint B.S.E./M.S. Program in Biomedical Engineering

The Graduate College and the College of Engineering offer a joint B.S.E./M.S. program in biomedical engineering. The program allows students to take a limited number of courses that count toward both the B.S.E. and M.S. degree requirements, to attend and participate in the departmental graduate seminar, and to work on a master's thesis or project research before they have been awarded a baccalaureate degree. See Biomedical Engineering in the Catalog.

Joint B.S.E./M.S. Program in Civil and Environmental Engineering

The Graduate College and the College of Engineering offer a joint B.S.E./M.S. program in civil and environmental engineering. The program allows students to take a limited number of courses that count toward both the B.S.E. and M.S. degree requirements, to attend and participate in the departmental graduate seminar, and to work on a master's thesis or project before they have been awarded a baccalaureate degree. See Civil and Environmental Engineering in the Catalog.

Joint B.A./M.A. Program in German

The Graduate College and the College of Liberal Arts and Sciences offer a joint B.A./M.A. program in German. The program permits

students to take 12 s.h. of course work that fulfills both B.A. and M.A. degree requirements and provides an opportunity for early entrance to advanced courses in German. See German (College of Liberal Arts and Sciences) in the Catalog.

Joint B.S.E./M.S. Program in Industrial Engineering

The Graduate College and the College of Engineering offer a joint B.S.E./M.S. program in industrial engineering. The program allows students to begin earning graduate credit (6 s.h. may be applied toward both the B.S.E. and M.S. degree requirements), to attend one of the department's graduate seminars, and to work on master's thesis research before they have been awarded a baccalaureate degree. See Mechanical and Industrial Engineering in the Catalog.

Joint B.A./M.A. Program in Linguistics

A joint B.A./M.A. program in linguistics with a specialization in Teaching English as a Second Language (TESL) is offered by the Graduate College and the College of Liberal Arts and Sciences. The program permits students to take a limited number of courses that fulfill both B.A. and M.A. degree requirements and provides for early entrance to advanced courses in linguistics. Joint B.A./M.A. students also may gain experience teaching ESL at the college level early in their graduate careers. See Linguistics (College of Liberal Arts and Sciences) in the Catalog.

Joint B.S.E./M.S. Program in Mechanical Engineering

The Graduate College and the College of Engineering offer a joint B.S.E./M.S. program in mechanical engineering. The program allows students to begin earning graduate credit (6 s.h. may be applied toward both the B.S.E. and M.S. degree requirements), to attend a graduate seminar, and to participate in master's research before they have been awarded a baccalaureate degree. See Mechanical and Industrial Engineering in the Catalog.

Joint D.V.M./M.P.H. Program

The University of Iowa Graduate College and College of Public Health, in collaboration with Iowa State University's College of Veterinary

Medicine, offer the joint D.V.M./M.P.H. program. This dual degree requires students to be accepted into the D.V.M. program as a condition of acceptance into the combined degree program. Once admitted, a student may use course work credit to fulfill elective requirements in both programs. Students may apply 18 s.h. of public health course work toward the D.V.M. degree (which requires a total of 150 s.h.), and 9 s.h. of veterinary medicine degree course work toward the M.P.H. degree (which requires a total of 39 s.h.). The degrees generally are awarded conjointly. See Master of Public Health in the Catalog.

Joint M.D./M.P.H. Program

The Graduate College, the Carver College of Medicine, and the College of Public Health offer the M.D./M.P.H. degree program. Students in the program earn credit toward the Master of Public Health while pursuing the Doctor of Medicine. The degrees are awarded conjointly. See Carver College of Medicine and Master of Public Health in the Catalog.

Joint M.S.N./M.P.H. Program

The Graduate College, the College of Nursing, and the College of Public Health offer the joint M.S.N./M.P.H. program for students interested in preparing for professional activities in nursing and public health. In addition to core and elective course work, students are required to complete work in one of four M.S.N. focus areas and to participate in a capstone experience. The M.S.N. and M.P.H. degrees are awarded jointly. See College of Nursing and Master of Public Health in the Catalog.

Joint Pharm.D./M.P.H. Program

The Graduate College, College of Pharmacy, and College of Public Health offer the joint Pharm.D./M.P.H. program. The joint program provides formal education and training in public health for pharmacy students, enabling them to develop expertise in public health related to pharmacotherapy, health promotion, disease prevention, and medication safety. See College of Pharmacy and Master of Public Health in the Catalog.

Joint M.A./Certificate in Library and Information Science and Book Studies

The joint M.A. in library and information science and Certificate in Book Studies/Book Arts and Technologies prepares students for careers in special collections librarianship. The 51 s.h. program trains individuals to manage varied types of special collections, such as rare books, manuscripts, archives, graphics, music, and ephemera. Successful completion of the program is noted on the student's transcript. See Center for the Book (College of Liberal Arts and Sciences) and Library and Information Science (Graduate College) in the Catalog.

Joint M.D./Ph.D. in the Medical Scientist Training Program

The Medical Scientist Training Program (MSTP) is an interdisciplinary M.D./Ph.D. program offered jointly by the Carver College of Medicine and the Graduate College. See Medical Scientist Training Program (Carver College of Medicine) in the Catalog.

Certificate Programs

The Graduate College participates in a number of University of Iowa certificate programs. See Rhetorics of Inquiry (Graduate College) and Transportation Studies (Graduate College) in the Catalog for detailed information about certificates in those programs.

Advanced Practice Nursing

The post-master's degree Certificate in Advanced Practice Nursing allows for advanced clinical training in four specialty tracks: pediatric nurse practitioner, adult/gerontology nurse practitioner, family nurse practitioner, and psychiatric/mental health nursing. Certificate requirements include advanced clinical core courses and a sequence of specialty courses. Successful completion of the specialty sequence qualifies a student to sit for certification as a nurse practitioner and/or a clinical nurse specialist. Completion of the certificate program is noted on the student's transcript. See College of Nursing in the Catalog.

Aging Studies

The Aging Studies Program is a multidisciplinary nondegree certificate program administered by

the College of Liberal Arts and Sciences in cooperation with other colleges of The University of Iowa. The 21 s.h. program is designed to complement graduate degree programs for students with academic, professional, research, or service career interests in aging. Successful completion of the Certificate in Aging Studies is noted on the student's transcript. See Aging Studies (College of Liberal Arts and Sciences) in the Catalog.

American Indian and Native Studies

The American Indian and Native Studies Program offers an interdisciplinary certificate program focusing on the histories, cultures, languages, arts, crafts, beliefs, political and social organizations, economies, geographies, literatures, and contemporary legal and political concerns of Native Americans of the United States as well as other indigenous peoples of the Western Hemisphere. Successful completion of the Certificate in American Indian and Native Studies is noted on the student's transcript. See American Indian and Native Studies (College of Liberal Arts and Sciences) in the Catalog.

Book Studies/Book Arts and Technologies

The Certificate in Book Studies/Book Arts and Technologies offers an interdisciplinary approach to study of the relationship between the book in culture and the arts and technologies of book production. It also provides opportunities for artistic and craft-based studio, laboratory, or academic investigations. The certificate may be earned in conjunction with graduate degrees in art, English, history, library and information science, and other disciplines. Successful completion of the program is noted on the student's transcript. See Center for the Book (College of Liberal Arts and Sciences) in the Catalog.

Clinical Investigation

The Certificate in Clinical Investigation is designed for clinicians who seek advanced training in clinical methodology and applied patient-oriented research skills. Certificate requirements include didactic course work, clinical research preceptorships, and clinical research seminar participation. Students in the certificate program must be practicing academic clinicians who have completed doctoral training.

Successful completion of the program is noted on the student's transcript. See Carver College of Medicine and College of Public Health in the Catalog.

Global Health Studies

The interdisciplinary Global Health Studies Program emphasizes international health problems and solutions in the developing and developed worlds, including the United States. Requirements for the Certificate in Global Health Studies include core courses, electives, foreign study and/or internship, a research project, and foreign language skills. Students do not need special health science courses to participate. Completion of the certificate program is noted on the student's transcript. Both the College of Liberal Arts and Sciences and the Graduate College award a Certificate in Global Health Studies. See Global Health Studies (College of Liberal Arts and Sciences) in the Catalog.

Graduate Teaching Certificate

The Certificate in Graduate Teaching provides overarching administration and structure that complements discipline-oriented graduate teaching preparation programs. The 12 s.h. program has three parts: course work, teaching experience, and preparation of a teaching portfolio. It is open only to graduate students enrolled in degree programs. Formal application is made through the Graduate College. Completion of the certificate is noted on the student's transcript.

Health Informatics

The Certificate in Health Informatics is an interdisciplinary collaboration among the health sciences, engineering, computer science, information science, management science, and statistics. Students in this program are trained to analyze health care data, evaluate information and knowledge, and develop study skills in health care research, education, and practice. Certificate students complete a minimum of 20 s.h., including Health Informatics I and II and approved electives. The certificate may be earned in conjunction with a master's or a doctoral degree or as postgraduate study. Completion of the certificate program is noted on the student's transcript. See College of Nursing and Library and Information Science (Graduate College) in the Catalog.

Nursing Informatics

The Certificate in Nursing Informatics focuses on data, information, and knowledge of management in nursing. It familiarizes students with the development, support, and evaluation of applications, tools, processes, and structures that help nurses manage data in direct patient care and administrative and management support systems. The program is available for master's, post-master's, doctoral, and postdoctoral students. Completion of the certificate program is noted on the student's transcript. See College of Nursing in the Catalog.

Nursing Service Administration

The Certificate in Nursing Service Administration is designed to upgrade the skills and expertise of nurses practicing in management and nursing administration. Certificate requirements include advanced nurse manager core courses and related support courses. The program is open to postbaccalaureate, master's, post-master's, and doctoral students. Completion of the certificate program is noted on the student's transcript. See College of Nursing in the Catalog.

Sacred Music

The Certificate in Sacred Music is an interdisciplinary program with course offerings in sacred music, choral conducting/literature, keyboard, voice, religion, and art and art history. Students may earn the 25 s.h. certificate while working toward a graduate degree; or with prior admission to the Graduate College and consent of the faculty advisor for the certificate, they may complete the certificate apart from pursuit of a graduate degree. Successful completion of the certificate program is noted on the student's transcript. See Music (College of Liberal Arts and Sciences) in the Catalog.

Statistical Genetics

The Certificate in Statistical Genetics prepares master's-level students to conduct genetic data analyses. The program may be completed in conjunction with or following receipt of a master's degree in biostatistics or a related field. Certificate requirements include five courses and a preceptorship, for a total of 16 s.h., with a g.p.a. of 3.00 or higher. Successful completion of the program's requirements is noted on the student's transcript. See Public Health Genetics in the Catalog.

Film and Critical Studies in Paris

The University of Iowa is one in a consortium of 21 colleges and universities associated with the Council on International Educational Exchange (CIEE), which sponsors the Film Studies Program and the Contemporary Criticism and Culture Program. These are two unique academic opportunities offered at the Centre Universitaire Américain du Cinéma et de la Critique à Paris.

The Film Studies Program is designed to explore film theory and analysis—not to train filmmakers or technicians. The curriculum provides courses and seminars in film theory, formal structures, history, and ideology. Participants study the relationships between film and other art forms, film culture, film and language, and film and psychoanalysis. Students discuss the evolution of the early cinema; the silent films of Griffith, Lang, Eisenstein, and Keaton; the classic Hollywood film; French cinema during and after the transition to sound; and European and American avant-garde cinemas. Participants study the works of Metz, Freud, Barthes, Lacan, Althusser, Foucault, and others to gain an understanding of contemporary French culture, mass media, and the visual arts.

The Contemporary Criticism and Culture Program focuses on recent developments in French political thought and social institutions, linguistics, social sciences, and literary theory. It draws on recent theoretical concepts in the fields of linguistics, psychoanalysis, anthropology, history, and philosophy to analyze verbal and audiovisual representations in literature, painting, photography, film, and television. The interdisciplinary nature of this program makes it relevant not only to French majors but also to students of other disciplines concerned with the problems of criticism and culture. It is of particular value to those who want to explore the applicability of modernist French theory to a variety of disciplines.

The program also permits specialization in history, characterized by the application to historical research of insights from other fields, such as linguistics, cultural geography, anthropology, sociology, and economics. Particularly distinctive in the French historical approach has been a preoccupation with the long-term evolution of populations and the social, economic, and cultural development of groups of ordinary people, seen in their urban or regional contexts.

Students may concentrate in one of these programs entirely or develop an individual program combining elements from both study center components.

Participating students are registered in the University of Paris III—Censier and are eligible to take selected courses within the University of Paris as well as those sponsored directly by the center. The program is open to both undergraduate and graduate students from The University of Iowa. For more information, contact the Department of Cinema and Comparative Literature.

Research Resources

Many of the University's diverse research activities are centrally administered by the Office of the Vice President for Research, which has a cooperative relationship with the Graduate College.

Financial Support

Approximately half of the University's graduate students receive some form of University-administered financial assistance. For eligibility requirements and application procedures, see "Section VII. Graduate Appointments" in the Manual of Rules and Regulations of the Graduate College. The following are the primary sources of assistance.

TEACHING AND RESEARCH ASSISTANTSHIPS

Teaching and research assistantships are available in most departments. Assistantship stipends typically range between \$15,985 for a half-time academic-year appointment and \$19,537 for a half-time fiscal-year appointment; assistants also are eligible for tuition scholarships. Assistants (one-quarter-time or more) are classified as residents for fee purposes.

IOWA ARTS FELLOWSHIPS

Iowa Arts Fellowships are for first-year University of Iowa graduate students entering M.F.A. programs. Typical stipends are \$15,000 for the academic year, with all tuition and fees paid, for as many as two years (the second year being contingent on demonstrated exceptional progress toward completion of the M.F.A.). There are no departmental service obligations.

IOWA PERFORMANCE FELLOWSHIPS

Iowa Performance Fellowships are for first-year D.M.A. candidates in a performance area of music. Recipients are nominated by the School of

Music. Awards include academic-year fellowships (\$15,000 year one, \$7,993 years two and three), summer fellowships (\$2,000 years one and two), and all tuition and fees. The School of Music provides a 25 percent teaching or research assistantship (\$7,993) in years two and three.

DEAN'S GRADUATE FELLOWSHIPS

Dean's Graduate Fellowships are awarded to first-year graduate students from underrepresented ethnic minority groups. Doctoral students receive a 12-month stipend of \$18,000 plus tuition and fees for the academic year; master's students receive a 10-month stipend of \$14,000 plus tuition and fees for up to two academic years.

PRESIDENTIAL GRADUATE FELLOWSHIPS

Presidential Graduate Fellowships provide five-year awards for doctoral students on a year-round basis. Typical stipends are \$21,000 per year plus full tuition and fees for as many as four years; in their final year, awardees receive \$25,000 with all tuition and fees paid. Recipients have no assignments and are free to pursue their own studies, research, and writing full-time for two of the five years and all summers.

GRADUATE COLLEGE BLOCK-ALLOCATION FELLOWSHIPS

Graduate College fellowships provide \$15,000 for the academic year.

Graduate College Summer Fellowships

Graduate College Summer Fellowships are for advanced doctoral students who have academic-year appointments and have completed at least two years in a graduate program at The University of Iowa at the time of application for the award. Priority is given to postcomprehensive students. Awards provide a summer stipend of \$3,000 plus tuition and standard fees for up to 2 s.h. Awardees must enroll for the six-week or eight-week summer session; enrollment in the three-week summer session does not qualify.

T. Anne Cleary International Research Fellowships

The T. Anne Cleary International Research Fellowships are for doctoral students who have completed their comprehensive examinations. They are to be used for dissertation research outside the United States. The awards vary from \$500 to \$15,000 and are meant to supplement other research funds. Doctoral students in any discipline may apply.

Seashore and Ballard Dissertation Fellowships

Seashore and Ballard Dissertation Fellowships are for doctoral students in the humanities and social sciences who have completed all doctoral degree requirements except their dissertation. Recipients are nominated by their departments. Fellowships provide up to 12 months of funding, including \$1,500 per month plus tuition for up to 2 s.h., fees, and a health insurance allowance.

SCHOLARSHIPS

Scholarships provide up to full tuition and fees.

Graduate Student Travel Awards

Graduate student travel awards provide reimbursement for travel by students who present research and scholarship results to professional conferences. Awards are competitive across disciplines and vary from \$100 to \$300. Funds are administered by the Graduate Student Senate and the Graduate College.

OTHER SOURCES

For other sources of financial support, contact the Office of Student Financial Aid.

Many departments offer additional support through traineeships, part-time employment in research, or part-time teaching appointments. The Office of the Vice President for Research maintains a library of information on public and private agencies that provide funds for research and graduate study. Much material has been collected concerning awards for overseas study.

Graduate Student Senate

The Graduate Student Senate is the University graduate student body representative organization. Representatives are elected annually from each University department that has a graduate degree program. The senate's primary purpose is to serve the interests of the graduate student body in matters affecting its welfare. The senate advises the dean of the Graduate College on matters pertaining to the college.

Manual of Rules and Regulations of the Graduate College

The following text is from the *Manual of Rules and Regulations of the Graduate College*. The most up-to-date version of this manual is

available online; see “Current Students” on the Graduate College web site.

The Academic Program

Section I. Admission to the Graduate College

A. APPLICATION PROCEDURE

All students seeking to register for the first time in the Graduate College of The University of Iowa must secure formal admission from the director of Admissions. Applicants may obtain the proper forms from the Office of Admissions. Prospective students may also download the application or apply online from the admissions web site.

In addition to these forms, official transcripts, test scores, and other supporting material must be submitted by the designated deadline prior to the session in which admission is expected. Specific deadline dates will be established by the dean of the Graduate College and the director of Admissions and printed in the Catalog and elsewhere.

B. GRADUATE RECORD EXAMINATION

All applicants prior to consideration for admission should take the General (Aptitude) Test of the Graduate Record Examination (GRE) or, for applicants to graduate programs in business administration, the Graduate Management Admission Test (GMAT). Applicants for whom admission data are complete, with the exception of scores on the GRE or the GMAT, may, depending on departmental policy, be admitted if they meet all other requirements. The GRE, or the GMAT, must be taken before the end of the student's first session of enrollment. The test is given at test centers established under the direction of Educational Testing Service, Princeton, New Jersey. The judgment of acceptable levels of performance on this test and its weight in the decision on admission of a student is left to the departments. Some departments in fields where GRE Subject (Advanced) Tests are available require these in addition to the General (Aptitude) Test. Inquiries about the General (Aptitude) Test may be directed to University Evaluation and Examination Service, and inquiries about the requirement of the Subject (Advanced) Test should be addressed to the executive of the department in which the applicant is interested.

C. ENGLISH FOR INTERNATIONAL STUDENTS

Prior to consideration for admission, international student applicants whose native language is other than English must take and pass TOEFL (Test of English as a Foreign Language), unless they have received a degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand. The examination is given at various times of the year and in many centers throughout the world. Inquiries should be addressed to the director, TOEFL, Educational Testing Service, Princeton, New Jersey 08541.

International students transferring from unfinished degree programs of other universities in the United States who have not taken this examination, or who have received a score lower than the minimum established by the Graduate College dean, must take the TOEFL examination and receive a passing score prior to consideration for admission.

Students who barely pass the established minimum on the TOEFL will be required to sit for an English evaluation upon arrival in Iowa City. The Graduate College will require these students to take and pass recommended course work in English usage at The University of Iowa designed especially for international students.

D. EARLY ADMISSION

A student who is within 6 s.h. of having satisfied all the requirements for the bachelor's degree at The University of Iowa or any other accredited college may be given provisional admission.

E. CANDIDACY

Admission to the Graduate College is not the equivalent of acceptance as a candidate for an advanced degree, which must be earned through work successfully completed at The University of Iowa. (See “Section X. Master's Degrees” and “Section XII. Doctor's Degrees.”)

F. DECLARATION OF MAJOR AND DEGREE

Every applicant for admission must indicate on the application form the department or program of major interest and the degree, certificate, or professional objective he or she intends to pursue. The only exceptions to this regulation are the limited number of applicants registered as nondegree (“special”) students. (See definition of nondegree status in next section.) Changes in the major or degree status may be made in the course of a student's graduate study with the approval of the department to which the transfer is proposed. To initiate such action, the student

must file a change of major or degree status in the Office of Admissions.

G. ADMISSION REQUIREMENTS AND STATUS

Graduates of any college or university accredited by regional accrediting associations may be admitted to the Graduate College if their academic records meet the required standards. Upon admission, all students fall into one of the following three categories:

1. *Regular*—For students who have met the minimum requirements for admission and who have been accepted by a department, or interdepartmental degree program, for work leading to a graduate degree or certificate or for professional improvement. The minimum g.p.a. for admission as a regular student to all graduate programs is 3.00.

Departments or programs may petition the Graduate College dean for admission of a student whose g.p.a. is lower than 3.00, if there is sufficient evidence of the student's academic and/or professional achievement indicating his/her potential for success in a graduate program.

Departments, or committees in charge of interdepartmental degree programs, may, and often do, set higher minimum admission requirements than those set forth above for the Graduate College as a whole. Information concerning departmental or program requirements may be obtained directly from the executive of the department concerned.

2. *Conditional*—Students who are interested in working toward a graduate degree or certificate but who are required by a department to demonstrate their ability to do satisfactory graduate work before being admitted to regular status. To be admitted on a conditional basis, the student must be recommended by a department, which will assume responsibility for advising him or her. The student on conditional status must achieve regular status within two sessions of registration in the Graduate College by attaining a g.p.a. of at least 3.00 and acceptance by the major department, or be dismissed.

3. *Nondegree (Special)*—Students with a valid bachelor's degree and at least a 2.50 g.p.a. are eligible to register for a total of no more than two courses per semester. In addition, a nondegree student may not accumulate more than two courses within a given department/program under this classification. These students must be approved for admission by the Graduate College and the Office of Admissions. Nondegree graduate students are not eligible for a graduate degree.

H. ADMISSION OF FACULTY MEMBERS TO GRADUATE STUDY

Persons who hold faculty rank of assistant professor (including clinical assistant professor) or above at The University of Iowa may be admitted as nondegree students. (See "Section G" above.) A person holding faculty rank as specified above may petition the Graduate College dean for permission to enter a departmental program for work leading to an advanced degree, certificate, or professional improvement except in the department of his or her appointment or a closely related department. Such petitions must have prior approval of the department of appointment, dean of the college of appointment, the department in which study is to be pursued, and the Graduate College.

I. READMISSION

Students who are admitted to and enroll in the Graduate College, but who then fail to register for a period of 36 months or more, must apply for readmission. Their acceptance is dependent upon departmental approval for the session in which readmission is desired. Consideration of the application for readmission will be governed by the departmental and Graduate College admissions standards in effect at the time of reapplication.

Section II. Registration

A. STANDARD SCHEDULE

Students registered in the Graduate College may register for no more than 15 s.h. in all courses eligible for graduate credit (100-level or above). In a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit may be substituted for 1 s.h. of graduate credit, with registration limited to a total of 18 s.h. This equivalency applies to the calculation of academic load only. Graduate credit is not given for courses numbered under 100. The maximum for the eight-week summer session is 8 s.h.

Corresponding maximums for the three-week summer and winter sessions and the six-week summer session are 3 or 6 s.h., respectively.

The maximum semester-hour registration for work scheduled outside of the regular eight-week summer session will be arranged on a basis proportionate to that stated above with the approval of the Graduate College dean. In the regular semester, 9 s.h. constitutes full-time registration. (Fellows are required to carry at least 9 s.h. during a semester as a condition of their appointments.) One-quarter-time and

one-third-time appointees are permitted to register for the maximum 15 s.h. per semester and 8 s.h. during the eight-week summer session.

B. COURSES NOT INCLUDED IN FULL REGISTRATION

In addition to a full schedule, a graduate student may register for offered courses carrying 0 s.h. of credit.

C. CHANGES IN ANNOUNCED CREDIT

Graduate students may not register for more credit than that offered for any course, but may register for less credit, or no credit, by permission of the instructor. The number of courses a graduate student may take for limited or no credit is subject to the consent of the advisor and the approval of the dean of the Graduate College.

D. REDUCED SCHEDULES FOR TEACHING AND RESEARCH ASSISTANTS AND OTHER APPOINTEES

1. One-half-time appointees may register for not more than 12 s.h. during a semester or 6 s.h. during the eight-week summer session.
2. Five-eighths-time appointees may register for not more than 10 s.h. during a semester or 5 s.h. during the eight-week summer session.
3. Two-thirds- and three-quarter-time appointees may register for not more than 9 s.h. during a semester or 5 s.h. during the eight-week summer session.
4. Seven-eighths-time appointees may register for not more than 7 s.h. during a semester or 4 s.h. during the eight-week summer session.
5. Full-time appointees, including full-time instructors, may register for not more than 6 s.h. during a semester or 3 s.h. during the eight-week summer session.

E. RETROACTIVE REGISTRATION

No form of retroactive registration is permitted.

F. REGISTRATION FOR PART OF A SESSION

A graduate student may register at any time during the semester or the eight-week summer session for not more than 1 s.h. of credit for each of the remaining weeks of classes (not including the examination period) in the term. The total registration may not exceed the 15 s.h. permitted for a semester and the 8 s.h. permitted for the eight-week summer session. Registration after the last day of the second week of a semester or the third day of the second week of a summer session is permitted only in courses involving special projects, readings, individual study, thesis, or research, with the signed approval of the

instructor concerned and the Graduate College dean. Proportional credit limitations and deadlines for the three-week and six-week summer sessions will be established on a prorated basis.

G. EXTRAMURAL REGISTRATION

After admission to a departmental program in the Graduate College, registration for work done off campus may be accepted for residence credit under the following circumstances:

1. Traveling Scholar Program of the Committee on Institutional Cooperation (see "Section III").
2. Research at approved locations under the direction of members of the graduate faculty of The University of Iowa.
3. Fieldwork as part of a regularly scheduled course or research program.
4. Courses taught off campus by members of the graduate faculty (see "Section X.D" and "Section XII.C" for minimum semester hours required on campus for the master's and doctor's degrees).
5. Residence graduate credit from another Iowa Regents' university (see "Section V.B").
6. As many as 9 s.h. of graduate work taken at the Quad Cities Graduate Center from faculty other than faculty of the Iowa Regents' universities, provided the work is acceptable to the student's major department for the specified degree.

Extramural registration does not count toward residence credit in the following circumstances:

1. Course work transferred from another institution,
2. Guided Independent Study courses.

H. GUIDED INDEPENDENT STUDY (GIS) COURSES

Guided Independent Study (GIS) credits do not count as residence credits. Not more than 9 s.h. of graduate GIS work can be applied toward an advanced degree; such credit must be acceptable for the student's plan of study. A graduate student may not register for GIS courses without the approval of the executive of his or her major department.

I. SYSTEM OF COURSE NUMBERS

Courses primarily for graduate students are numbered 200 or above in each department. Courses open to and carrying credit for both graduate and undergraduate students are numbered from 100 to 199. A student must be enrolled in the Graduate College in order to earn

graduate credit for course work numbered 100 or above. Courses below 100 are not accepted for graduate credit irrespective of a student's classification. Graduate credit may not be earned for taking courses numbered below 100 by registering in such courses as readings, special projects, or independent study having course numbers of 100 or above.

J. AUDITING OF COURSES

Upon approval of the instructor and the advisor, graduate students may audit courses for zero credit. Fee assessment for auditing courses is based on the number of hours for which the course is offered, with a minimum of 1 s.h.

Auditing is permitted only for a student who is currently registered. See "Section VI.C" for the marking system.

K. DROPPING OF COURSES

All graduate students who drop courses after the deadline date established by the dean of the Graduate College for each session and published by the registrar shall receive the grade of F unless the entire registration is withdrawn. This regulation may be waived by the Graduate College dean only on the recommendation of the Student Health director or the Counseling Service. If a student withdraws registration after the deadline date, the student must obtain permission from the dean of the Graduate College before being permitted to reregister.

Section III. Traveling Scholar Program

A. PURPOSE

The program, under the auspices of the Committee on Institutional Cooperation representing 12 universities in the Midwest, enables a doctoral student to take advantage of special resources available on another campus but not available on his or her own campus: special course offerings, research opportunities, unique laboratories, and library collections.

B. PROCEDURE

1. A CIC Traveling Scholar first must be recommended by his or her own graduate advisor, who will approach an appropriate faculty member at the possible host institution in regard to a visiting arrangement.
2. After agreement by the student's advisor and the faculty member at the host institution, graduate deans at both institutions will be fully informed by the advisor and have the power to approve or disapprove.

3. A CIC Traveling Scholar will be registered at the home university, and fees will be collected and kept by that institution.

4. Credit for the work taken will be recorded at the home university.

5. Those desiring additional information should inquire at the office of the Graduate College.

C. CONDITIONS

CIC Traveling Scholars will normally be limited to two semesters or three quarters on another campus. Each university retains its full right to accept or reject any student who wishes to study under its auspices.

Section IV. Academic Standing, Probation, and Dismissal

A. NONDOCTORAL STUDENTS

A nondoctoral *departmental* (master's, professional improvement, certificate) student, except one on conditional status, shall be placed on probation if, after completing 8 s.h. of graduate work, the student's cumulative grade-point average on graduate work done at The University of Iowa falls below 2.75. If, after completing 8 more s.h. of graduate work at this University, the student's cumulative grade-point average remains below 2.75, the student shall be denied permission to reregister within any departmental program; otherwise the student shall be restored to good standing.*

Nondoctoral, *nondepartmental* (nondegree, extension, workshop) students shall be evaluated for probation and dismissal purposes based on the same semester-hour sequence as stated above, at a minimum cumulative grade-point average of 2.50.

*This requirement shall apply to students entering nondoctoral departmental programs beginning with the fall 2001 semester. A minimum cumulative grade-point average of 2.50 is required of nondoctoral departmental students admitted prior to that session.

B. DOCTORAL STUDENTS

A doctoral student on regular status shall be placed on probation if, after completing 8 s.h. of graduate work, the student's cumulative grade-point average on graduate work done at The University of Iowa falls below 3.00. If, after completing 8 more s.h. of graduate work at this University, the student's cumulative grade-point average remains below the required level, the student shall be dropped from the program and

denied permission to reregister unless the student applies and is accepted for a nondoctoral degree or certificate program. If, after completing the second 8 s.h., the cumulative grade-point average is at least 3.00, the student is returned to good standing.*

*This requirement shall apply to students entering doctoral programs beginning with the fall 1979 semester. A minimum cumulative grade-point average of 2.70 is required of students admitted to doctoral programs prior to that session.

C. RESTRICTION ON STUDENTS ON PROBATION

A student on probation shall not be permitted to take comprehensive or final examinations leading to any degree or certificate, nor may the student receive any graduate degree or certificate.

D. DEPARTMENTAL REGULATIONS AND DISSEMINATION OF INFORMATION

In addition to the above University-wide requirements, departments may establish further requirements which then determine the individual student's standing with regard to probation and dismissal. To this end, each department or program shall compile a written list of standards and procedures for work in that area. These documents shall be on file in each departmental office and the office of the Graduate College dean. Copies are to be available for students in the departmental office, and departments shall make all reasonable efforts to inform students. Subsequent changes in standards or procedures shall be communicated by the department to each student and the Graduate College dean. Whenever departments revise standards for a given program, the new regulations will not apply retroactively to the disadvantage of those already in the program. In addition to notifying students that they are subject to the rules of the Graduate College as set forth in the *Manual of Rules and Regulations*, any standards established by the department more stringent than the general Graduate College requirements shall be stated. Information shall be provided outlining required courses applicable to the various departmental programs of study, examination procedures and other formal evaluations, departmental policies with regard to awarding and renewing assistantships, time limits on programs of study, departmental registration policies, departmental grade-point requirements, requirements for changing from one degree program to another within the department—especially from the master's to the doctor's—departmental probation and dismissal policies and procedures (see "E" following), and

other matters as are appropriate. The nature of the departmental advisory system shall be explained to incoming students.

E. ACADEMIC PROGRESS, DEPARTMENTAL PROBATION, AND DISMISSAL PROCEDURES

If a student is failing to meet departmental standards, the department shall warn the student of this fact in writing. The notification shall specify in what way(s) the student is failing to meet the standards. The student shall be provided a reasonable amount of time to meet the standards prior to departmental dismissal. If conditions such as conditional admission or probation are imposed, the department shall give, at the time of its imposition, written explanation of this status and its time limits.

A student who will not be permitted to reregister for failure to meet standards shall be notified of this fact in writing with reasons for the action provided. Such dismissal may follow failure to meet conditions of admission, conditions of probation, pre-announced departmental grade-point requirements or other standards, or failure of a regularly scheduled examination or formal evaluation. If a student judges the dismissal decision improper, the student has a right to review. Each department shall establish procedures for handling such reviews. The procedures are to be approved by the Graduate College dean and shall afford a fair and expeditious review. A description of these procedures shall be included in the departmental regulations described above. (See "Section IV.D.")

F. PLAGIARISM BY GRADUATE STUDENTS

The Online Oxford English Dictionary (<http://dictionary.oed.com/dgi/entry/50180578>) defines "plagiarize" as follows, "To practice plagiarism upon; to take and use as one's own the thoughts, writings, or inventions of another." In practice, the exact definition of "plagiarize" or "plagiarism" is dependent upon the unique attributes of the creative work of a particular discipline. Thus, it is understood that different academic disciplines and cultures may have different interpretations as to the actual actions which constitute plagiarism. With this in mind, the Graduate College will operate in the following manner when a program or department discovers an act or acts of plagiarism on the part of a graduate student.

1) If the faculty members of a program or department determine that the transgression is not major, or else feel that there is a misunderstanding of the acts which constitute

plagiarism, the program or department may wish to work with the student so as to prevent future occurrences of plagiarism on the part of that student. Written notification of the offense and the remediation for the offense must be sent to the Graduate College for inclusion in the student's file.

2) If the faculty members of a program or department discover an act (or acts) of plagiarism that is (are) sufficiently egregious that expulsion from the program is warranted, the student will be terminated from his or her graduate program for reasons of plagiarism. In this case, the student will be simultaneously terminated from the Graduate College of The University of Iowa. The program or department must notify the student of his or her termination in writing. All relevant facts, as well as the process for appealing the decision, must be contained in the termination letter. The Graduate College must receive a copy of the termination letter.

The appeal process for students accused of academic misconduct is specified in The University of Iowa document, "Policies and Regulations Affecting Students, C. Academic Misconduct," which states: "Questions of academic dishonesty arising within the colleges of Medicine, Law, Pharmacy, and Dentistry, and the Graduate College are treated on an individual basis." "In the Graduate College, the questions are handled at the departmental level. If the departmental decision is appealed, the dean may appoint an appeals committee of faculty and students from a slate of nominees prepared by the Graduate Council and the Graduate Student Senate to recommend an appropriate course of action."

The appeal process must be initiated by the student. If the student wishes to appeal the department's or program's action, that appeal must be lodged with the Associate Dean for Academic Affairs of the Graduate College within 30 days of program or departmental dismissal.

G. GRADUATE COLLEGE REVIEW OF DEPARTMENTAL DISMISSAL

Questions involving judgment of performance will not be reviewed beyond the department level. If, however, the student feels there has been unfairness or some procedural irregularity concerning dismissal, the student may pursue a grievance according to the Academic Grievance Procedure (AGP) established by the Graduate College. The AGP is available in the Graduate College. The student should consult with the Graduate College prior to initiating an academic grievance.

Section V. Credits

A. TRANSFER OF GRADUATE CREDIT

Graduate work at other institutions will be entered on the student's permanent record by the Office of Admissions and a report of this action will be sent to the student and to his or her major department. Credit for these courses toward an advanced degree at Iowa must have the approval of the major department and the dean of the Graduate College. (See "Section X.E." and "Section XII.E.", Reduction of Old Credits.)

B. RESIDENCE TRANSFER CREDIT

After admission to a departmental program in the Graduate College, residence graduate credit from another Iowa Regents' university may be counted as residence credit at this institution, provided such work is acceptable to the student's major department on the basis of the department's determination of its applicability toward the degree. (See "Sections X.D." and "XII.C" for minimum semester hours required on campus for the master's and doctor's degrees, and "Sections X.E. and XII.E.", Reduction of Old Credits.)

C. GRADUATE CREDIT FOR VETERANS

Credit may be granted for studies pursued in war and military situations under such regulations as may be formulated by the national educational agencies and under such adaptation of standing rules as the Graduate Council may authorize from time to time to meet group or individual situations. The value of such credit in satisfying requirements for a degree will be determined by the major department with the approval of the dean.

D. WITHDRAWAL OF REGISTRATION AND PROPORTIONAL CREDIT FOR STUDENTS ENTERING MILITARY SERVICE

1. Students who leave within the first six weeks of the semester receive no credit.
2. Students who leave within the period of seven to nine weeks receive one-half credit.
3. Students who leave within the period of 10 to 12 weeks receive two-thirds credit.
4. Grade reports for the one-half and two-thirds credit periods: (a) Instructors report grades only as satisfactory or unsatisfactory. (b) Credit is to be assigned on the basis of total registration minus thesis and seminar. (c) Courses are to be counted toward specific degree requirements only after the student returns and then only with the department's approval.

5. Students who complete the twelfth week receive full credit.
6. Grade reports for the full-credit period:
 - (a) Grades are to be reported only at the end of the semester.
 - (b) Credit is to be reported in specific courses.
7. In each instance, the instructor reports the student's credit, grade, and date of withdrawal. No credit is granted unless the student's work is satisfactory at the time of leaving.
8. The amount of credit in thesis and research registration is to be reported to the registrar by individual instructors on the above basis except that less or zero credit may be assigned.

Section VI. Marking System

A. MARKS CARRYING GRADUATE CREDIT

These are A+, A, A-, B+, B, B-, C+, C, C-, and S—satisfactory.

B. MARKS CARRYING NO GRADUATE CREDIT

These are D+, D, D-, F, I—incomplete, W—withdrawn without discredit, R—registered, and U—unsatisfactory.

C. AUDIT

R is assigned when a student registered for zero credit attends as an auditor throughout the course; if the student fails to meet the instructor's requirements for class attendance, W is assigned.

D. INCOMPLETE

The grade of I is to be used only when a student's work during a session cannot be completed because of illness, accident, or other circumstances beyond the student's control. In registrations for thesis, research, or independent study, the satisfactory/unsatisfactory grades may be applied. (See next paragraph, "E".) An incomplete will automatically be converted to an F at the end of the next full semester (summer and winter sessions excluded), even if the student does not enroll after the session the I was posted.

Specific deadlines for the submission of student work to the faculty and for the faculty's report on I grades to the registrar will be set by the Graduate College dean for each session and printed in the academic calendar. Courses may not be repeated to remove incompletes; removal of an I is accomplished only through completion of the specific work for which the mark is given.

E. THESIS, RESEARCH, READINGS, INDEPENDENT STUDY, AND SPECIAL PROJECTS

Grades of S and U may be used for registrations in thesis, research, readings, independent study, and special projects. S—satisfactory means that the student receives credit for the work; U—unsatisfactory means that he or she receives no credit. Neither S nor U is used in computing grade-point averages. At a later date, the instructor may change the S to a letter grade. In addition, departments may ask the Graduate College dean for permission to use grades of S and U as described above for courses which, because of their special or experimental nature, are judged to be more appropriate for such grading. The type of grading system to be used in the above cases should always be mutually understood by the instructor and student.

F. GRADES OF S AND U

S and U may be used for courses taken by a graduate student outside the major department or interdepartmental degree program provided that the instructor of the course and the student's departmental advisor approve the registration. Arrangements for satisfactory/unsatisfactory grading in these courses are accomplished by filing a card with appropriate signatures in the Registrar's Office at the time of registration, or no later than the last day of the second week of a semester or the third day of the second week of a summer session. No changes from letter grades to satisfactory/unsatisfactory grades or vice versa will be allowed after these dates.

It is not the policy of the Graduate College to abandon the traditional letter grades described in this section; however, in certain exceptional instances, departments having several areas of concentration involving widely differing types of effort may request the permission of the Graduate Council to allow students majoring in one area to register in courses in another area within the same department or program on a satisfactory/unsatisfactory basis. In these instances, satisfactory/unsatisfactory cards will be used as described in the preceding paragraph.

G. COMPUTED GRADE-POINT AVERAGE

This is based only upon graduate work graded A+=4.33, A=4.00, A-=3.67, B+=3.33, B=3.00, B-=2.67, C+=2.33, C=2.00, C-=1.67, D+=1.33, D=1.00, D-=0.67, and F=0. Although a grade of A+ has a value of 4.33 in computing a student's g.p.a., the cumulative average is truncated so as not to exceed 4.00.

Section VII. Graduate Appointments

A. SCHOLARSHIPS

Scholarships are competitive and are awarded on merit.

1. Eligibility for graduate scholarships and fellowships will include: (a) registration in the Graduate College; (b) cumulative g.p.a. of at least 3.00; (c) a GRE score or a GMAT score above a point to be designated by the Graduate College dean; (d) a satisfactory rate of progress in completing the program for the degree.
2. Preference will be given to candidates for the doctoral degree.
3. Recommendations for graduate scholarships may be made to the Graduate College by the appropriate department executive, director, or dean. A graduate scholarship may be awarded whether or not a student holds an assistantship. The amount of scholarship for the academic year may vary, but in no case exceed the comprehensive fee assessed. Scholarships will be credited to the student's University account.

B. GRADUATE COLLEGE FELLOWSHIPS

Fellowships are awarded by the Graduate College upon recommendation by departments to students with outstanding academic records. Fellows must be registered as full-time students. The primary purpose of the awards is to permit an advanced student to complete his or her dissertation or creative project and take the degree. Other terms of the award will be established by the Graduate College dean in consultation with the Graduate Council.

C. FACULTY RESEARCH ASSISTANTSHIPS

Faculty research assistantships are awarded to qualified graduate students and serve two purposes: to provide research service to professorial members of the academic staff and to provide apprenticeship experience for graduate students who are in training in research. Not more than 20 hours of service per week are required of a half-time assistant. Other part-time service is scaled in proportion, and a limited academic schedule is permitted (see "Section II.D"). Appointments ordinarily are made for the nine-month academic year, but appointments may be made for other periods of time by special arrangement. Stipends vary with the qualifications of the appointee and the amount of service rendered.

D. GRADUATE TEACHING ASSISTANTSHIPS

These assistantships serve two purposes: assistance in the instructional program of the University and the preparation of future college teachers. In order to achieve both aims, scholastically superior graduate students who show exceptional promise as teachers are selected for graduate teaching assistantships. All appointments are made by the dean of the appropriate college on recommendation of the department.

E. ELIGIBILITY FOR SCHOLARSHIPS, FELLOWSHIPS, AND RESEARCH ASSISTANTSHIPS

Scholars, fellows, and faculty research assistants on the Graduate College budget must be registered as regular students in good standing in order to hold such appointments. Appointments will be terminated when registration and/or student status is terminated. In no instance may a student be promised or tendered an appointment until after approval for admission to the Graduate College by the director of Admissions.

F. CREDIT

No academic credit is allowed for the teaching or research service for which the student receives payment as a graduate assistant.

G. LOANS

Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid.

H. OTHER FORMS OF SUPPORT

Many departments offer financial assistance in the form of traineeships, part-time employment on research programs, or part-time teaching. Inquiries should be addressed directly to the major department.

Section VIII. Advanced Programs Offered in the Graduate College

The major areas in which the Graduate College offers degree programs are listed under "Degree Programs" at the beginning of this section of the Catalog.

Section IX. General Requirements for Advanced Degrees

A. APPLICATION FOR DEGREE

The student must file an application for an anticipated degree with the registrar by the deadline date printed in the Graduate College

academic calendar for the session in which the degree will be conferred. The student must have the application signed by his or her advisor. Failure to file the application by the deadline date established by the Graduate College dean will result in postponement of graduation to a subsequent session.

B. ENROLLMENT IN FINAL SESSION

The student must be enrolled during the session in which the degree is to be conferred. Students who are away from the University campus during that session may meet this requirement by registering for independent study, research, or thesis hours according to the practice in the various departments. Doctoral candidates who have completed all work except the final examination may register for Doctoral Final Registration described in "Section XII.L" if such registration is appropriate. Master's candidates who have completed all work except the final examination may register for Master's Final Registration if such registration is appropriate. Both the Doctoral Final Registration and Master's Final Registration require a 2 s.h. tuition/fee payment, and may be repeated if the degree requirements are not completed in this session. Registration in a Guided Independent Study course or in a course for which tuition/fees are not assessed (Cooperative Education Internship, for example) will not satisfy this requirement.

Section X. Master's Degrees

A. KINDS OF DEGREES

The University of Iowa offers programs leading to the Master of Arts (M.A.) degree, Master of Science (M.S.) degree, and several professional master's degrees.

M.A. and M.S. degrees require mastery of methodologies and practices of research and scholarship of the discipline. A thesis describing original scholarship or research may be required. M.A./M.S. degrees may be designed either as preparation for entry into doctoral degree programs or to provide advanced study and accomplishment that serves a variety of career and other purposes. Degrees are awarded in many fields of study, or majors, consistent with conventions of the discipline (e.g., M.A. in Art, English, Psychology; M.S. in Chemistry, Mathematics, Physiology). (For complete list, see Section VIII.) M.A. and M.S. degrees require a minimum of 30 s.h., a final examination and, in some fields, a thesis.

Professional master's degrees provide knowledge, perspectives, and skills required for professional

practice. Some programs may include introduction to research or scholarship sufficient to allow application of current literature to practice. Professional master's degrees generally are indicated by a three- or four-letter designation; examples include the Master of Fine Arts (M.F.A.), Master of Social Work (M.S.W.), Master of Public Health (M.P.H.), Master of Physician Assistant Studies (M.P.A.), Master of Science in Nursing (M.S.N.), Master of Accountancy (M.Ac.). (For complete list, see Section VIII.) Professional master's degrees require a minimum of 30 s.h. Some may require a final examination as well as a thesis, papers, projects, colloquia, internships, or other experiential-based activity typical of preparation for practice in the field.

A student may prepare a proposal for an interdisciplinary course of study, including the plan of study defining course work, examination requirements, a research plan, and a committee of at least three faculty members, with either the department most directly concerned or the Graduate College designated as the sponsor. Final approval of such individual programs is granted by the Graduate College dean, who may add members to the student's supervising committee from other closely related departmental faculties or from the Graduate Council. The degree will be awarded in interdisciplinary studies (master's) stipulated in the approved graduate program and, parenthetically, the name of the sponsoring department.

B. PLAN OF STUDY

The applicant for a master's degree must file a plan of study approved by the advisor and the departmental executive with the Graduate College within the session in which the degree is to be granted and by the deadline date printed in the Graduate College academic calendar. If the session in which a student takes his or her final exam is earlier than the session in which the degree is to be granted, the Plan of Study must be filed prior to the administration of the student's final examination. The plan shall meet the requirements for the degree approved by the graduate faculty. (See also "Section IV.D. Departmental Regulations and Dissemination of Information.")

C. MAJOR AND RELATED FIELDS

The plan of study should provide for reasonable concentration in the major field of interest and, subject to the approval of the major department, may include related subjects from other departments.

D. ACADEMIC RESIDENCE REQUIREMENT

Of the minimum of 30 s.h. required for the degree, at least 24 s.h. must be completed under the auspices of The University of Iowa after admission to a graduate department/program. Various forms of extramural registration may qualify toward fulfillment of the aforementioned 24-hour residence requirement (see "Section II.G. Extramural Registration") in addition to regular on-campus registration. Students who have elected or who are required to write a thesis for conferral of their master's degrees, must complete at least 8 semester hours of the 24-hour, academic residence requirement on campus. At the discretion of the department, the 8-semester hour, on-campus requirement may be waived for nonthesis master's programs. Election of the waiver option is to be applied programmatically, and not on a student-by-student basis, and must be formally conveyed to the Graduate College.

E. REDUCTION OF OLD CREDITS

Credits for a master's degree dating back more than 10 years from the session in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. LIMIT ON PROFESSIONAL COURSES

Work taken by a student in the Colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a master's degree if it is taken after the student has earned a bachelor's degree or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional college must be directly related to the student's major field of study in the Graduate College and be approved as a part of the plan of study by the student's advisor and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will be counted as part of the residence requirement for nondoctoral degrees in the Graduate College only when the student is registered in an appropriate joint degree program.

G. TWO MASTER'S DEGREES

The granting by this university of two master's degrees simultaneously or in succession requires the satisfaction of all requirements for each degree separately, including two theses where a thesis is required for each, and two examinations, with a minimum combined total of 60 s.h. of graduate credit.

H. MASTER'S DEGREE WITH THESIS

Not more than 9 s.h. of credit for thesis research and writing shall be counted in satisfying the 30 s.h. minimum requirement. The thesis may be a scholarly study or an artistic production.

One copy of the thesis, complete and in final typed form, must be presented to the Graduate College for a check of formal characteristics by the first-deposit deadline date in the session in which the degree is to be conferred. (See the Graduate College Thesis Manual.) After approval by the Graduate College and by the thesis committee, two copies of the thesis must be deposited with the Graduate College by the final-deposit deadline date in the graduation session. Failure to submit the first and final deposits of the thesis by the deadline dates established by the Graduate College will result in the postponement of graduation to a future session.

If the thesis is in some nonprint form (e.g., painting, statue, performance in music) the librarian will help the student and faculty advisor work out an appropriate method of preparing the work, if such help is needed. Once the accompanying manuscript is accepted, it is treated the same as any other thesis.

Nonrefundable fees are charged each thesis candidate to cover processing and publication costs of the thesis.

The thesis committee shall consist of at least three members of the graduate faculty and may or may not be identical to the final examination committee. (The final examination committee for the master's degree shall consist of at least three members of the graduate faculty, at least two of whom are from the major department. See "X.K. Examining Committee.")

I. MASTER'S DEGREE WITHOUT THESIS

A master's degree without thesis, consisting of at least 30 s.h. of graduate work, may be awarded upon the completion of a curriculum prescribed by a department and approved by the Graduate Council.

J. FINAL EXAMINATION

The requirements for master's degrees may include a final examination which, at the discretion of the major department, may be written or oral or both. Such an examination will not duplicate course examinations. It will be evaluated by the examining committee as satisfactory or unsatisfactory, with two unsatisfactory votes making the committee report unsatisfactory. The report of the final

examination is due in the Graduate College not later than 48 hours after the examination, and by the deadline date established by the Graduate College.

If the department so recommends, a candidate who fails the examination may present himself or herself for reexamination, but not sooner than the next regularly scheduled examination period in the following session.

The examination may be repeated only once.

A student must graduate within one calendar year after passing the final examination for a master's degree; failure to meet this deadline will require reexamination of the student.

Upon recommendation of a department, the comprehensive examination for a doctoral degree may be substituted for the master's examination.

Some master's programs do not require a final exam. Students are responsible for checking the specific requirements of their individual degree programs.

K. EXAMINING COMMITTEE

The examining committee for the master's degree consists of at least three members of the graduate faculty, appointed by the Graduate College dean upon recommendation of the major department or program, at least two of whom are from the major department. If the examination covers work in another department, one member of the committee must be from that department. Upon recommendation of the major department, the dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committee, and, at his or her discretion, the Graduate College dean may add a member to the committee.

Section XI. Graduate Certificate Programs

Graduate certificate programs reflect specialization, either within a field or in an area of study, research, or training. Some graduate certificate programs may be open only to students seeking degrees in related fields; others may be offered as independent programs. Graduate certificate programs are designed to enhance skills, to provide professional development and career advancement opportunities, to broaden career options, and for other purposes, both for traditional, full-time students and for those with full-time employment.

Graduate certificate programs usually require a minimum of 15 s.h. of specified course work and may, in addition, require papers, projects, or experiential learning components designed for specific cohorts. Certificate programs generally require two to three semesters to complete.

Examples include the graduate certificates in aging studies, American Indian and native studies, health informatics, and advanced nurse practitioner. Requirements for each graduate certificate are included in The University of Iowa General Catalog.

Section XII. Doctor's Degrees

A. CHARACTER OF DEGREE

The Graduate College offers doctoral programs leading to the Doctor of Philosophy (Ph.D.), the highest degree awarded by the university; the Doctor of Musical Arts (D.M.A.); the professional Doctor of Physical Therapy (D.P.T.) and the professional Doctor of Audiology (Au.D.). The Doctor of Philosophy degree indicates marked excellence in original research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy. The Doctor of Physical Therapy degree indicates marked excellence in physical therapy differential diagnosis and clinical integration. The Doctor of Audiology degree indicates marked excellence in theoretical and advanced clinical skills.

B. PREREQUISITES

The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject proposed for investigation or, in the case of deficiency, must register for prerequisite courses.

C. RESIDENCE REQUIREMENT

The doctorate is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit; however, the candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time involvement in one's discipline, at this university, beyond the first 24 s.h. of graduate work; this requirement can be met either by: (1) enrollment as a full-time student (9 s.h. minimum) in each of two semesters; or (2) enrollment for a minimum of 6 s.h. in each of three semesters during which the student holds at least a one-quarter-time assistantship certified by the department as

contributing to the student's doctoral program. (For purposes of record and assessment of fees, student registration should reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable transfer credit, will contain a minimum of 72 s.h. of graduate work.)

D. INTERDISCIPLINARY STUDIES PROGRAMS

A student may prepare a proposal for an interdisciplinary course of study, including the plan of study defining course work, examination requirements, research plan, and a committee of at least five faculty members with either the department most directly concerned or the Graduate College, designated as the sponsor. Final approval of such individual programs is granted by the Graduate College dean, who may add members to the student's supervising committee from other closely related departmental faculties or from the Graduate Council. The degree will be awarded in interdisciplinary studies (doctorate) stipulated in the approved graduate program and, parenthetically, the name of the sponsoring department.

E. REDUCTION OF OLD CREDITS

Courses taken 10 or more years prior to the comprehensive examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.

F. LIMIT ON PROFESSIONAL COURSES

Work taken by a student in the Colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor's degree or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional colleges must be directly related to the student's major field of study in the Graduate College, and the plan of study must be approved by the student's advisor and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will be counted as part of the one academic year which must be spent in residence as a doctoral student only when the student is registered in a formally established joint degree program.

G. JOINT PROGRAM FOR MASTER'S AND DOCTORAL DEGREES

Those students who expect to continue their training through the doctoral degree may pursue a joint program for the master's and doctor's degrees. The master's examination may be combined with the comprehensive examination for the doctorate for these candidates. The examining committee will file separate reports of its actions on the final examination for the master's degree and for the comprehensive examination. Upon recommendation of the department and approval of the Graduate College dean, students who are well qualified by previous training may submit a plan of study that leads directly to the doctoral degree without earning the master's degree as an intervening part.

H. REQUIREMENT IN FOREIGN LANGUAGES

There is no general Graduate College requirement in foreign languages. Those departments that do require competence in one or more foreign languages establish standards as to the extent and level of competence, as well as methods of testing. Specific requirements will be found in the departmental statements of standards and procedures (see "Section IV.D.>").

Specifications of departmental requirements in foreign languages are filed in the Graduate College office and may be changed upon the initiative of the departments.

I. REQUIREMENTS FOR THE DOCTOR OF PHYSICAL THERAPY (D.P.T.) AND DOCTOR OF AUDIOLOGY (A.U.D.)

Students enrolled in professional D.P.T. and Au.D. programs do not take comprehensive and final examinations and do not deposit a thesis with the Graduate College. The departments will be required to submit a doctoral plan of study to the Graduate College during the session of degree conferral. The plan will provide a listing of all graduate courses taken that apply toward the degree and a listing of courses in progress. The plan is to be filed no later than the deadline date printed in the Graduate College academic calendar.

J. PLAN OF STUDY

The development of a plan of study at the doctoral level is the responsibility of the student working together with his or her advisor. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examination. The plan will provide a listing of all graduate courses taken that apply toward the

degree and a listing of courses in progress or to be completed after the comprehensive examination.

K. COMPREHENSIVE EXAMINATION

The candidate must satisfactorily complete a comprehensive examination, consisting of written or oral parts or both at the discretion of the major department. Admission to the comprehensive examination is granted upon the recommendation of the major department, the filing of the plan of study, and the approval of the dean of the Graduate College. A student must be registered in the Graduate College at the time of the comprehensive examination, which must be satisfactorily completed not later than the session prior to the session of graduation. This examination, administered only on campus, is intended to be an inclusive evaluation of the candidate's mastery of the major and related fields of study, including the tools of research in which competence has been certified.

The comprehensive examination is not a deferred qualifying examination. It is intended to evaluate the candidate's mastery of the subject at or near the end of his or her formal preparation and prior to the completion of the dissertation. The comprehensive examination and the final examination, which is concerned chiefly with defense of the thesis and related subjects, are the two principal examinations for the Ph.D. and D.M.A. doctoral degrees.

The comprehensive examination will be evaluated by a convened meeting of the committee. Each committee member will sign the examination report as satisfactory, reservations, or unsatisfactory. The completed exam warrant will be submitted to the Graduate College office within 14 days after the completion of the examination. Two "unsatisfactory" votes will make the committee report unsatisfactory.

A vote of "reservations" should only be used when a faculty member feels that the deficiencies displayed by the student were modest, and can be readily rectified. In the event of a report with two or more votes of "reservations," the actions required of the student, by the committee, that are necessary to correct the deficiencies must be recorded and submitted to the Graduate College with the examination report form. Copies of the written statement of necessary actions should be kept by: the appropriate departmental executive, the chair of the examination committee, and the student. The statement must specify the time allowed for completion of the aforementioned actions. The language describing the actions must

be specific. For instance, if additional course work is required, a list of suitable courses must be presented. If the candidate needs to rewrite his or her research prospectus, the deficient areas must be identified, etc. If the candidate satisfies the required actions in the specified period of time, the appropriate departmental executive will send a written report to the Graduate College indicating the date for which the examining committee considers the actions to have been satisfied. Upon approval of the dean of the Graduate College, the comprehensive exam will be recorded as "satisfactory" as of that date. If the actions are not satisfied on time, or if the actions are not of sufficient quality, the appropriate departmental executive will send a written report to the Graduate College indicating that fact. Upon approval of the dean of the Graduate College, the comprehensive exam will be recorded as "unsatisfactory" as of that date. The candidate will not be admitted to the final oral examination of the dissertation until a grade of "satisfactory" has been recorded for the comprehensive exam.

In case of a report of unsatisfactory on a comprehensive examination, the committee may grant the candidate permission to present himself or herself for reexamination not sooner than four months after the first examination. The examination may be repeated only once, at the option of the department.

L. CONTINUOUS REGISTRATION AFTER COMPLETION OF THE COMPREHENSIVE EXAMINATION

The student is required to register each fall and spring semester after satisfactorily completing the comprehensive examination until the degree is awarded. If a student fails to register, the student may not be readmitted to candidacy until the student has submitted an application that has been approved by the student's advisor, the departmental executive, and the Graduate College dean.

In order to maintain continuous registration, doctoral students may register (1) for required and/or elective courses, research, and thesis hours to complete the plan of study, or (2) for Doctoral Continuous Registration (DCR). DCR requires a 2 s.h. tuition/fee payment. If a temporary lapse in a student's academic program is required due to military service, medical leave, maternity leave, or personal/family leave, a student may petition the Graduate College to be allowed to register for Ph.D. Postcomprehensive Registration (PCR), which allows for the assessment of a special minimum fee. If a petition is granted, it is to be understood that a student will not make significant use of university

resources, or engage in significant consultation with the faculty. The Ph.D. Postcomprehensive Registration is not to be used for a student's final registration in a doctoral program. In the final semester, doctoral students may register for Doctoral Final Registration (DFR), which requires a 2 s.h. tuition/fee payment, or appropriate course work. The DFR may be repeated if the degree requirements are not completed in this session.

Under no circumstances may courses for which tuition/fees are not assessed (Cooperative Education Internship, for example), be used to satisfy the continuous registration or final registration requirement of the Graduate College.

No registration for the summer or winter sessions is required. The exceptions are when the student is taking a degree at the end of the summer session, or when enrollment is required by the student's department.

M. DISSERTATION FOR THE DOCTORAL DEGREE

One copy of the dissertation, complete and in final form, must be presented at the office of the Graduate College by the first-deposit deadline date in the session in which the degree is to be conferred.

Two copies of the approved dissertation must be deposited at the office by the final-deposit deadline date in the graduation session. The final deposit can be no later than the end of the semester (summers excluded) following the session in which the final examination is passed; failure to meet this deadline will require reexamination of the student. Failure to submit the first and final deposits of the thesis by the deadline dates established by the Graduate College will result in the postponement of graduation to a future session.

Regulations regarding preparation of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be microfilmed and thus made available on a permanent basis. An abstract of the dissertation, not to exceed 350 words of text, is to be deposited with the dissertation. The abstract must be approved and signed by the dissertation advisor. The abstract is published in the journal of *Dissertation Abstracts International*. One copy of the dissertation is bound and indexed at the University's Main Library.

If the dissertation is in some nonprint form (e.g., painting, statue, performance in music) the librarian will help the student and faculty advisor work out an appropriate method of preparing the work, if such help is needed. Once the

accompanying manuscript is accepted, it is treated the same as any other thesis.

Dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.

N. DISSERTATION FEES

Nonrefundable fees are charged each doctoral candidate to cover processing and publication costs of the dissertation and abstract.

O. FINAL EXAMINATION

The work for the degree culminates in a final oral examination administered on campus. This examination should include: a critical inquiry into the purposes, methods, and results of the investigation—not a mere recapitulation of the procedures followed—and intensive questioning on areas of knowledge constituting the immediate context of the investigation.

The final examination may not be held until the next session after the student satisfactorily completes the comprehensive examination; however, a student must pass the final examination no later than five years after satisfactorily completing the comprehensive examination. Failure to meet this deadline will result in a reexamination of the student to determine his or her qualifications for taking the final examination. The procedures to be followed are the same as those for the comprehensive examination. (See "XII.K. Comprehensive Examination.")

Final examinations for the doctorate are open to the public. Members of the faculty of the Graduate College are especially invited to attend and, subject to the approval of the chair, to participate in the examination.

The report of the final examination is due in the Graduate College office not later than 48 hours after the examination. The final examination will be evaluated as satisfactory or unsatisfactory. Two unsatisfactory votes will make the committee report unsatisfactory. In case of a report of unsatisfactory in the final examination, the candidate may not present himself or herself for reexamination until the next session. The examination may be repeated only once, at the option of the major department.

P. EXAMINING COMMITTEES

The comprehensive and final examinations are conducted by committees of no fewer than five members of the graduate faculty appointed by the Graduate College dean upon recommendation of

the major department, at least two of whom are from the major department. Departments may request the dean's permission to replace one of the five members of the graduate faculty by a recognized scholar of professorial rank from another academic institution. A member of the graduate faculty from outside the major department is required in those cases where a related field outside the major department is included in the comprehensive examination. For the final examination, one member of the committee must be a member of the graduate faculty from outside the major department, whether that department is on campus or off campus.

Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committees. However, four members of doctoral committees (two members for master's committees) must come from the regular (tenure and tenure-track faculty) graduate faculty. A voting member may be added at the discretion of the Graduate College dean.

Section XIII. Exceptions

Petitions to waive these regulations may be made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Nondepartmental Courses

000:000 Ph.D. Postcomprehensive Registration	0 s.h.
000:001 Master's Final Registration	0 s.h.
000:002 Doctoral Continuous Registration	0 s.h.
000:003 Doctoral Final Registration	0 s.h.
000:800 CIC Scholar	arr.
000:801 Regents Exchange Program	arr.
000:997 Graduate/Professional Transfer	arr.
000:998 Undergraduate Transfer	arr.
000:999 Resident/Fellow/Post-Doctoral	0 s.h.
650:006 Summer Research Opportunity Program	0 s.h.
650:270 Responsible Conduct in Research	1 s.h.
Current topics and ethical issues; misconduct and fraud, proper handling of data, responsible authorship, conflict of interest, research on animals and humans.	

650:275 AGEP Topical Seminar 1 s.h.
Introduction and orientation to Alliance for Graduate Education and Professoriate and The University of Iowa graduate school experience. Prerequisite: GAAN, AGEP scholar, or STEM enrollment.

650:300 Writing for Learned Journals 1-4 s.h.
Help for graduate students in bringing written work to publishable form; analysis of target journal's audiences and interests; submission, response to criticism. Same as 08N:340, 160:300.

650:313 Digital Rhetorics 3 s.h.
Persuasive and ethical implications of meta-information (e.g., hypertext) in electronic data; rhetoric of digital research within and between disciplines; methodological perspectives of participants' disciplines. Same as 008:313, 160:313.

650:385 Teaching and Learning in Higher Education 3 s.h.
Same as 07B:385, 07P:385.

650:386 Teaching Portfolio Development 1-3 s.h.
Development of a web- or paper-based teaching portfolio; sample syllabi, statement of teaching philosophy, samples of student work assignments, essays on issues in higher education teaching. Prerequisite: admission to Certificate in Graduate Teaching program.

650:510 Topics in Rhetorics of Inquiry 2-4 s.h.
Same as 160:510.

650:601 Postdoctoral Research Scholar 0 s.h.
Repeatable. Prerequisite: postdoctoral standing.

650:602 Postdoctoral Research Fellow 0 s.h.
Repeatable. Prerequisite: postdoctoral standing.

650:603 Postdoctoral Clinical Scholar 0 s.h.
Repeatable. Prerequisite: postdoctoral standing.

650:604 Responsible Conduct in Research 0 s.h.
Current topics and ethical issues; misconduct and fraud, proper handling of data, responsible authorship, conflict of interest, research on animals and humans. Repeatable. Prerequisites: postdoctoral standing and consent of course director.

650:605 Writing for Learned Journals 0 s.h.
Help for graduate students in bringing written work to publishable form; analysis of target journals' rhetoric; submission, response to criticism. Prerequisite: postdoctoral standing.

650:606 Survival Skills for a Research Career 0 s.h.
Nonlaboratory skills necessary for pursuing a scientific research career, including scientific writing, presentation, manuscript review, curriculum vitae preparation, and so forth. Repeatable. Prerequisite: postdoctoral standing.

Applied Mathematical and Computational Sciences

Chair: Yi Li (Mathematics)

Affiliated faculty: Kurt Anstreicher (Management Sciences), Marc P. Armstrong (Geography), Debashish Bhattacharya (Biological Sciences), Samuel Burer (Management Sciences), Ann M. Campbell (Management Sciences), Gregory R. Carmichael (Chemical and Biochemical Engineering), Kyung K. Choi (Mechanical and Industrial Engineering), James F. Cremer (Computer Science), Isabel Darcy (Mathematics), Soura Dasgupta (Electrical and Computer Engineering), John Geweke (Economics/Statistics and Actuarial Science), Weimin Han (Mathematics), Stephen D. Hendrix (Biological Sciences), Jian Huang (Statistics and Actuarial Science), Raj Jaganathan (Management Sciences), Laurent Jay (Mathematics), Jan Jensen (Chemistry), Douglas W. Jones (Computer Science), Jarkko Kari (Computer Science), Alan R. Kay (Biological Sciences), Joseph K. Kearney (Computer Science), William H. Klink (Physics and Astronomy), Russell V. Lenth (Statistics and Actuarial Science), Tong Li (Mathematics), Yi Li (Mathematics), Ching-Long Lin (Industrial and Mechanical Engineering), John Logsdon (Biological Sciences), Michael Mackey (Biomedical Engineering/Pathology), Jeffrey S. Marshall (Mechanical and Industrial Engineering), George Neumann (Economics), Gregg C. Oden (Psychology), Suely Oliveira (Computer Science), Wayne Polyzou (Physics and Astronomy), R. Rajagopal (Geography/Civil and Environmental Engineering), Teodor Rus (Computer Science), Gerard Rushton (Geography), Alberto M. Segre (Computer Science), Elias Shiu (Statistics and Actuarial Science), Jonathan Simon (Mathematics), Milan Sonka (Electrical and Computer Engineering), David Stewart (Mathematics), Osnat Stramer (Statistical and Actuarial Science), Gerhard O. Strohm (Mathematics), Tuong Ton-That (Mathematics), Ge Wang (Radiology/Biomedical Engineering), Lihe Wang (Mathematics), George G. Woodworth (Statistics and Actuarial Science), Chun-Fang Wu (Biological Sciences), Yangbo Ye (Mathematics)

Graduate degree: Ph.D. in Applied Mathematical and Computational Sciences

Web site: <http://www.math.uiowa.edu/amcs>

Applied mathematical scientists formulate scientific concepts and problems in mathematical terms; solve the resulting mathematical problems using analytical and computational methods; and discuss, interpret, and evaluate the solutions. They explore areas of mathematical application and develop mathematical theories in new areas.

Career opportunities for applied mathematicians include positions in colleges, universities, governmental laboratories, business, industry, and consulting firms.

Doctor of Philosophy

The Doctor of Philosophy in applied mathematical and computational sciences requires a minimum of 72 s.h. of graduate credit. The Ph.D. program is autonomous, broadly based, and interdisciplinary, and is designed to help students achieve a command of theoretical and applied mathematics and obtain basic knowledge in another area (engineering, medicine, or one of the behavioral, biological, physical, or social sciences).

The program is flexible; students can concentrate on applied mathematics, such as differential equations and numerical analysis, or on other applicable techniques in mathematics. Scientific computing is an important part of applied mathematics, so it is often a part of student training and dissertation research.

Prospective students should have a desire to apply a mathematical science (mathematics or statistics) to relevant problems in another area.

PLAN OF STUDY

Faculty members help each student plan a course of study that is consistent with the student's background, interests, and goals.

These individual programs are designed to help students develop expertise in methods of applied mathematics and build a good foundation in related topics of theoretical mathematics. The individual programs also provide sufficient knowledge in an outside area to enable students to use mathematical techniques in that area.

Students can arrange their study plans to earn a master's degree from another department after they complete part of their plan. Students find suitable thesis problems and supervisors with the help of the faculty.

QUALIFYING AND COMPREHENSIVE EXAMINATIONS

Students take a qualifying examination over three of the four core course sequences required for the Ph.D. (differential equations, numerical analysis, analysis, and topology). They also take a comprehensive examination over the chosen outside area.

One program objective is to have each student's dissertation research include many of the activities of an applied mathematical scientist. For

example, a student might formulate a model, do a quantitative analysis of the model, and interpret the results.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. To be prepared for graduate-level course work in mathematics and an additional area, applicants should have a bachelor's or master's degree with a strong mathematics component and some background in the additional area.

Applications for fall admission are due on January 15. For application forms and more information about the academic program, contact the chair of the Program in Applied Mathematical and Computational Sciences.

Financial Support

Fellowships and research and teaching assistantships are available to qualified applicants. Fellowship support is available during summers. Applications for financial support should be submitted at the same time as applications for admission.

Courses

22A:397 Seminar: Applied Mathematical and Computational Sciences arr.

Current research by faculty, students, guests. Prerequisite: consent of instructor.

22A:399 Reading and Research arr.

Repeatable. Prerequisite: consent of advisor.

Biosciences

Director: Andrew F. Russo

Affiliated faculty: Paul Abbas (Speech Pathology and Audiology/Otolaryngology—Head and Neck Surgery), Francois Abboud (Internal Medicine), Harold Adams (Neurology), Lee-Ann Allen (Internal Medicine), Michael Anderson (Physiology and Biophysics), Steven Anderson (Neurology), Nancy Andreasen (Psychiatry), Michael Apicella (Microbiology), Mark Arnold (Chemistry), Nikolai Artemyev (Physiology and Biophysics), Mario Ascoli (Pharmacology), Robert Ashman (Internal Medicine), William Ballard (Biological Sciences), Zuhair Ballas (Internal Medicine), Botond Banfi (Anatomy and Cell Biology), Gary Baumbach (Pathology), Christopher Benson (Internal Medicine), Ramesh Bhalla (Anatomy and Cell Biology), Debashish Bhattacharya (Biological Sciences), Jackie Bickenbach (Anatomy and Cell Biology), Gail Bishop (Microbiology), Mark Blumberg (Psychology), Daniel Bonthius (Pediatrics), Terry Braun (Biomedical Engineering), Timothy Brennan (Anesthesiology), Garry Buettner (Radiation Oncology), John Butler (Microbiology), Kevin Campbell (Physiology and Biophysics), Donald Cannon (Chemistry), Thomas Casavant (Electrical and Computer Engineering), Martin Cassell (Anatomy and Cell Biology), Mark Chapleau (Internal Medicine), Chi-Lien Cheng (Biological Sciences), Steven Clegg (Microbiology), Michael Cohen (Pathology), Robert Cohen (Biochemistry), Kelly James Cole (Exercise Science), John Colgan (Internal Medicine), Joseph Comeron (Biological Sciences), Robert Cornell (Anatomy and Cell Biology), Charles Cox (Microbiology), Joseph Cullen (Surgery), Michael Dailey (Biological Sciences), Morris Dailey (Pathology), Warren Darling (Exercise Science), Beverly Davidson (Internal Medicine), Deborah Dawson (Preventive and Community Dentistry), Kris DeMali (Biochemistry), Jeffrey Denburg (Biological Sciences), Frederick Domann (Radiation Oncology), John Donelson (Biochemistry), Daniel Eberl (Biological Sciences), Adrian Elcock (Biochemistry), John Engelhardt (Anatomy and Cell Biology), Sarah England (Physiology and Biophysics), Frank Faraci (Internal Medicine), Jan Fassler (Biological Sciences), Michael Feiss (Microbiology), Robert Felder (Internal Medicine), Robert Fellows (Physiology and Biophysics), Elizabeth Field (Internal Medicine), Rory Fisher (Pharmacology), Robert Franciscus (Anthropology), Joseph Frankel (Biological Sciences), Sonya Franklin (Chemistry), John Freeman (Psychology), George Friestad (Chemistry), Ernesto Fuentes (Biochemistry), Alice Fulton (Biochemistry), Bruce Gantz (Otolaryngology—Head and Neck Surgery), Minnetta Gardinier (Pharmacology), Gerald Gebhart (Pharmacology), Lei Geng (Chemistry), Pamela Geyer (Biochemistry), James Gloer (Chemistry), Harold Goff (Chemistry), Pedro Gonzalez-Alegre (Neurology), Jean Gordon (Speech Pathology and Audiology), Prabhath Goswami (Radiation Oncology), Thomas Grabowski (Neurology), Steven Green (Biological Sciences), Thomas Griffith (Urology), Gary Gussin (Biological Sciences), Lilach Hadany (Biological Sciences), Gregory Hageman (Ophthalmology), Donna

Hammond (Anesthesiology), John Harty (Microbiology), Paul Hedger (Anatomy and Cell Biology), Donald Heistad (Internal Medicine), Johannes Hell (Pharmacology), Stephen Hendrix (Biological Sciences), Michael Henry (Physiology and Biophysics), Jonathan Heusel (Pathology), Raymond Hohl (Internal Medicine), Mary Horne (Pharmacology), Alexander Horswill (Microbiology), Diana Horton (Biological Sciences), Bruce Hostager (Pediatrics), Douglas Houston (Biological Sciences), Jon Houtman (Microbiology), Matthew Howard (Neurosurgery), Richard Hurtig (Speech Pathology and Audiology), Fiorenza Ianzini (Radiology), Erin Irish (Biological Sciences), Jan Jensen (Chemistry), Jean Jew (Anatomy and Cell Biology), William Johnson (Microbiology), Wayne Johnson (Physiology and Biophysics), Bradley Jones (Microbiology), Barry Kasson (Pharmacology), Masataka Kawai (Anatomy and Cell Biology), Alan Kay (Biological Sciences), Toshihiro Kitamoto (Anesthesiology), Joel Kline (Internal Medicine), Al Klingelutz (Microbiology), C. Michael Knudson (Pathology), Amnon Kohen (Chemistry), John Koland (Pharmacology), Kevin Kregel (Exercise Science), David Kusner (Internal Medicine), Kathryn Lamping (Internal Medicine), Gloria Lee (Internal Medicine), Steven Lentz (Internal Medicine), Andrew Lidral (Orthodontics), Jack Lilien (Biological Sciences), Nancy Lill (Pharmacology), Jim (Chung-Jung) Lin (Biological Sciences), John Logsdon (Biological Sciences), David Lubaroff (Urology), Steven Luck (Psychology), Rama Mallampalli (Internal Medicine), Robert Malone (Biological Sciences), Claudio Margulis (Chemistry), Brian Martin (Microbiology), Wendy Maury (Microbiology), Bryant McAllister (Biological Sciences), Anton McCaffrey (Microbiology), Linda McCarter (Internal Medicine), Paul McCray (Pediatrics), Jeffrey Meier (Internal Medicine), John Menninger (Biological Sciences), Lou Messerle (Chemistry), Francis Miller (Internal Medicine), Rex Montgomery (Biochemistry), Steven Moore (Pathology), Craig Morita (Internal Medicine), David Moser (Psychiatry), Scott Moye-Rowley (Physiology and Biophysics), Jeffrey Murray (Pediatrics), Peter Nagy (Pathology), William Nauseef (Internal Medicine), Larry Oberley (Radiation Oncology), Sue O'Dorisio (Pediatrics), Daniel O'Leary (Psychiatry), Nicholas Pantazis (Anatomy and Cell Biology), Sergio Paradiso (Psychiatry), Shivanand Patil (Pediatrics), Jane Paulsen (Psychiatry), Henry (Hank) Paulson (Neurology), Stanley Perlman (Pediatrics), Robert Philibert (Psychiatry), Robert Piper (Physiology and Biophysics), Bryce Plapp (Biochemistry), Amy Poremba (Psychology), Jonathan Poulton (Biological Sciences), David Price (Biochemistry), Herbert Proudft (Pharmacology), Dawn Quelle (Pharmacology), Frederick Quelle (Pharmacology), Daniel Quinn (Chemistry), Subramanian Ramaswamy (Biochemistry), Timothy Ratliff (Urology), Michael Rebagliati (Anatomy and Cell Biology), Matthew Rizzo (Neurology), Robert Robinson (Psychiatry), Scott Robinson (Psychology), Jan-Uwe Rohde (Chemistry), Richard Roller (Microbiology), Paul Rothman (Internal Medicine), Peter

Rubenstein (Biochemistry), Andrew Russo (Physiology and Biophysics), Alexander Sandra (Anatomy and Cell Biology), Jeffrey Schabillon (Biological Sciences), Thomas Schmidt (Physiology and Biophysics), Brian Schutte (Pediatrics), Deborah Segaloff (Physiology and Biophysics), Alberto Segre (Computer Science), Madeline Shea (Biochemistry), David Sheff (Pharmacology), Val Sheffield (Pediatrics), Erwin Shibata (Physiology and Biophysics), Ming-Che Shih (Biological Sciences), Thomas Shires (Pharmacology), Curt Sigmund (Internal Medicine), Kathleen Sluka (Physical Therapy and Rehabilitation Science), Diane Slusarski (Biological Sciences), Richard Smith (Otolaryngology—Head and Neck Surgery), Jeanne Snyder (Anatomy and Cell Biology), David Soll (Biological Sciences), Arthur Spector (Biochemistry), Douglas Spitz (Radiation Oncology), Mark Stammes (Physiology and Biophysics), Jack Stapleton (Internal Medicine), George Stauffer (Microbiology), Barbara Stay (Biological Sciences), Mark Stinski (Microbiology), Christopher Stipp (Biological Sciences), C. Martin Stoltzfus (Microbiology), Edwin Stone (Ophthalmology), Stefan Strack (Pharmacology), William Talman (Neurology), Jason Telford (Chemistry), Christie Thomas (Internal Medicine), Robert Tomanek (Anatomy and Cell Biology), Daniel Tranel (Neurology), Lubomir Turek (Pathology), Christopher Turner (Speech Pathology and Audiology), Yuriy Usachev (Pharmacology), Steve Varga (Microbiology), Thomas Waldschmidt (Pathology), Michael Wall (Neurology), Lori Wallrath (Biochemistry), Andy (Wei-Yeh) Wang (Biological Sciences), M. Todd Washington (Biochemistry), Edward Wasserman (Psychology), Thomas Wassink (Psychiatry), Daniel Weeks (Biochemistry), George Weiner (Internal Medicine), Joshua Weiner (Biological Sciences), Neal Weintraub (Internal Medicine), Jerrold Weiss (Internal Medicine), David Weiss (Microbiology), Michael Welsh (Internal Medicine), John Wemmie (Psychiatry), David Wierner (Chemistry), Terence Williams (Anatomy and Cell Biology), Marcia Willing (Pediatrics), Mary Wilson (Internal Medicine), Marc Wold (Biochemistry), Chun-Fang Wu (Biological Sciences), Timothy Yahr (Microbiology), Charles Yeaman (Anatomy and Cell Biology), Joseph Zabner (Internal Medicine), Nicholas Zavazava (Internal Medicine)

Web site: <http://www.medicine.uiowa.edu/biosciences>

The Biosciences Program provides graduate students the freedom to explore research in any of 12 University of Iowa biosciences research departments and programs: the Departments of Anatomy and Cell Biology, Biochemistry, Biological Sciences, Chemistry, Microbiology, Pharmacology, and Physiology and Biophysics, and the Programs in Free Radical and Radiation Biology, Genetics, Immunology, Molecular and Cellular Biology, and Neuroscience. The program leads to a Ph.D. degree in one of the biosciences disciplines.

Biosciences students enjoy the flexibility of investigating several disciplines through research

rotations in the laboratories of Biosciences Program faculty members. Following completion of their first year in the program, students select a research laboratory and program affiliation and decide on a thesis project that will lead to a Ph.D.

Semester hour requirements for the doctorate vary by program, but all Ph.D. degrees at Iowa require at least 72 s.h. of graduate study. For detailed information on Graduate College policies, see the Manual of Rules and Regulations of the Graduate College.

Curriculum

During their first year in the program, students perform three 10-week research rotations in Biosciences Program departments and programs of their choice. They also take a principles course (156:201), a seminar course (156:265), and one or more electives.

Biosciences students are advised on course selection, research rotations, and registration by a faculty member closely related to the student's research and academic interests. As research rotations are assigned, the faculty advisor works in consultation with the student's rotation advisors until the end of the first year.

Biosciences students provide a short oral presentation following each research rotation to an audience of their primary advisor, research advisor(s), and other biosciences students. Rotation advisors provide rotation reports, and rotations are evaluated by the student's primary advisor. The student's primary advisor also confers with the student on course grades, subsequent rotations, and the student's selection of a department or program and lab for thesis research.

In addition to laboratory rotations, all biosciences students take 156:201 Principles in Molecular and Cell Biology, which provides a foundation for understanding basic principles of molecular and cell biology relevant to all bioscience disciplines and teaches students how to evaluate literature critically.

The Biosciences Seminar (156:265) dovetails with current seminar series offered by the Biosciences Program's departments and programs. At the beginning of each semester, biosciences students meet to choose approximately 12 seminars that they all will attend. Students choose seminars under advisement from the course instructor, who ensures that all students contribute to the selection process. During the first semester,

student groups are formed and each group selects a paper from a chosen speaker to present. During the second semester, individual students select and present a paper.

Overall student progress is monitored by the student's primary advisor, rotation advisor(s), and program director, who meet at the end of each semester to review the student's progress. At the end of the second semester, the primary advisor, in cooperation with the rotation advisor(s), makes a recommendation to the Biosciences Program director whether the student should continue in the Ph.D. program. University guidelines, such as maintaining a cumulative g.p.a. of 3.00 or higher, are considered, along with performance in rotations.

During the second semester, Biosciences Program students meet with prospective mentors regarding thesis proposals and openings available in the mentors' laboratories. Students identify which program and laboratory they would like to join. Two weeks before the spring semester ends, students submit their choice of graduate programs and faculty mentors to the Biosciences Program office, which coordinates each student's transfer to his or her chosen program. From that point on, the department or program advises the student and evaluates his or her performance.

Most participating departments and programs require that students take a comprehensive exam at the end of the second year and no later than the third year. Following successful completion of the exam, students are advanced to Ph.D. candidacy.

REQUIRED COURSES

All Biosciences Program students must complete the following course work. Students earn at least 12 s.h. each semester.

Fall Semester

156:201 Principles in Molecular and Cell Biology	4 s.h.
156:265 Biosciences Seminar	1 s.h.
156:302 Biosciences Research (10-week research rotations)	arr.
One elective	

Spring Semester

156:265 Biosciences Seminar	1 s.h.
156:302 Biosciences Research (10-week research rotations)	arr.
650:270 Responsible Conduct in Research	1 s.h.
Two electives	

Admission

The program accepts students with a variety of backgrounds in the biological and physical sciences. Entering students must hold a baccalaureate degree from an accredited college or university and should have completed courses in biology, chemistry, physics, and calculus consistent with requirements for a baccalaureate degree in the sciences. An undergraduate g.p.a. of at least 3.00 is required.

Applicants must submit their scores on the Graduate Record Examination; a combined verbal and quantitative score of 1200 and an analytical writing score of 4.5 or higher are preferred. Applicants whose first language is not English must score above 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Other indicators of academic accomplishments, such as research experience and letters of recommendation, are considered.

Information about graduate training and application materials are available from the Biosciences Program office.

Financial Support

Graduate students receive stipend and tuition support from The University of Iowa and other sources. Students promoted to the second year in the program receive support from their graduate departments and programs. The Biosciences Program also helps some students apply for competitive national awards for outstanding academic and research achievement.

Facilities

The basic science and clinical departments of the Carver College of Medicine are clustered on the west campus of the University, primarily in the Bowen Science Building, Eckstein Medical Research Building, Medical Laboratories, Medical Education and Biomedical Research Facility, and University of Iowa Hospitals and Clinics. Nearby are the Hardin Library for the Health Sciences and the Veterans Affairs Iowa City Health Care System.

The Departments of Anatomy and Cell Biology, Biochemistry, Microbiology, Pharmacology, and Physiology and Biophysics are housed in the Bowen Science Building. Laboratories of clinical departments are located primarily in the Medical Laboratories and the Medical Research Center.

The Eckstein Medical Research Building houses major core facilities for microscopy, image analysis, flow cytometry, protein structure, and monoclonal antibody production, as well as research laboratories for basic investigators with interdisciplinary approaches to cancer, molecular biology, genetics, and immunology. The geographic proximity of these facilities promotes interchange among clinical and basic science faculty members and students and maximizes use of the University's extensive core facilities for biomedical research.

Integral to the University's research environment are the Alzheimer's Disease Research Center, Holden Comprehensive Cancer Center, Iowa Cardiovascular Center, Clinical Research Center, Cooperative Human Linkage Center, Craniofacial Anomalies Research Center, Diabetes-Endocrinology Research Center, Digestive Diseases Core Center, Iowa Child Health Research Center, University of Iowa Cystic Fibrosis Center, Iowa Specialized Center for Pulmonary Research, Lipid Research Clinic, Mental Health Clinical Research Center, Schizophrenia Research Center, Iowa Center for Gene Therapy, and Specialized Centers for Congenital Heart Disease and Hypertension and for Occupational and Immunological Lung Disease.

In addition to the University's extensive facilities for research support, the Carver College of Medicine and the College of Liberal Arts and Sciences operate a variety of research support facilities. Tissue culture, autoclaving, purified water, darkrooms, counters, and a variety of general-use equipment and services are available on a shared basis.

Courses

156:201 Principles in Molecular and Cell Biology 4 s.h.

Introduction to critical reasoning as applied to fundamental principles of molecular and cell biology; recent scientific literature. Repeatable.

156:265 Biosciences Seminar 1 s.h.

Focus on a journal article relevant to a weekly biosciences seminar series. Repeatable. Prerequisite: consent of instructor. Same as 002:270, 072:342.

156:302 Biosciences Research arr.

Research experience in the lab of a Biosciences Program faculty member. Repeatable.

Center for the Book

Director: Matthew P. Brown (English/Center for the Book)

Professors: Katherine Tachau (History/Center for the Book), Jonathan Wilcox (English/Center for the Book)

Associate professors: Robert Glasgow (Art and Art History/Center for the Book), Christine Pawley (Library and Information Science/Center for the Book), James Snitzer (Art and Art History/Center for the Book)

Assistant professor: Matthew P. Brown (English/Center for the Book)

Lecturers: Kathleen Kamerick (History/Center for the Book), Julia Leonard (Center for the Book/Art and Art History)

Graduate nondegree program: Certificate in Book Studies/Book Arts and Technologies

Web site: <http://www.uiowa.edu/~ctrbook>

The University of Iowa Center for the Book represents a community of faculty, staff, students, and local book specialists with interests in all facets of book production, distribution, and use. Some members of the center actively research the history and circulation of the book, examining books' role in cultural and historical processes. They also look at how changes in book production affect the way books are viewed as artifacts. Specialists in book arts and technologies study the history and technique of book crafts, including letterpress and offset printing, typography, calligraphy, papermaking, and bookbinding. Others engage in the conservation or production of books, including artists' books and literary fine press publications.

The center offers classes; sponsors lectures, seminars, and workshops; and encourages the exchange of ideas among individuals with interests in the book. Associated faculty, staff, and graduate students in the Schools of Art and Art History and Library and Information Science; the Departments of History, English, and Computer Science; University of Iowa Libraries; the Iowa Writers' Workshop; and other areas offer a wide range of perspectives on the book as an aesthetic, cultural, and historical artifact. This interdisciplinary membership and the center's facilities combine to provide an exceptional environment for studying the history of the book, its evolution, and its future.

The center collaborates with the Graduate College to offer a certificate program at the graduate level. Undergraduate students can add dimension to their majors in English, art,

journalism, history, and other disciplines by taking Center for the Book courses in book crafts and book studies. They also may include an emphasis on book arts or on cultural and historical aspects of the book in the interdepartmental studies major.

Certificate Program

The center offers the Certificate in Book Studies/Book Arts and Technologies through the Graduate College.

The program's principal objectives are:

- to place the interdisciplinary study of book history, arts, and technologies in academic and aesthetic contexts;
- to provide a structured program in art, English, history, library and information science, and other departments for graduate students who are seriously interested in book studies; and,
- to give nondegree, graduate-level students who wish to study the book a framework for their study.

Students have two options in pursuing the certificate. Graduate students enrolled in a degree program at Iowa may work concurrently toward the certificate and an M.A., M.F.A., or Ph.D. Students who wish to pursue the certificate but not a graduate degree may do so with nondegree status in the Graduate College.

Requirements

The certificate requires 24 s.h. of course work. At least 6 s.h. must be taken from the academic course list and 6 s.h. from the arts and technologies course list. Required course work also includes a final project—a substantial work supervised by a committee chosen by the student (see the center's publication Final Project Guidelines). For more information, contact the Center for the Book or visit its web site.

Admission

Admission requires active standing in the Graduate College. Applicants submit a statement of purpose and evidence of scholarly or creative work to the center. For more information about admission, contact the Center for the Book.

Financial Support

Students may secure support from University of Iowa sources (contact the Office of Student Financial Aid) or from outside funding agencies. Working assistantships are available at the center's professional production workshops. Internships and part-time work are available to qualified student and nonstudent professionals, especially in the areas of bookbinding, papermaking, and letterpress printing.

Courses

- 108:100 Special Project for Undergraduates** arr.
Independent study.
- 108:110 Papermaking** 3 s.h.
History and fundamental techniques of Western and Eastern hand papermaking; projects in traditional sheet forming, basic paper chemistry, paper coloring. Offered fall semesters. Prerequisite: consent of instructor. Same as 01X:110.
- 108:111 Advanced Papermaking** 3 s.h.
Traditional Eastern and Western sheet forming techniques, history, aesthetics; emphasis on fiber selection and preparation. Offered spring semesters. Prerequisite: consent of instructor. Same as 01X:120.
- 108:112 Studies in Papermaking** arr.
Topics in the history and technique of papermaking.
- 108:130 Paperworks** 3 s.h.
Same as 01X:130.
- 108:135 Offset Productions Workshop** 3 s.h.
Same as 01L:135.
- 108:140 Calligraphy: Gothic Hands** 3 s.h.
The basic tool (broad-edged nib); disciplines and use of calligraphy, with the Fraktur hand as model; emphasis on proper methods of practice. Same as 01Z:140.
- 108:141 Calligraphy: Expressive Forms** 3 s.h.
Adaptation of historical Western-style letterforms to contemporary format; brush, broad-edged pen. Prerequisites: 108:140 or equivalent, and consent of instructor. Same as 01Z:141.
- 108:142 History of Western Letterforms** 3 s.h.
History of Western letterforms, with focus on tools, materials, techniques; the major hands, their place in history, their influence on modern times; creation of letterforms using appropriate tools; hands-on approach with emphasis on understanding rather than mastery. Same as 01Z:142.
- 108:143 Calligraphy: Foundational Hands** 3 s.h.
Fundamental calligraphic skills using Roman majuscule, Humanistic minuscule, Italic; basic layout and color theory incorporated into letter practice. Same as 01Z:143.
- 108:144 Calligraphy: Italic and Script Hands** 3 s.h.
Hands-on instruction in italic and pressure pen scripts; historical relationships, effects on modern letterforms. Same as 01Z:144.
- 108:146 Studies in Letter Arts** 3 s.h.
Special topics and advanced projects in calligraphy and letter arts. Prerequisite: 108:140 or 108:141 or 108:142 or 108:143 or consent of instructor. Same as 01Z:146.
- 108:150 Bookbinding I: Materials and Techniques** 3 s.h.
Hands-on introduction to materials and techniques commonly used in bookbinding. Same as 01Y:150.

108:151 Bookbinding II 3 s.h.
Build on skills acquired in 108:150; projects to complete six bindings based on historical and contemporary models; sewing styles, board attachments, endband types; nonadhesive and case-bound structures, varied materials and binding styles, their effects on structure, aesthetic considerations, further development of solid binding skills; historical development of particular binding practices. Prerequisite: 108:150 or consent of instructor. Same as 01Y:151.

108:152 Bookbinding III 3 s.h.
Five bookbindings based on historical and contemporary models; differences in various binding practices, how these differences affect function, why the styles developed; experience choosing appropriate structures for particular uses; emphasis on fine tuning skills and techniques required for advanced binding practices; sewn endbands, rounding and backing, sewing on varied supports, board attachments, and covering methods. Prerequisites: 108:150 and 108:151, or consent of instructor. Same as 01Y:152.

108:153 Studies in Bookbinding 3 s.h.
Topics related to hand bookbinding. Prerequisite: consent of instructor. Same as 01Y:153.

108:154 Artists' Books 3 s.h.
Nontraditional binding structures; emphasis on innovative techniques and how parts of the book function. Prerequisite: 01Y:150 or 108:150 or consent of instructor. Same as 01Y:154.

108:155 Historical Book Structures 3 s.h.
Historical development of book structures examined through surviving examples, construction of historical models. Prerequisite: 01Y:150 or 108:150 or consent of instructor.

108:156 Boxes and Enclosures 3 s.h.
Hands-on techniques for a variety of book enclosures; appropriateness, aesthetic issues concerning box design; Japanese wraparound case, drop-spine box, hinged and lidded boxes, slipcase; technical skill development. Prerequisite: 108:150 or consent of instructor. Same as 01Y:156.

108:157 Moveable/Sculptural Books 3 s.h.
Varied formats for moveable and/or sculptural books; history; readings, hands-on model making. Same as 01Y:157.

108:158 Pop-up Book Structures 3 s.h.
Hands-on exploration of varied aspects of paper engineering for bookmaking; historical and modern models studied and executed. Prerequisite: 108:150 or consent of instructor. Same as 01Y:158.

108:160 Introduction to Letterpress Printing 3 s.h.
Mechanics of letterpress printing, basic elements of typographic design as applied to letterpress edition printing; hand setting and printing from metal type on Vandercook proof presses; printing text and illustration from photopolymer plates; historical aspects of printing, early development of printing technologies, evolution of letterpress printing through 20th century. Same as 01P:160.

108:161 Handprinted Book: Design and Production 3 s.h.
Exploration of problems in hand-printing books—choice of manuscript, editing, design, typesetting, proofreading, printing and binding; histories of printing and of the book, emphasis on 20th-century book design and literature. Prerequisite: consent of instructor. Same as 01P:161, 008:187.

108:163 Digital to Letterpress Book Design 3 s.h.
Digital typesetting and book design; chapbook production using photopolymer plates and Vandercook presses; text and content, book typography, practical and aesthetic considerations. Prerequisite: consent of instructor. Same as 01P:163.

108:164 Digital Design for Artists' Books 3 s.h.
Introduction to concepts, techniques, and technologies used to design and produce artists' books with personal computers and graphic design software. Same as 01P:164.

- 108:165 Innovative Letterpress** 3 s.h.
Creation of the visual book using letterpress printing; narrative, serialization, type as graphic, physical structure of the book; traditional letterpress printing, monoprinting, and some nontraditional letterpress techniques using technology ranging from metal to digital. Same as 01P:165.
- 108:170 Studies in Book Technologies** arr.
Topics such as book design, printing, paper arts, letterforms, typography.
- 108:181 Literature and the Book** 3 s.h.
Same as 008:130.
- 108:182 The Book in the Middle Ages** 3 s.h.
Relation of text, decoration, function, creators, and audience in different genres of medieval manuscript books ca. 400-1500 A.D. Prerequisite: 01H:005 or 16E:110 or consent of instructor. Same as 16E:120.
- 108:183 The Transition from Manuscript to Print** 3 s.h.
Western manuscripts and books 1200-1600; changes in production and distribution methods and in how texts were used, in cultural context. Same as 16E:118, 021:258.
- 108:184 Libraries in Western Culture** 3 s.h.
Same as 016:116, 032:125.
- 108:185 Introduction to Book Studies** 3 s.h.
Theory and practice of book studies; meanings of word and image in the book format; comparative study of other media, applied study of the codex as physical artifact. Same as 008:134.
- 108:200 Special Project for Graduate Students** arr.
Independent study.
- 108:201 Book Studies Workshop** 1 s.h.
Discussion of issues central to book studies; workshop approach to current projects.
- 108:205 Final Project** arr.
Project for graduate certificate.
- 108:210 Individual Instruction in Papermaking/
Paperworks** arr.
Traditional papermaking or creation of works of art using paper pulp as the medium; independent projects.
- 108:214 Individual Instruction in Calligraphy** arr.
Prerequisite: consent of instructor.
- 108:215 Individual Instruction in Bookbinding/
Structure** arr.
Bookbinding and artists' book works; independent projects.
- 108:216 Individual Instruction in Printing** arr.
Prerequisite: consent of instructor.
- 108:220 History of Readers and Reading** 3 s.h.
The social nature of reading practices in America from Colonial times to present; theories and contexts of reading; reading communities; dimensions of gender, age, class, religion, race, ethnicity; examples of recent scholarship; use of primary sources; seminar. Same as 021:256.
- 108:224 Electronic Publishing** 3 s.h.
Same as 021:224.
- 108:230 Topics in Book Studies** 1-3 s.h.
Same as 021:249.
- 108:250 Structure of the Handmade Book** arr.
In-depth, hands-on study of codex models in several significant periods and places; development of career agendas in conservation, artistic expression, and/or enterprise and distribution. Prerequisite: consent of instructor.
- 108:496 The Poetics of the Book** 3 s.h.
Same as 08C:496.

Genetics

Chair: Debashish Bhattacharya (Biological Sciences)
Affiliated faculty: Michael Anderson (Physiology and Biophysics), Debashish Bhattacharya (Biological Sciences), Terry Braun (Electrical and Computer Engineering), Kevin Campbell (Physiology and Biophysics), Thomas Casavant (Electrical and Computer Engineering), Chi-Lien Cheng (Biological Sciences), Robert Cornell (Anatomy and Cell Biology), Beverly Davidson (Internal Medicine), Deborah Dawson (Preventive and Community Dentistry), John Donelson (Biochemistry), Daniel Eberl (Biological Sciences), Hatem El-Shanti (Pediatrics), Jan Fassler (Biological Sciences), Michael Feiss (Microbiology), Joseph Frankel (Biological Sciences), Pamela Geyer (Biochemistry), Pedro Gonzalez-Alegre (Neurology), Gary Gussin (Biological Sciences), Lilach Hadany (Biological Sciences), Michael Henry (Physiology and Biophysics), Doug Houston (Biological Sciences), Erin Irish (Biological Sciences), Wayne Johnson (Physiology and Biophysics), Bradley Jones (Microbiology), Toshihiro Kitamoto (Anesthesiology), Al Klingelutz (Microbiology), Andrew Lidral (Orthodontics), Jim Jung-Ching Lin (Biological Sciences), John Logsdon (Biological Sciences), Robert Malone (Biological Sciences), Bryant McAllister (Biological Sciences), Anton McCaffery (Internal Medicine), Paul McCray (Pediatrics), John Menninger (Biological Sciences), W. Scott Moye-Rowley (Physiology and Biophysics), Jeff Murray (Pediatrics), Shivnand Patil (Pediatrics), Henry Paulson (Neurology), Robert Piper (Physiology and Biophysics), Michael Rebagliati (Anatomy and Cell Biology), Andrew Russo (Physiology and Biophysics), Brian Schutte (Pediatrics), Alberto Segre (Computer Science), Val Sheffield (Pediatrics), Ming-Che Shih (Biological Sciences), Curt Sigmund (Internal Medicine), Diane Slusarski (Biological Sciences), Richard Smith (Otolaryngology—Head and Neck Surgery), George Stauffer (Microbiology), Edwin Stone (Ophthalmology and Visual Sciences), Veronica Vieland (Biostatistics), Lori Wallrath (Biochemistry), Thomas Wassink (Psychiatry), David Weiss (Microbiology), Marcia Willing (Pediatrics), Mary Wilson (Internal Medicine), Chun-Fang Wu (Biological Sciences)

Graduate degree: Ph.D. in Genetics

Web site: <http://genetics.grad.uiowa.edu>

Doctor of Philosophy

The Doctor of Philosophy in genetics requires a minimum of 72 s.h. of graduate credit. The Ph.D. program is designed to promote collaborative investigation and intellectual interaction among students and faculty participants affiliated with several different departments.

Students who enroll in the program are encouraged to obtain a broad background in genetics, including molecular, population, and

human genetics. Within this context, course requirements are flexible enough to permit students to tailor their formal course work to their individual needs.

Students have the option to declare a Ph.D. emphasis in computational genetics.

All students enrolled in the program are required to take the following courses.

All of these:

127:150 Genetic Analysis of Biological Systems 3 s.h.

127:200 Special Topics in Genetics (seminar course) 1 s.h.

156:201 Principles in Molecular and Cell Biology 4 s.h.

One of these:

002:171 Molecular Genetics 4 s.h.

142:210 Advanced Prokaryotic Molecular Biology 3 s.h.

One of these:

002:131 Evolution 4 s.h.

002:168 Genes and Development 3 s.h.

127:191 Human Molecular Genetics 3 s.h.

All of these:

650:270 Responsible Conduct in Research 1 s.h.

Elective course work in molecular and microbial genetics, cell and development genetics, human genetics, or computational genetics 8 s.h.

Seminar courses approved by the program 5 s.h.

Even more important than formal course work is the opportunity to do significant research in genetics. Research interests of the participating faculty include virtually all areas of genetics, ranging from bacteriophage genetics to human medical genetics. In each area of genetics, there is a group of faculty members who have closely related interests.

The University is also strong in several related disciplines, including microbial physiology, enzymology, virology, protein biochemistry, computational genetics, and developmental and cell biology, all of which contribute significantly to the overall training program.

In addition to completing research and course work, students must pass a comprehensive examination, usually at the end of their second year in the program.

Medical Scientist Training Program

Students may combine study toward an M.D. and a Ph.D. in genetics. See Medical Scientist Training Program (Carver College of Medicine) in the Catalog.

Dental Scientist Training Program

Students with a D.D.S. degree may be candidates for advanced training programs in dentistry. For information, contact the College of Dentistry.

Admission

Prospective doctoral students in genetics should have a strong undergraduate background in science, including courses in general genetics, organic chemistry, biochemistry, introductory physics, and mathematics, as well as a strong commitment to genetic research and teaching. Students can make up deficiencies in a particular area during their first year of graduate study.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Admission to the program is based on assessment of applicants' undergraduate academic records, performance on the Graduate Record Examination (GRE) Aptitude Test, and letters of recommendation. Admission requirements are not rigid. Most students working toward a Ph.D. in genetics at the University have an undergraduate g.p.a. above 3.50, and GRE Aptitude Test scores (verbal and quantitative) above 1250. Students with lower grade-point averages or GRE scores may be admitted, depending on prior research experience and other indications of academic potential.

Students generally begin graduate work in the fall semester.

Financial Support

All genetics graduate students receive a financial stipend of \$22,000 (academic year 2006-2007) plus tuition.

Financial support comes from training grants, research assistantships, teaching assistantships, scholarships, individual research grants, or other departmental or college funds. All students are

required to do some teaching as part of their development as future scientists and faculty members.

Associated Courses

The following courses provide credit toward the Ph.D. in genetics. Not all courses are offered every year.

002:131 Evolution	4 s.h.
002:168 Genes and Development	3 s.h.
033:153 Hard Cases: Science, Policy, and Values— Implications of the Human Genome Project	3 s.h.
061:268 Biology and Pathogenesis of Viruses	2 s.h.
070:110 Medical Genetics	2 s.h.
072:245 Developmental Neurobiology	3 s.h.
099:237 Topics in Molecular and Cell Biology	1 s.h.
127:170 Bioinformatics	3 s.h.
127:173 Computational Genomics	3 s.h.
142:210 Advanced Prokaryotic Molecular Biology	3 s.h.
142:215 Molecular Biology of Gene Expression	3 s.h.
142:220 Mechanisms of Cellular Organization	3 s.h.
142:225 Mechanisms of Cell Growth and Development	3 s.h.
185:274 Theory of Statistical Genetics	3 s.h.
185:276 Statistical Genetics Laboratory	3 s.h.
650:270 Responsible Conduct in Research	1 s.h.

Courses

127:150 Genetic Analysis of Biological Systems	3 s.h.
Genetic techniques and approaches for analysis of biological processes; comparison of strengths, weaknesses of a variety of experimental systems.	
127:170 Bioinformatics	3 s.h.
Overview of bioinformatics and genomics. Prerequisites: working knowledge of basic genetics and molecular biology concepts and grade of B+ or higher in 002:128, or consent of instructor. Same as 002:170.	
127:173 Computational Genomics	3 s.h.
Same as 002:174, 051:122, 055:122.	
127:191 Human Molecular Genetics	3 s.h.
Molecular genetic approaches to human disease; the human genome project, linkage analysis, candidate gene screening, special features of inbred populations, triplet repeat expansions, mitochondrial genetics, genetics of complex traits. Prerequisites: fundamental genetics and molecular biology, or consent of instructor.	
127:200 Special Topics in Genetics	1 s.h.
Current research in a selected field of genetics; different topic each year. Companion to a genetics seminar series.	
127:301 Graduate Research in Genetics	arr.

Immunology

Director: Gail Bishop (Microbiology)

Affiliated faculty: Michael Apicella (Microbiology), Robert Ashman (Internal Medicine), Zuhair Ballas (Internal Medicine), Gail Bishop (Microbiology), John Butler (Microbiology), Morris Dailey (Pathology), Elizabeth Field (Internal Medicine), Thomas Griffith (Urology), John Harty (Microbiology), Jonathan Heusel (Pathology), Bruce Hostager (Pediatrics), Joel Kline (Internal Medicine), C. Michael Knudson (Pathology), David Kusner (Internal Medicine), Kevin Legge (Pathology), David Lubaroff (Urology), Brian Martin (Microbiology), Craig Morita (Internal Medicine), William Nauseef (Internal Medicine), Stanley Perlman (Pediatrics), Frederick Quelle (Pharmacology), Timothy Ratliff (Urology), Paul Rothman (Internal Medicine), Steven Varga (Microbiology), Thomas Waldschmidt (Pathology), George Weiner (Internal Medicine), Jerrold Weiss (Internal Medicine), Mary Wilson (Internal Medicine), Nicholas Zavazava (Internal Medicine)

Graduate degree: Ph.D. in Immunology

Web site: <http://immuno.grad.uiowa.edu>

The Immunology Program provides interdisciplinary training in the concepts and methodologies of basic and applied immunology. Faculty members are involved in a variety of research projects dealing with the immune system at all levels—structural, functional, cellular, biochemical, and molecular. The didactic component of the training comprises a sequence of core courses in immunology and related disciplines. Students are involved directly in laboratory research from their first semester through their original thesis projects leading to the Ph.D.

Doctor of Philosophy

The Doctor of Philosophy in immunology requires a minimum of 72 s.h. of graduate credit. The program is quite flexible, accommodating students with a wide range of backgrounds in course work as well as practical experience in the biological and physical sciences. Entering students generally are expected to have strong records in biology, chemistry, biochemistry, microbiology, genetics, and mathematics. An introductory course in immunology is desirable. Deficiencies in specific areas often can be remedied through appropriate course work taken during the first year of graduate studies.

The curriculum consists of a sequence of required and elective courses that provide

training in the conceptual and methodologic aspects of immunology. There is ample opportunity for study in a variety of fields that interface with immunology.

All students must take the following courses.

142:215 Molecular Biology of Gene Expression	3 s.h.
148:201 Graduate Immunology I	3 s.h.
148:202 Graduate Immunology II	3 s.h.
148:211 Immunology Seminar (taken fall and spring of first year, spring of second year)	1 s.h.
148:221 Advanced Topics in Immunology	3 s.h.
148:231 Research in Immunology	arr.
156:201 Principles in Molecular and Cell Biology	4 s.h.
Electives (approved by advisor)	6 s.h.

After successfully completing the comprehensive examination, usually by the end of the second year of graduate study, students advance to candidacy for the Ph.D. They devote most of their time to research and writing their dissertation. They also must satisfy a one-semester teaching requirement, which can be met by teaching a course from one of a variety of disciplines. Upon successful completion of all requirements, including the dissertation and its oral defense according to the Manual of Rules and Regulations of the Graduate College, students are awarded a Ph.D. in immunology.

Admission

For information regarding admission and application procedures, contact the Immunology Program or visit its web site.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

All students in the Immunology Program receive stipends and tuition support, which comes from a variety of sources, including training grants from the National Institutes of Health, University of

Iowa fellowships and graduate research assistantships, and individual faculty research grants.

Facilities

Training is conducted in laboratories and teaching facilities of the Carver College of Medicine Departments of Internal Medicine, Pathology, Microbiology, Pediatrics, Pharmacology, and Urology. Faculty laboratories and central research core facilities provide students with access to state-of-the-art research equipment.

Courses

148:040 Summer Undergraduate IDGP Research 0 s.h.

148:201 Graduate Immunology I 3 s.h.

Ontogeny, activation, and function of T lymphocytes and B lymphocytes; innate immune effector mechanisms; major histocompatibility complex; antigen presentation; thymocyte positive and negative selection; signaling of T lymphocytes, B lymphocytes; emphasis on experimental methods for analysis of these processes. Prerequisites: college biology, general chemistry, and introductory immunology courses. Recommended: courses in biochemistry and genetics. Same as 061:201.

148:202 Graduate Immunology II 3 s.h.

Intercellular adhesion in the immune system, regulation of inflammation and lymphocyte traffic, immunological tolerance, autoimmune diseases, immune responses to viruses and parasites; problem-oriented experimental approaches. Prerequisites: college biology, general chemistry, and introductory immunology courses. Recommended: biochemistry and genetics courses. Same as 061:202.

148:211 Immunology Seminar 1 s.h.

Prerequisite: immunology graduate standing.

148:217 Integrated Topics in Infectious Diseases 1 s.h.

Same as 061:217.

148:221 Advanced Topics in Immunology 3 s.h.

In-depth analysis of selected areas. Prerequisite: 148:201 or 148:202. Same as 061:207.

148:231 Research in Immunology arr.

Laboratory research. Prerequisite: immunology graduate standing.

148:251 Principles of Medical Immunology 2 s.h.

Basic molecules, cells; organs of immune system; mechanics and regulations of immune response; clinical principles of normal and abnormal immunity. Prerequisite: M.D. enrollment.

148:301 Directed Study in Immunology arr.

Prerequisite: consent of instructor.

Library and Information Science

Director: James Elmborg

Professor: Padmini Srinivasan

Professors emeritae: Esther Bierbaum, Velva Jeanne Osborn

Adjunct professor: Nancy L. Baker

Associate professors: David Eichmann, James Elmborg

Associate professor emeritus: Carl Orgren

Adjunct associate professor: Jean Donham

Assistant professors: Patricia Katopol, Jennifer Burek Pierce, Joan Bessman Taylor

Graduate degree: M.A. in Library and Information Science

Web site <http://www.uiowa.edu/~libsci>

Today's age is defined by the intersection of information, technology, and human creativity. In this context, library and information science is dedicated to understanding the nature of information, the interaction between information and communication technologies, the relationship between information and knowledge, the cognitive and affective aspects of knowledge acquisition, and the interface between people and information. It offers new knowledge, technological benefits, and professional expertise for every dimension of human affairs.

Library and information professionals take on many challenges in serving the needs of their constituencies—children and teachers, members of academic communities, employees of profit and nonprofit organizations, and the public at large—constituencies that range from information poor to information rich. They work in the contexts of issues such as information and communication technology, public and private information policy, managerial policy, and regional, national, and international economics.

The School of Library and Information Science prepares professionals to meet these diverse challenges. It offers a graduate-level program of preparation for careers in all types of libraries and information centers, providing students with a strong, well-rounded education in an environment that supports individuals from all segments of a multicultural, multiethnic, and multilingual society. Its curriculum reflects the profession's immediate and long-range needs and prepares students to be leaders in a changing field.

By promoting excellence in research, the school contributes to the base of theoretical and

practical knowledge in library and information science and helps develop an understanding of how to meet the varied and changing information needs of individuals and society. It also provides public service through continuing education programs, selective consulting services for library and information centers, and participation in professional organizations.

The school strongly encourages its students, faculty members, and alumni to shape the future of the profession by filling key roles in organizations involved in all aspects of the information cycle.

The school offers a Master of Arts in library and information science. It offers the joint J.D./M.A. with the College of Law, the joint M.B.A./M.A. with the Tippie College of Business, and the joint M.A./Certificate in Book Studies/Book Arts and Technologies with the Center for the Book. Library and information science students also may earn the Certificate in Health Informatics.

Master of Arts

The Master of Arts in library and information science has held continuous accreditation from the American Library Association since 1971.

Students pursuing the master's degree gain an understanding of the foundations of the library and information profession, including the history of the field, ethical and philosophical concerns, the information cycle, principles and procedures for dealing with a variety of information carriers, and the theory and practice of strategic management. They examine future trends, with emphasis on cutting-edge technological concerns. They study the discipline's research base, gaining heightened awareness of the synergism between library and information science and other disciplines, as well as the close relationship between research and practice. Finally, students become knowledgeable about the factors that underlie users' information needs and appropriate strategies to satisfy those needs.

Graduates have many options for employment. Alumni hold positions in public, school, special, and academic libraries as well as other information settings. They serve in varied roles, such as information consultant, database manager, library administrator, webmaster, network coordinator, cataloger, children's

librarian, school library media specialist, and archivist.

Curriculum

The Master of Arts in library and information science requires 36 s.h. of graduate credit with a g.p.a. of at least 3.00, and the successful completion of a portfolio. The 36 s.h. includes 9 s.h. earned in three required, introductory-level courses, 12 hours in secondary-level courses, and 15 s.h. in electives. A thesis option is available for students who seek additional research experience.

The curriculum has three tiers. The first tier consists of three required courses that provide a solid grounding for all successive course work: 021:101 Cultural Foundations, 021:120 Computing Foundations, and 021:122 Conceptual Foundations. The second tier includes eight courses, of which students must take a minimum of four. Courses in the third tier are electives. This three-tier arrangement allows each student to concentrate in an area that most closely matches his or her professional goal.

TIER I: FOUNDATIONS

All of these:

021:101 Cultural Foundations	3 s.h.
021:120 Computing Foundations	3 s.h.
021:122 Conceptual Foundations	3 s.h.

TIER II: SYSTEMS AND METHODS

Four of these:

021:124 Database Systems	3 s.h.
021:141 Reference and Information Services	3 s.h.
021:202 Research Methods	3 s.h.
021:222 Beginning Cataloging and Classification	3 s.h.
021:240 Collection Management	3 s.h.
021:242 Search and Discovery	3 s.h.
021:248 Information Literacy	3 s.h.
021:260 Strategic Management	3 s.h.

TIER III: ELECTIVES

021:123 User Education: Multimedia	3 s.h.
021:143 Resources for Children	3 s.h.
021:144 Resources for Young Adults	3 s.h.
021:220 Programming for Text Manipulation	3 s.h.
021:223 Advanced Cataloging and Classification	3 s.h.
021:224 Electronic Publishing	3 s.h.
021:226 Digital Libraries	3 s.h.
021:228 Hypertext Systems	2 s.h.
021:230 Text Retrieval	3 s.h.
021:232 Computer Networks	3 s.h.

021:234 Information Knowledge Management	3 s.h.
021:239 Topics: Conceptual Structures/Systems	1-3 s.h.
021:244 Government Information Resources	3 s.h.
021:249 Topics in Book Studies	1-3 s.h.
021:254 Analysis of Scholarly Domains	3 s.h.
021:256 History of Readers and Reading	3 s.h.
021:258 The Transition from Manuscript to Print	3 s.h.
021:259 Topics: Resources/Services	1-3 s.h.
021:262 School Library Media Administration	3 s.h.
021:263 Nonprofit Organizational Effectiveness I	3 s.h.
021:265 Nonprofit Organizational Effectiveness II	3 s.h.
021:270 Public Libraries	3 s.h.
021:271 College and University Libraries	3 s.h.
021:272 Special Libraries	3 s.h.
021:275 Health Informatics I	3 s.h.
021:278 Information Policy	2 s.h.
021:279 Topics: Policy/Planning	1-3 s.h.
021:280 Health Informatics II	3 s.h.
021:282 Practicum in Libraries and Information Centers	2-3 s.h.
021:284 School Library Media Practicum	3 s.h.

Transfer Credit

Up to 9 s.h. of graduate credit in library and information science or related areas may be accepted in transfer from another institution, subject to the approval of the transfer credit committee. Approval is given course-by-course and is determined by the course's content, currency, and applicability to the student's program.

Completion Time

Students typically complete the program in a year and a half to two years. The maximum allowable load for graduate students is 15 s.h. during regular semesters and 8 s.h. during summer sessions, but most full-time students carry fewer semester hours than the maximum. It also is possible to complete the program on a part-time basis.

Specializations

Students earn 15 s.h. in elective courses selected with the guidance of their advisor. Students' programs often are designed around particular career goals. Following are examples of possible specializations.

PUBLIC LIBRARIES

Public libraries provide informational, educational, and recreational materials and a wide range of services for a diverse clientele. Although public libraries receive the bulk of their funding from local taxes, they also may be organized on a regional or statewide cooperative basis. The variety of uses, services, materials, and organizational structures of public libraries makes this a challenging area of librarianship. Public librarians need to develop skills in analyzing the communities they serve, designing comprehensive marketing plans to meet their needs, implementing the plans in a cost-effective way, and evaluating the success of their efforts.

ACADEMIC LIBRARIES

The academic library, whether in a community college, a four-year college, or a university, provides information services in support of the parent institution's teaching, research, and public service missions. These services include instruction in the use of the library and its resources. Management skills and subject or language competence often are required. Since librarians in this setting usually are considered academic faculty members, possession of a second master's or other advanced degree is desirable.

SPECIAL LIBRARIES AND INFORMATION CENTERS

Special libraries serve corporations, private companies, government agencies, technical and academic institutions, museums, medical facilities, and information management consulting firms. They are organized to anticipate and quickly respond to the specific information needs of their users. Special librarians are information resource experts who collect, analyze, evaluate, package, and disseminate information to facilitate accurate decision making. Knowledge of information technology and the ability to design services suitable to the parent organization are professional necessities. In addition, substantial subject expertise may be required.

SCHOOL LIBRARY MEDIA CENTERS

The school library media center makes available to students and teachers a wide range of library and instructional materials in a variety of formats. The work of the library media specialist includes providing instruction to students in accessing, evaluating, and using information, collaborating with teachers on the use of resources in instruction, providing leadership in the use of instructional and information technologies, offering reading guidance, providing reference

service, and managing the library media center. The University of Iowa offers a state-approved program leading to endorsement as school media specialist K-12. In order to fulfill state requirements for this endorsement, students must hold or be eligible for a teaching license and must complete a designated sequence of courses, which leads both to certification and to the M.A. degree.

INFORMATION SCIENCE

The multidisciplinary field of information science is influenced by the rapid growth in digital information collections and technologies. This specialization offers expertise in retrieval, dissemination, and use of information. In addition to libraries and information centers, many for-profit organizations are finding that information is a valuable commodity in today's competitive world and are employing information management personnel. The curriculum offers opportunities to study information science aspects, such as digital libraries, electronic publishing, and automated systems design.

Joint Master's Degree Programs

The School of Library and Information Science has established joint degree programs with the Tippie College of Business and the College of Law. The primary goal of these joint programs is the integration of the two areas of study.

Separate admission to each degree program is required. Up to 9 s.h. in business or law may be applied toward the M.A. in library and information science; up to 9 s.h. in library and information science may be applied toward the M.B.A., and 12 s.h. may be applied to the J.D.

In addition to these formal joint programs, arrangements can be made for joint programs between departments on an ad hoc basis. A minimum of 60 s.h. of graduate work is required for a joint master's degree program.

For more information on joint degrees, see College of Law or Master of Business Administration Program in the Catalog.

Joint M.A./Book Studies Certificate

Students interested in special collections, book arts, or museum librarianship may pursue a M.A. in library and information science in conjunction with a graduate Certificate in Book Studies/Book Arts and Technologies. The joint program also

may be appropriate for students interested in book studies scholarship and those seeking careers in publishing, graphic arts, or book-related industries that require a similar blend of subject and technical knowledge.

To enroll in the joint program, students must be admitted both to the School of Library and Information Science and to the Center for the Book, and must fulfill the basic requirements of each program.

The joint program requires a total of 51 s.h. At least 27 s.h. must be earned in the M.A. program, at least 15 s.h. must be earned in the certificate program, and the remaining 9 s.h. may be earned in either program.

Health Informatics Certificate

Students interested in careers involving health science libraries or hospital information centers may pursue the interdisciplinary Certificate in Health Informatics. The certificate, offered by the Graduate College and several other colleges and departments, emphasizes the organization, management, and use of health care information; health care research, education, and practice; and information technology developments in the socioeconomic context of health care.

The certificate requires at least 20 s.h. of course work, including Health Informatics I and II and approved electives. Students may earn the Certificate in Health Informatics in conjunction with their M.A. in library and information science. Visit <http://www.uiowa.edu/health-informatics> for more information.

Facilities, Resources

The School of Library and Information Science is housed in the south wing of the University's Main Library, in a setting that promotes community among students, faculty, and staff. Facilities are provided for the varied instructional and research activities of the school.

Technology Laboratory

The school houses a state-of-the-art technology laboratory with current Pentium and Macintosh computers. The computers are networked to the campus backbone and provide access to a rich variety of relevant software. The laboratory is used primarily by students for course assignments and to gain experience with specialized software. In addition, the classrooms are equipped with

networked machines that allow faculty members to use teaching technologies in their courses. Finally, an Apple XServe is used to deliver and maintain a common software environment. Students have access to Dialog, LexisNexis, OCLC databases, Westlaw, and a wide variety of library automation products. They also are given an account for file storage.

Research Laboratory

The facilities of the school's research laboratory are used by faculty members and students to investigate current problems, such as distributed information retrieval, cross-language information retrieval, and information filtering. They are available for student-based research investigations.

University Libraries

All of the resources of the University of Iowa Libraries are available to the school's students and faculty. The system contains more than 4 million volumes in the Main Library and 11 departmental libraries.

The web-based catalog provides access to books and periodicals, electronic indexes, and full-text databases held by University Libraries. In addition, the InfoHawk Gateway to online resources provides access to selected Internet and CD-ROM resources arranged by subject and academic discipline. Wireless Internet access is available in many areas of the Main Library.

Students also have full access to the Information Arcade, which facilitates integration of new information and multimedia technologies with learning and research. Here students find a variety of electronic resources for learning advanced information skills and for gaining access to information in various formats and through various networks, including the Internet. The Arcade also houses an electronic classroom.

The third floor of the Main Library houses the government publications, map, and special collections rooms, including the Iowa Women's Archives.

Other Libraries

Students have access to a variety of libraries through field trips, practicum experience, and personal use: the State Historical Society Library in Iowa City; the Iowa City, Coralville, and Cedar Rapids public and school libraries; the Augustana, Coe, Cornell, Mount Mercy, and Grinnell

College libraries; and the Herbert Hoover Presidential Library in West Branch.

The Iowa City Public Library, only four blocks from the Main Library, was one of the first public libraries in the nation to convert to a totally computerized catalog. Its service philosophy and contemporary management practices provide students with an innovative public library model. The Iowa City Community School District's media program has been recognized nationally for its excellence in information skills curriculum and for leadership in technology.

Other Resources

Lindquist Center, across the street from the Main Library, houses the College of Education Curriculum Resources Laboratory and Education Technology Center. The Curriculum Resources Laboratory contains an extensive collection of book and nonbook instructional materials for children in preschool through grade 12. It is especially valuable for students interested in school or public library work.

Lindquist Center also houses the academic technologies and campus services departments of the University's Information Technology Services. It provides instructional and research computing facilities and services for the University community. All University students, staff, and faculty may use the center's computers for University-related research, thesis preparation, and class work. Instructional Technology Centers provide campuswide access to the University's academic computing resources and the Internet.

Student Activities

All students in the program are automatically members of LISSO, the Library and Information Science Student Organization, which also serves as the student chapter of the American Library Association. In addition, there are student chapters of the American Society for Information Science and Technology and Special Libraries Association. These student-run organizations sponsor various activities such as speaker series, workshops, brown bag lunches, and picnics. The associations provide students with significant opportunities for professional and extracurricular growth. Students also are encouraged to join other state and national professional organizations.

Honor Society

The Beta Beta Theta Chapter of Beta Phi Mu, the international honor society for library and information science, is located at The University of Iowa. Each year new members are chosen from the top 25 percent of the preceding year's graduating classes. To be eligible for membership, graduates must achieve a g.p.a. of at least 3.75, demonstrate professional promise, and be recommended by the faculty.

Placement

The school provides active placement assistance to its graduates through printed and electronic announcements, seminars on Internet job searching, résumé writing and interviewing, and personal counseling. The University's Educational Placement Office issues a regular listing of job openings and provides a credential file service.

According to the annual placement survey in *Library Journal*, Iowa's placement rate consistently ranks among the highest for ALA-accredited programs. Iowa graduates find positions in all types of libraries. The placement distribution for six recent years was: academic libraries, 38 percent; public libraries, 28 percent; special libraries, 17 percent; and school libraries, 17 percent. Iowa graduates currently work in libraries in 46 states and 9 foreign countries. Strong personal and academic qualifications, job flexibility, and geographic mobility are important factors in obtaining a position.

Admission

Applicants for admission to the M.A. program are required to have a g.p.a. of at least 3.00 on a 4.00 scale and are required to have a verbal and quantitative score of at least 1000 and an analytical writing score of at least 4 on the Graduate Record Examination. The admissions committee also considers each applicant's letters of recommendation, statement of purpose, and other appropriate criteria. Each entering class is selected on a competitive basis.

International applicants whose first language is not English must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applicants begin the admission process by contacting the School of Library and Information Science. The process requires a completed

application form, transcripts of all academic work, a written statement of purpose and goals, three letters of recommendation, and an on-campus or telephone interview with members of the faculty.

Completed applications should be received by the school by February 1 for consideration for fall admission. Decisions of the admissions committee are announced three to four weeks after the deadline. Late applications are considered if places are still available. Financial aid often is not available for late applicants. Admitted students are immediately assigned a faculty advisor for program planning.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

The School of Library and Information Science awards partial-tuition scholarships and one-quarter-time graduate assistantships. To be considered for scholarships or assistantships, applicants should have an undergraduate g.p.a. of at least 3.00 and a combined score (verbal, quantitative, and analytical) of 1700 on the old GRE General Test, or 1100 (verbal and quantitative) and 4.5 (analytical writing) on the new GRE. Prospective students are urged to apply for these awards before February 1. For information on student loans, work-study eligibility, or other financial assistance, contact the Office of Student Financial Aid. For information on national scholarships, contact the School of Library and Information Science or visit its web site. Part-time employment usually is available in the University Libraries and other campus units.

Courses

- 021:090 Information Handling** 3 s.h.
 Gathering, evaluating, and employing information from library and nonlibrary sources, including multimedia and electronic systems. Prerequisite: undergraduate standing.
- 021:101 Cultural Foundations** 3 s.h.
 The role of libraries and information agencies in society; major issues, including information policy, professional ethics, literacy, diversity, technology, pedagogy. Prerequisite: admission to library and information science or consent of instructor.
- 021:120 Computing Foundations** 3 s.h.
 Introduction to analysis, specification, and design of automated systems; review of the software life cycle; testing, deployment, and evaluation of large, computer-based software.

021:122 Conceptual Foundations 3 s.h.
 Theory, principles, and standards in organization of information; function of catalogs, indexes, bibliographic networks; introduction to metadata descriptions, name and title access, subject analysis, controlled vocabularies, classification systems. Prerequisite: junior standing.

021:123 User Education: Multimedia 3 s.h.
 Learning theory as it relates to design of multimedia products for user education; presentation of information using multimedia technology in a Macintosh environment; development of user education products in linear and nonlinear forms.

021:124 Database Systems 3 s.h.
 Theory and methodologies for semantic, logical, and physical database design; languages for query and manipulation of information; normalization; optimization, processing of concurrent transactions. Prerequisite: 021:101.

021:141 Reference and Information Services 3 s.h.
 Sources and services; essential reference services and experience using a variety of print and electronic resources to answer specific reference questions.

021:143 Resources for Children 3 s.h.
 Evaluation and use of books, magazines, electronic media, and other sources of information and recreation in relation to youth development. Prerequisite: 021:101 or consent of instructor.

021:144 Resources for Young Adults 3 s.h.
 Topics related to populations served by youth services departments (e.g., societal issues, informational needs); seminar. Prerequisite: 021:101 or consent of instructor.

021:202 Research Methods 3 s.h.
 Concepts and methods for research in library and information science; emphasis on design of qualitative and quantitative research; data collection techniques appropriate to information professions; examination and evaluation of research in the professional literature.

021:220 Programming for Text Manipulation 3 s.h.
 Hands-on experience manipulating textual data; tools, concepts, programming language introduced as needed; examples from web resource access, digital libraries, linguistic corpora; no programming experience required.

021:222 Beginning Cataloging and Classification 3 s.h.
 Systems for describing materials and information in catalogs and organizing them for effective retrieval in libraries, museums, and other information centers; AACR2 descriptive principles, Dewey and Library of Congress classifications, Sears and LC subject headings, cataloging networks and services. Prerequisite: 021:122.

021:223 Advanced Cataloging and Classification 3 s.h.
 Special problems in description of materials; authority work; file structures; serials, other nonmonographic materials; Library of Congress, other classifications; subject retrieval; reclassification, other administrative issues; international bibliographic criteria; online cataloging experience. Prerequisite: 021:222.

021:224 Electronic Publishing 3 s.h.
 Modes and methods for building electronic journals, books, thematic collections; new genres for publishing, including blogs, wikis, comics, short stories on the web; social, political, and economic forces that shape electronic publishing; XML-based project. Prerequisite: 021:101. Same as 108:224.

021:226 Digital Libraries 3 s.h.
 Methods and models for building digital libraries; organization with metadata; standards such as those for object identifiers, open access, building cross-linkages between collections; automatic harvesting of content. Prerequisite: 021:120.

- 021:228 Hypertext Systems** 2 s.h.
Theory, design, and implementation of hypertext-based information systems; access mechanisms, including navigation, browsing, search; issues in representation of information, user interfaces; case studies of representative systems, including the World Wide Web. Prerequisite: 021:101.
- 021:230 Text Retrieval** 3 s.h.
Text representation and retrieval models; query models, including Boolean, probabilistic, fuzzy; text ranking models; web search engines; applications founded on text retrieval systems. Prerequisite: 021:120. Same as 06K:233.
- 021:234 Information Knowledge Management** 3 s.h.
Issues in distributed, networked, heterogeneous, and dynamic information environments (intranets, web); hypertext, XML, CGI, and scripting languages; algorithms for coping with information overload and scalability—indexing, crawlers, search engines, information filtering, information agents and brokers. Corequisite: 06K:230 or 06K:250. Same as 06K:234.
- 021:239 Topics: Conceptual Structures/Systems** 1-3 s.h.
Special topics relevant to conceptual structures (e.g., knowledge, representation, manipulation schemes) and systems (e.g., intelligent OPACS, user interface technologies). Repeatable. Prerequisite: 021:120.
- 021:240 Collection Management** 3 s.h.
Collection management of print and electronic resources; selection and management principles, policies, procedures in various settings; production and distribution of resources; intellectual freedom.
- 021:242 Search and Discovery** 3 s.h.
Search system architecture; information needs and queries; search models; concepts in relevance and repositories, archives, web-based systems; information quality measures.
- 021:244 Government Information Resources** 3 s.h.
Emphasis on federal documents as an information resource; state, local, foreign, international materials; special concerns of organizing and administering document collections. Prerequisite: 021:141.
- 021:248 Information Literacy** 3 s.h.
Design of information literacy curriculum and teaching strategies relevant to libraries; theory and research in learning and cognitive development; practice teaching strategies in library settings.
- 021:249 Topics in Book Studies** 1-3 s.h.
Topics relevant to book studies and special collections. Prerequisite: admission to library and information science. Same as 108:230.
- 021:254 Analysis of Scholarly Domains** 3 s.h.
Information transfer in academic disciplines; scientific method, other means of knowledge construction, resulting literatures; reference tools used to control literature for a variety of audiences; emphasis on humanities, social sciences, or sciences. Prerequisite: 021:141. Same as 160:230.
- 021:256 History of Readers and Reading** 3 s.h.
Cultural nature of reading practices in historic and contemporary contexts of reading; reading communities; dimensions of gender, age, class, religion, race, ethnicity; examples of recent scholarship; use of primary resources; seminar. Prerequisite: 021:101 or consent of instructor. Same as 108:220.
- 021:258 The Transition from Manuscript to Print** 3 s.h.
Same as 108:183, 16E:118.
- 021:259 Topics: Resources/Services** 1-3 s.h.
Current topics in types of information resources and services.
- 021:260 Strategic Management** 3 s.h.
Management and administration of all types of libraries; basics of leadership and teamwork, management issues, and skills in context of the organization.
- 021:262 School Library Media Administration** 3 s.h.
Design of library media programs; development of philosophy, analysis of functions, program/personnel evaluation; emphasis on curricular and teaching roles of library media specialists.
- 021:263 Nonprofit Organizational Effectiveness I** 3 s.h.
Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as 06J:247, 024:247, 028:257, 032:227, 042:247, 091:320, 174:247.
- 021:265 Nonprofit Organizational Effectiveness II** 3 s.h.
Same as 06J:248, 024:248, 028:258, 032:228, 042:248, 091:322, 174:248.
- 021:270 Public Libraries** 3 s.h.
Historical development of public libraries; current issues in public library management and policy making, including intellectual freedom; readers advisory service and genres of popular materials for adults.
- 021:271 College and University Libraries** 3 s.h.
Objectives, organization, unique functions and services of academic libraries; educational environment in which academic libraries function; examination of issues and problems affecting academic libraries.
- 021:272 Special Libraries** 3 s.h.
Management, organizational structures, collections, client services in special libraries; site visits to a variety of special libraries, information centers; projects that apply theoretical principles.
- 021:275 Health Informatics I** 3 s.h.
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 050:283, 051:187, 056:186, 074:191, 096:283, 174:226.
- 021:278 Information Policy** 2 s.h.
Development of policy based on ethical and legal issues in library and information professions; intellectual freedom, intellectual property, privacy, equity.
- 021:279 Topics: Policy/Planning** 1-3 s.h.
Current topics in national and international policies, their impact on planning. Repeatable. Prerequisite: 021:260.
- 021:280 Health Informatics II** 3 s.h.
Same as 051:189, 056:287, 074:192, 096:289.
- 021:282 Practicum in Libraries and Information Centers** 2-3 s.h.
Supervised field experience in selected libraries and information centers; emphasis on application of theory to practice; at least 80 hours of fieldwork. Prerequisite: 15 s.h. in library and information science.
- 021:284 School Library Media Practicum** 3 s.h.
Supervised field experience in library media centers at elementary and secondary school levels; emphasis on application of theory to practice; at least 80 hours of fieldwork. Prerequisite: 021:262.
- 021:286 Research Practicum** 1-3 s.h.
Student research conducted in conjunction with a faculty member's research. Prerequisites: 021:202 and consent of instructor, advisor, and director.
- 021:292 Independent Study** 1-3 s.h.
Formal contract between student and faculty member. Prerequisites: formal proposal and consent of instructor.
- 021:299 Thesis** 6 s.h.
Prerequisites: 021:101, 021:120, 021:122, 021:202, 021:260, and consent of director.

Molecular and Cellular Biology

Director: Minnetta V. Gardinier (Pharmacology)

Affiliated faculty: Lee-Ann Allen (Internal Medicine), Michael Apicella (Microbiology), Nikolai Artemyev (Physiology and Biophysics), Jackie Bickenbach (Anatomy and Cell Biology), Gail Bishop (Microbiology), Daniel Bonthius (Pediatrics), Kevin Campbell (Physiology and Biophysics), Steven Clegg (Microbiology), Michael Cohen (Pathology), John Colgan (Internal Medicine), Beverly Davidson (Internal Medicine), Frederick Domann (Radiation Oncology), John Donelson (Biochemistry), Martine Dunnwald (Dermatology), John Engelhardt (Anatomy and Cell Biology), Sarah England (Physiology and Biophysics), Michael Feiss (Microbiology), Rory Fisher (Pharmacology), Sonya Franklin (Chemistry), Minnetta Gardinier (Pharmacology), Pamela Geyer (Biochemistry), Prabhat Goswami (Radiation Oncology), Steven Green (Biological Sciences), Gregory Hageman (Ophthalmology and Visual Sciences), Raymond Hohl (Internal Medicine), Mary Horne (Pharmacology), Aloysius Klingelhut (Microbiology), John Koland (Pharmacology), C. Michael Knudson (Pathology), Annon Kohen (Chemistry), David Kusner (Internal Medicine), Tomomi Kuwana (Pathology), Gloria Lee (Internal Medicine), Steven Lentz (Internal Medicine), Andrew Lidral (Orthodontics), Jim Jung-Ching Lin (Biological Sciences), John Logsdon (Biological Sciences), Wendy Maury (Microbiology), Anton McCaffrey (Internal Medicine), Stephen McGowan (Internal Medicine), Jeffery Meier (Internal Medicine), John Menninger (Biological Sciences), Scott Moye-Rowley (Physiology and Biophysics), Jeffrey Murray (Pediatrics), William Nauseef (Internal Medicine), Henry Paulson (Neurology), David Price (Biochemistry), Dawn Quelle (Pharmacology), Subramanian Ramaswamy (Biochemistry), Michael Rebagliati (Anatomy and Cell Biology), Richard Roller (Microbiology), Peter Rubenstein (Biochemistry), Andrew Russo (Physiology and Biophysics), David Sheff (Pharmacology), Curt Sigmund (Internal Medicine), Mark Starnes (Physiology and Biophysics), Jack Stapleton (Internal Medicine), Mark Stinski (Microbiology), C. Martin Stoltzfus (Microbiology), Edwin Stone (Ophthalmology and Visual Sciences), Stefan Strack (Pharmacology), Christie Thomas (Internal Medicine), Lubomir Turek (Pathology), Lori Wallrath (Biochemistry), Todd Washington (Biochemistry), Daniel Weeks (Biochemistry), David Weiss (Microbiology), Michael Welsh (Internal Medicine), Mary Wilson (Internal Medicine), Marc Wold (Biochemistry), Charles Yeaman (Anatomy and Cell Biology), Joseph Zabner (Internal Medicine)

Graduate degree: Ph.D. in Molecular and Cellular Biology

Web site: <http://molbio.grad.uiowa.edu>

The Molecular and Cellular Biology Program provides interdisciplinary training in the concepts and methodologies fundamental to the

investigation of biological mechanisms at the molecular level. Faculty members are involved in a variety of research projects related to gene expression and regulation.

Doctor of Philosophy

The Doctor of Philosophy in molecular and cellular biology requires a minimum of 72 s.h. of graduate credit. The program is sufficiently flexible to accommodate students with a wide range of backgrounds in the biological and physical sciences. Entering students are expected to have a solid background in science, including introductory biology and chemistry, organic chemistry, physical chemistry, calculus, genetics, and biochemistry. Students can remedy deficiencies in particular areas by taking appropriate courses during the first year of graduate study.

The curriculum consists of a sequence of required and elective courses that provide didactic training in molecular and cellular biology and that ensure a comprehensive exposure to concepts and experimental methodologies in the field. Because of the diversity of biological research problems that can be pursued by employing molecular and cellular approaches, the program provides a variety of options for specialization in particular areas of interest.

The principal didactic component of the program is a sequence of core courses in molecular and cellular biology. Students engage in laboratory research immediately upon enrollment and progress rapidly to original thesis projects that lead to the Ph.D.

REQUIRED COURSES

All students must take the following courses. Precomprehensive students register for 142:280 every semester; postcomprehensive students participate in a journal club of their choice. All students register for 142:290 Seminar in Molecular Biology every semester.

156:201 Principles in Molecular and Cell Biology (fall) 4 s.h.

One of these (fall or spring):

142:210 Advanced Prokaryotic Molecular Biology 3 s.h.

142:215 Molecular Biology of Gene Expression 3 s.h.

One of these (fall or spring):

142:220 Mechanisms of Cellular Organization	3 s.h.
142:225 Mechanisms of Cell Growth and Development	3 s.h.

One of these (fall or spring):

Biochemistry/chemistry core (see list below)	3 s.h.
Pharmacology/physiology core (3 s.h. minimum, see list below)	3 s.h.

All of these:

142:280 Topics in Molecular Biology (fall and spring)	1 s.h.
142:290 Seminar in Molecular Biology	1 s.h.
650:270 Responsible Conduct in Research	1 s.h.

CORE REQUIREMENT

Biochemistry/Chemistry:	
004:211 Chemical Catalysis in Biology	3 s.h.
099:241 Biophysical Chemistry I	3 s.h.
099:242 Biophysical Chemistry II	3 s.h.

Pharmacology/Physiology:	
071:135 Principles of Pharmacology	4 s.h.
072:153 Graduate Physiology	4 s.h.

In addition, all students are required to complete at least 6 s.h. chosen from the approved elective courses.

After successfully completing the comprehensive examination, usually at the end of the second year of graduate study, students advance to candidacy for the Ph.D. degree. They devote all of their time to completing thesis research and writing their Ph.D. dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense according to the Manual of Rules and Regulations of the Graduate College, students are awarded a Ph.D. in molecular and cellular biology.

Admission

For application materials and information about graduate training in molecular and cellular biology, contact the Molecular and Cellular Biology Program or visit its web site.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

Graduate students in the Molecular and Cellular Biology Program receive stipends and tuition support from institutional and extramural sources, including University of Iowa fellowships and graduate research assistantships, and training grants from the National Institutes of Health.

Facilities

Training is conducted primarily in laboratories and teaching facilities of the Carver College of Medicine Departments of Anatomy and Cell Biology, Biochemistry, Dermatology, Internal Medicine, Microbiology, Neurology, Ophthalmology and Visual Sciences, Pathology, Pediatrics, Pharmacology, Physiology and Biophysics, and Radiation Oncology; the College of Dentistry Department of Orthodontics; and in the College of Liberal Arts and Sciences Departments of Biological Sciences and Chemistry. Faculty laboratories and central research facilities available to students provide access to the most up-to-date research equipment.

Courses

142:210 Advanced Prokaryotic Molecular Biology 3 s.h.
Mechanism and regulation of DNA, RNA, and protein synthesis in bacteria. Prerequisites: 156:201, or 002:128 and 099:130; and consent of instructor. Same as 061:210.

142:215 Molecular Biology of Gene Expression 3 s.h.
Principles and techniques for investigating mechanisms of controlling eukaryotic gene expression; basic genome organization, chromatin structure, transcription, RNA processing, translation; cloning methods, use of electronic sequence databases, footprinting, chromatin immunoprecipitation, in vivo and in vitro transcription assays, DNA microarray analysis, information retrieval. Prerequisite: 156:201.

142:220 Mechanisms of Cellular Organization 3 s.h.
Integration of concepts of cell biology, original research data concerning structure, chemistry, function of cellular organelles and their assembly; emphasis on relation of cellular structure, function from macromolecular to organelle-cellular levels of organization; plasma membrane, endoplasmic reticulum, cytoskeleton, centriole and centrosome; Golgi apparatus, lysosome, mitochondria, nucleus. Prerequisite: 099:130 or equivalent. Same as 060:216, 072:220.

142:225 Mechanisms of Cell Growth and Development 3 s.h.
Molecular mechanisms that control cell proliferation and differentiation, cancerous transformation, and normal embryonic development; current understanding of intracellular signaling processes, cell cycle control, oncogenes and tumor suppressor genes, mechanisms of apoptosis (programmed cell death), and cellular senescence (aging). Prerequisite: 156:201 or consent of instructor. Same as 060:225, 072:225.

142:280 Topics in Molecular Biology 1 s.h.

Opportunity to work closely with participating faculty to gain skill in critical reading of research literature and facility in presenting the material to an audience. Repeatable. Prerequisites: advanced graduate standing and consent of instructor.

142:290 Seminar in Molecular Biology 1 s.h.

Research findings in molecular biology. Repeatable. Prerequisite: molecular biology graduate standing or consent of instructor.

142:299 Mechanisms of Parasitism Journal Club 1 s.h.

Reviews of recent publications in molecular parasitology research and thesis research by training grant or journal club students. Same as 061:299.

142:301 Directed Study in Molecular Biology arr.

Prerequisite: consent of instructor.

142:305 Molecular Biology Research arr.

Prerequisites: molecular biology graduate standing and consent of instructor.

Neuroscience

Chair: Daniel Tranel (Neurology)

Affiliated faculty: Paul J. Abbas (Speech Pathology and Audiology), Francois Abboud (Internal Medicine), Harold Adams (Neurology), Michael Anderson (Physiology and Biophysics), Steven Anderson (Neurology), Nancy C. Andreasen (Psychiatry), Mark Arnold (Chemistry), Gary Baumbach (Pathology), Christopher Benson (Internal Medicine), Daniel Bonthius (Pediatrics), Timothy Brennan (Anesthesiology), Kevin P. Campbell (Physiology and Biophysics), Martin Cassell (Anatomy and Cell Biology), Mark Chapleau (Internal Medicine), Kelly J. Cole (Exercise Science), Robert A. Cornell (Anatomy and Cell Biology), Michael E. Dailey (Biological Sciences), Warren Daring (Exercise Science), Beverly Davidson (Internal Medicine), Jeffrey L. Denburg (Biological Sciences), Natalie Denburg (Neurology), Daniel Eberl (Biological Sciences), Frank Faraci (Internal Medicine), Robert Felder (Internal Medicine), Robert Franciscus (Anthropology), John Freeman (Psychology), Bruce J. Gantz (Otolaryngology—Head and Neck Surgery), Minnetta Gardinier (Pharmacology), Jean Gordon (Speech Pathology and Audiology), Thomas Grabowski Jr. (Neurology), Steven Green (Biological Sciences), Donna Hammond (Anesthesiology), Meredith Hay (Physiology and Biophysics), Eliot Hazeltine (Psychology), Donald D. Heistad (Internal Medicine), Johannes Hell (Pharmacology), Mary Horne (Pharmacology), Douglas Houston (Biological Sciences), Matthew Howard III (Neurosurgery), Richard R. Hurtig (Speech Pathology and Audiology), Jean Y. Jew (Anatomy and Cell Biology), Alan Kim Johnson (Psychology), Wayne Johnson (Physiology and Biophysics), Alan Kay (Biological Sciences), Toshihiro Kitamoto (Anesthesiology), Michael Ladouceur (Exercise Science), Gloria Lee (Internal Medicine), Jack Lilien (Biological Sciences), Steven Luck (Psychology), Pifu Luo (Pathology), Vince Magnotta (Radiology), Steven Moore (Pathology), David Moser (Psychiatry), Peggy Nopoulos (Psychiatry), M. Sue O'Dorisio (Pediatrics), Daniel O'Leary (Psychiatry), Nicholas J. Pantazis (Anatomy and Cell Biology), Sergio Paradiso (Psychiatry), Jane Paulsen (Psychiatry), Henry Paulson (Neurology), Stanley Perlman (Pediatrics), Robert Philibert (Psychiatry), Amy Poremba (Psychology), Herbert Proudfit (Pharmacology), Matthew Rizzo (Neurology), Andrew Russo (Physiology and Biophysics), Robert Robinson (Psychiatry), Erwin Shibata (Physiology and Biophysics), Kathleen Sluka (Physical Therapy), Christopher Stipp (Biological Sciences), Stefan Strack (Pharmacology), William Talman (Neurology), Daniel Tranel (Neurology), Christopher Turner (Speech Pathology and Audiology), Ergun Uc (Neurology), Shaun Vecera (Psychology), Michael Wall (Neurology), Edward A. Wasserman (Psychology), Joshua Weiner (Biological Sciences), Michael Welsh (Internal Medicine), John Wemmie (Psychiatry), Terence H. Williams (Anatomy and Cell Biology), Chun-Fang Wu (Biological Sciences)

Graduate degree: Ph.D. in Neuroscience

Web site: <http://neuroscience.grad.uiowa.edu>

The Neuroscience Program provides an interdisciplinary and interdepartmental approach to graduate education and research training in the structure, function, and development of the nervous system and its role in cognition and behavior. Students obtain training at all levels of the nervous system, from cellular/molecular to behavioral/cognitive. Following broad-based instruction in a core curriculum, students focus on one of three main tracks in the program: cellular/molecular, systems/development, or behavioral/cognitive.

Doctor of Philosophy

The Doctor of Philosophy in neuroscience requires a minimum of 72 s.h. of graduate credit. The program's curriculum is designed around three tracks: molecular/cellular, developmental/systems, and cognitive/behavioral. Students specialize in one of the tracks. The curriculum for each student is tailored to meet his or her needs, depending on the student's background and choice of track. All Neuroscience Program students must complete a set of core courses in addition to course work appropriate for their chosen tracks.

Within a framework of core, track-specific, and elective courses, each student pursues a program of study individually designed according to his or her undergraduate training and graduate research goals. After enrolling in the Neuroscience Program, entering students consult with the advisory committee regarding their level of preparation for the program's required courses.

The Student Advisory Committee meets with all first- and second-year graduate students once each semester, helping each student explore his or her research interests and select faculty mentors for the required laboratory rotations. Each student is expected to complete three rotations in faculty laboratories before selecting a thesis advisor. Rotations ordinarily last 12 weeks but may last from 8 to 16 weeks. Under special circumstances, two rotations may be in the same laboratory, an arrangement that permits the student to learn a variety of techniques and approaches before settling down to work on the dissertation project. Students usually choose a dissertation lab at the end of their first year.

BACKGROUND

Students are expected to demonstrate competency, through prerequisites or course work, in each of four fields: biochemistry, general physiology, cell biology, and statistics. These requirements ordinarily should be fulfilled by the end of the first year of graduate study. Waivers of background course requirements may be requested by students who have taken equivalent courses before entering the neuroscience program.

NEUROSCIENCE CORE

The following nine courses form the core of the neuroscience graduate curriculum.

132:180 Fundamental Neuroscience	4 s.h.
132:181 Neurophysiology	3-4 s.h.
132:230 Methods in Neuroscience	2 s.h.
132:234 Medical Neuroscience	4 s.h.
132:240 Topics in Cognitive Neuroscience (cognitive track)	3 s.h.
132:246 Developmental Neurobiology	3 s.h.
156:201 Principles in Molecular and Cell Biology (molecular track)	4 s.h.
650:270 Responsible Conduct in Research	1 s.h.
A statistics course	3-4 s.h.

In addition, students register for the following two courses each semester.

132:265 Neuroscience Seminar	0-1 s.h.
132:305 Neuroscience Research	arr.

ELECTIVES

Elective requirements may be met with three or more courses from a list of courses offered by the Departments of Anatomy and Cell Biology, Biological Sciences, Pharmacology, Physiology and Biophysics, Psychology, and other departments as appropriate. Students must take electives in at least two of the program's three tracks, ensuring that they receive advanced training both in their area of specialization and in related areas of neuroscience. With permission of the Student Advisory Committee, students may satisfy the elective requirement wholly or in part by registration in 132:301 Directed Study in Neuroscience.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

For information about pre- and postdoctoral training opportunities in neuroscience, contact the Neuroscience Program or visit its web site.

Financial Support

Full-time Neuroscience Program students receive stipends and full tuition scholarships through fellowships and research assistantships. Awards are renewed annually, based on continued satisfactory progress and availability of funds. For 2006-07, the standard stipend for graduate students is \$22,000. University of Iowa Presidential Fellowships, awarded on a competitive basis to incoming graduate students, provide entry-level stipends of \$21,000 per year (a supplement provided by the Neuroscience Program raises this entry-level stipend to \$23,000 per year).

The Neuroscience Program is committed to supporting its graduate students for their entire training period. Students normally are supported in the first year by the program. After that, support is expected to come from the student's primary research mentor. Occasionally, advanced students are supported through teaching assistantships. Tuition is paid for all students.

NIH Training Grant

The Neuroscience Program is supported by a training grant from the National Institutes of Health. The grant provides stipend and tuition support for a select group of first- and second-year graduate students.

Facilities

Training is conducted primarily in the laboratories and teaching facilities of the Carver College of Medicine graduate Departments of Anatomy and Cell Biology, Biochemistry, Pharmacology, and Physiology and Biophysics; clinical Departments of Internal Medicine, Neurology, and Psychiatry; and the College of Liberal Arts and Sciences graduate Departments of Biological Sciences, Exercise Science, Psychology, and Speech Pathology and Audiology. Students use faculty laboratories and central research facilities for ultrastructural analysis; histochemistry and immunocytochemistry; electrophysiology; fluorescence-activated cell sorting; cellular and subcellular biochemistry; cell, tissue, and organ culture; operant and classical conditioning; molecular biology; behavioral genetics; neural substrates of complex behavior; brain-behavior relationships in humans; neuropsychology; and functional neuroimaging (PET, fMRI).

Courses

132:180 Fundamental Neurobiology 4 s.h.

Functioning of nervous systems at molecular and cellular levels; expressions of brain activity such as perception; experimental approaches of varied disciplines, including neurophysiology, molecular neurobiology, neuroanatomy, developmental neurobiology; their contributions to field. Offered fall semesters. Same as 002:180.

132:181 Neurophysiology 3-4 s.h.

Physiological properties of nerve cells and nervous systems; axonal conduction, synaptic transmission, sensory transduction, integrative processes, higher functions. Offered spring semesters. Prerequisites: 002:180, 22M:025 or equivalent, and 029:012; or consent of instructor. Same as 002:181.

132:209 Receptors and Signal Transduction 3 s.h.

Major receptor families: G-protein coupled receptors, ligand-regulated transmembrane enzymes, ligand-regulated ion channels, the steroid receptor superfamily; emphasis on description, interpretation of specific experiments, experimental strategies that underlie current research. Prerequisites: medical physiology course and consent of instructor. Same as 071:209, 072:209.

132:230 Methods in Neuroscience 2 s.h.

Major neuroscience methods, including cellular/molecular techniques, neuropsychology, neuroanatomical procedures, model systems. Repeatable. Prerequisite: 002:180 or 132:180.

132:234 Medical Neuroscience 4 s.h.

Basic principles of neurophysiology, neuroanatomy; emphasis on human central nervous system; laboratory emphasis on anatomical study of spinal cord, brain. Offered spring semesters. Prerequisite: consent of course director. Same as 060:234.

132:240 Topics in Cognitive Neuroscience 3 s.h.

Key topics in the neural basis of human cognition; research literature. Recommended: graduate courses in basic neuroscience, cognitive psychology. Same as 064:240.

132:241 Behavioral and Cognitive Neuroscience I 4 s.h.

Concepts, methods, and findings in behavioral and cognitive neurosciences; emphasis on principles of neuroscience; sensation, motivation, emotion. Same as 031:241.

132:242 Behavioral and Cognitive Neuroscience II 4 s.h.

Concepts, methods, and findings in behavioral and cognitive neurosciences; emphasis on principles of comparative psychology, motor control, learning. Prerequisite: consent of instructor. Same as 031:242.

132:246 Developmental Neurobiology 3 s.h.

Major developmental systems, their application in neurobiology; neurogenesis, synapse formation, axonal guidance, the cellular/molecular aspects of neural differentiation; literature-based approach. Prerequisite: consent of course director. Same as 002:246, 072:245.

132:250 Functional Magnetic Resonance Imaging 2 s.h.

Basic physics principles of functional magnetic resonance imaging and approaches to data acquisition, including BOLD imaging, arterial spin labeling, and magnetic source imaging; data analysis strategies; paradigm design and development.

132:265 Neuroscience Seminar 0-1 s.h.

Research presentations. Offered fall and spring semesters. Prerequisite: consent of instructor. Same as 002:265, 031:265, 060:265, 072:265.

132:277 Mechanisms of Pain Transmission 3 s.h.

Same as 071:277, 101:277.

132:301 Directed Study in Neuroscience arr.

132:305 Neuroscience Research arr.

Prerequisites: neuroscience graduate standing and consent of instructor.

Rhetorics of Inquiry (POROI)

Director: David Depew (Communication Studies/Rhetorics of Inquiry)

Curriculum committee: David Depew (Communication Studies/Rhetorics of Inquiry), Les Margolin (Counseling, Rehabilitation, and Student Development/Rhetorics of Inquiry), Kembrew McLeod (Communication Studies/Rhetorics of Inquiry), Thomas Swiss (English/Rhetorics of Inquiry)

Graduate nondegree program: Certificate in Rhetorics of Inquiry

Web site: <http://poroi.grad.uiowa.edu>

The Project on Rhetorics of Inquiry (POROI) is an interdisciplinary program that explores how scholarship and professional discourse are conducted through argument, how paradigms of knowledge are sensitive to social-political contexts, and how the presentation of scholarly and professional findings is an audience-sensitive process.

POROI seeks to improve academic inquiry and scholarly writing in the arts, humanities, sciences, and professions, especially at the intersections between disciplines. It offers classes, seminars, workshops, conferences, and a peer-reviewed online journal, *Poroi: An Interdisciplinary Journal of Rhetorical Analysis and Invention*. Together with the Graduate College, POROI offers the graduate Certificate in Rhetorics of Inquiry.

Certificate

Students may pursue the Certificate in Rhetorics of Inquiry in conjunction with a graduate degree in any field. The certificate program gives students the opportunity to enhance their abilities to argue in oral, written, and multimedia forms within their own disciplines, and to enhance their understanding of the similarities and differences among various fields.

The program's objectives are to:

- help students cultivate habits of interdisciplinary study and research through reading, writing, and conversation;
- encourage students to cross conceptual and institutional boundaries that often appear to separate the arts, humanities, and professions from each other and from the social, natural, and formal sciences;

- improve students' awareness of the rhetorical dimensions of argumentation and inquiry; and

- certify that students who have completed the program are prepared to do rhetorical and cross-disciplinary work after they graduate.

Requirements

In order to earn the Certificate in Rhetorics of Inquiry, students must complete four courses offered by POROI, including 160:200 Introduction to Rhetorics of Inquiry.

Admission

Master's and doctoral candidates in good standing are eligible to register for the certificate program. To register, contact the Project on Rhetorics of Inquiry or visit its web site.

Courses

POROI courses are open to certificate students and to those not enrolled in the certificate program.

160:160 Issues in Rhetoric and Culture	3 s.h.
Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Same as 008:181, 010:160, 036:146.	
160:162 African American Literary/Rhetorical Criticism II	3 s.h.
Same as 008:166, 010:133, 129:131.	
160:165 Feminism and Philosophy	3 s.h.
Same as 131:155.	
160:170 Philosophy of the Body	3 s.h.
Same as 131:170.	
160:176 Modes of Translation Studies	3 s.h.
Same as 048:176.	
160:180 Literature and Translation	3 s.h.
Same as 041:180, 048:180.	
160:182 Honors Seminar on Political Theory	3 s.h.
Challenges to Western Civilization by recent movements in radical politics; environmentalism, feminism, Islamism; development of tactics and strategies, disagreements with western ideologies and cultures; institutions and practices emerging in response to such movements; interaction of political movements and electronic media. Prerequisite: consent of instructor.	
160:183 Invention	3 s.h.
Invention techniques and strategies of published writers; practice of these techniques and strategies in writing exercises; imitation of forms, voices, points of view; unconventional juxtapositions of form and content; parody; forms of "free writing." Same as 08N:183.	

160:190 Issues in Rhetorics of Inquiry	1-4 s.h.	160:340 Current Issues in Rhetoric	3 s.h.
Key foundational issues relevant to rhetorics of inquiry; theoretical, cultural, and practical approaches to the phenomenon of constructed knowledge.		Ethical, social, or cultural issues; rhetoric's role in their contemporary significance; traditional aspects of rhetoric, their pertinence to present concerns. Same as 008:315, 010:340, 036:317.	
160:195 Issues in Rhetorics of Science	1-2 s.h.	160:353 Seminar: Intellectual Property	3 s.h.
How rhetorical analysis can clarify contested issues about science (e.g., how boundaries are drawn between sciences and between science and nonscience; relation between science and technology, including life sciences and biotechnology; relation of sciences to society, including contested claims about social construction of science and science pedagogy).		Same as 036:353.	
160:200 Introduction to Rhetorics of Inquiry	2-4 s.h.	160:360 Issues in Rhetoric and Culture	3 s.h.
How discussions in academic and professional disciplines are conducted through the art of argumentation, including its ethical, logical, and emotional aspects; rhetorical ways in which the boundaries between disciplines are constructed and maintained. Same as 036:210.		Same as 008:263, 010:360.	
160:210 Independent Study Rhetorics of Inquiry	arr.	160:400 Writing Dissertations	3-4 s.h.
Repeatable.		Peer criticism of draft dissertation chapters and prospectuses; associated activities, such as construction of curriculum vitae, letters of application, interview strategies, presentations at campus visits.	
160:216 Conflict, Negotiation, and Planning	3 s.h.	160:510 Topics in Rhetorics of Inquiry	2-4 s.h.
Same as 102:216.		Theoretical or practical investigation of academic knowledge and rhetorical processes. Repeatable. Same as 650:510.	
160:230 Analysis of Scholarly Domains	3 s.h.		
Same as 021:254.			
160:258 Feminist Critical Theory	3 s.h.		
Same as 131:258.			
160:262 Readings in Nonfiction	3 s.h.		
Same as 08N:262.			
160:265 Feminist Ethics in the Contemporary World	3 s.h.		
Same as 131:255.			
160:280 Postcolonial Feminist Theory	3 s.h.		
Same as 010:264, 131:264.			
160:300 Writing for Learned Journals	1-4 s.h.		
Help for graduate students in bringing written work to publishable form; analysis of target journals' audiences and interests; submission, response to criticism. Same as 08N:340, 650:300.			
160:302 Writing Political Science	2-4 s.h.		
Practice in planning and completing political inquiries; emphasis on writing for scholarly publication. Prerequisite: political science Ph.D. enrollment or consent of instructor.			
160:307 Rhetorics of Technology and Technoscience	2-4 s.h.		
Same as 036:315.			
160:313 Digital Rhetoric	3 s.h.		
Current discourse (utopic, dystopic, other strands) about the Internet as it shapes and is shaped by competing forces. Repeatable. Same as 008:313, 650:313.			
160:320 Uncreative Writing	3 s.h.		
Forgery, frauds, hoaxes, avatars, and impersonations across writing and the arts; how Modernist notions of chance, procedure, and repetition, and aesthetics of boredom influence current writing and art practices; experience using strategies of appropriation, replication, plagiarism, piracy, sampling, and plundering as compositional methods for writing. Repeatable. Same as 08N:320.			
160:332 Critical Ethnography	3 s.h.		
Same as 010:332, 036:378.			
160:338 Colloquium in Political Theory	1-4 s.h.		
Works and issues; topics vary.			

Second Language Acquisition

Directors: L. Kathy Heilenman (French and Italian/Teaching and Learning), Judith Liskin-Gasparro (Spanish and Portuguese)

Affiliated faculty: Stephen M. Alessi (Psychological and Quantitative Foundations), William D. Davies (Linguistics), Michael E. Everson (Teaching and Learning), Elena Gavrusseva (Linguistics), Yukiko Abe Hatasa (Asian Languages and Literature), L. Kathy Heilenman (French and Italian/Teaching and Learning), Richard Hurtig (Speech Pathology and Audiology), Chuanren Ke (Asian Languages and Literature), Paula Kempchinsky (Spanish and Portuguese), Judith E. Liskin-Gasparro (Spanish and Portuguese), Sue K. Otto (Spanish and Portuguese), Carlos-Eduardo Piñeros (Spanish and Portuguese), James P. Pusack (German), Jason Rothman (Spanish and Portuguese), Leslie Schrier (Teaching and Learning/Spanish and Portuguese), Kathy L. Schuh (Psychological and Quantitative Foundations), Carol Severino (Rhetoric), Helen Shen (Asian Languages and Literature), Roumyana Slabakova (Linguistics), Bruce H. Spencer (German), Ikuko Yuasa (Asian Languages and Literature)

Graduate degree: Ph.D. in Second Language Acquisition

Web site: <http://intl-programs.uiowa.edu/academic/flare/index.htm>

Second language acquisition (SLA) is a multidisciplinary field whose goal is to understand the processes that underlie non-native language learning. The Second Language Acquisition Program draws from varied academic disciplines, among them linguistics, psychology, psycholinguistics, sociology, sociolinguistics, discourse analysis, conversation analysis, and education.

Doctor of Philosophy

The Doctor of Philosophy in second language acquisition is interdisciplinary. Students interested in pursuing the Ph.D. must hold an M.A. in an appropriate field (e.g., linguistics, foreign language education, English as a second language), or they must have equivalent academic experience.

Doctoral students may specialize in one of three areas: linguistics, language program direction, or technology. Students may pursue their interdisciplinary interests in courses offered by the College of Liberal Arts and Sciences Departments of Asian Languages and Literature, French and Italian, German, Linguistics, Rhetoric, Spanish and Portuguese, and Speech

Pathology and Audiology, and the College of Education Departments of Psychological and Quantitative Foundations, and Teaching and Learning.

The Ph.D. in second language acquisition requires 72 s.h., including a maximum of 33 s.h. earned in work toward the master's degree. The program is divided into foundation courses (13 courses, or 39 s.h.); specialization courses (5 courses, or 15 s.h.), and dissertation work (18 s.h.).

FOUNDATION COURSES

All of these:

164:201 Second Language Acquisition Research and Theory I	3 s.h.
164:202 Second Language Acquisition Research and Theory II	3 s.h.
164:211 Multimedia and Second Language Acquisition	3 s.h.

Two of these:

07S:184 Reading in a Second Language (or 164:226, but not both)	3 s.h.
164:221 Topics in Second Language Acquisition: Speaking	3 s.h.
164:222 Advanced Japanese Pedagogy	3 s.h.
164:223 Topics in Second Language Acquisition: Listening	3 s.h.
164:224 Second Language Acquisition of Japanese	3 s.h.
164:225 Grammar in Second Language Teaching and Learning	3 s.h.
164:226 Reading in the Non-Roman Scripts (or 07S:184, but not both)	3 s.h.
164:227 Topics in Second Language Acquisition: Writing	3 s.h.
164:228 Special Topics in Japanese Linguistics	3 s.h.
164:229 Cultural Curriculum	3 s.h.

To complete the foundation requirement, students select one course from each of the following eight areas, in consultation with their advisor. With the advisor's approval, courses not listed here may be used to fulfill the requirement.

Curriculum

07E:300 Design and Organization of Curriculum	3 s.h.
07S:186 Curriculum Foundations	2-3 s.h.
07S:197 Principles of Course Design for Second Language Instruction	3 s.h.

07S:208 Designing Materials for Second Language Instruction 3 s.h.

Quantitative Research Tools

07P:143 Introduction to Statistical Methods (recommended for students with no previous statistics course work) 3 s.h.

07P:220 Quantitative Educational Research Methodologies 3 s.h.

07P:243 Intermediate Statistical Methods 4 s.h.

07P:244 Correlation and Regression 4 s.h.

07P:246 Design of Experiments 4 s.h.

Qualitative Research Tools

07B:373 Qualitative Research Design and Methods 3 s.h.

07E:370 Methods in Literacy Research (qualitative studies in classroom settings) 3 s.h.

164:205 Analysis of L1 and L2 Data 3 s.h.

Testing, Evaluation, Measurement

07P:150 Introduction to Educational Measurement 3-4 s.h.

07P:165 Introduction to Program Evaluation 3 s.h.

07P:255 Construction and Use of Evaluation Instruments 3 s.h.

07P:257 Educational Measurement and Evaluation 3 s.h.

07P:258 Theory and Technique in Educational Measurement 3 s.h.

07P:265 Program Evaluation 3 s.h.

07S:200 Fundamentals of Second Language Assessment 3 s.h.

Methodology

009:234/013:221/039:234/041:234 Principles of Teaching and Learning Foreign Languages 3 s.h.

035:200 Foreign Language Teaching Methods 3 s.h.

039:202 Teaching Chinese as a Foreign Language I: Theories and Research 3 s.h.

039:203 Teaching Chinese as a Foreign Language II 3 s.h.

039J:202 Japanese as a Foreign Language: Practical Applications 3 s.h.

103:145 Methods of Teaching English as a Second Language 3 s.h.

Phonetics, Phonology

013:258 Modern German Phonetics and Phonology 3 s.h.

035:189 Introduction to Spanish Phonology 3 s.h.

035:209 Spanish Phonology 3 s.h.

103:110 Articulatory and Acoustic Phonetics 3 s.h.

103:112 Phonological Analysis 3 s.h.

103:203 Introduction to Phonology 3 s.h.

103:204 Phonological Theory 3 s.h.

103:214 Advanced Phonological Theory 3 s.h.

Morphology, Syntax

013:256 Modern German Syntax 3 s.h.

013:257 Morphology 3 s.h.

035:186 Introduction to Spanish Syntax 3 s.h.

035:207 Topics in Comparative Romance Linguistics 3 s.h.

035:210 Spanish Syntax 3 s.h.

103:111 Syntactic Analysis 3 s.h.

103:201 Introduction to Syntax 3 s.h.

103:202 Syntactic Theory 3 s.h.

103:212 Advanced Syntactic Theory 3 s.h.

Linguistics

003:117 Psychology of Language 3 s.h.

003:218 Psycholinguistics 3 s.h.

103:141 The Structure of English 3 s.h.

103:147 Research Methods 3 s.h.

103:150 Language and Gender 3 s.h.

103:155 Morphology 3 s.h.

103:156 Child Language—Linguistic Perspectives 3 s.h.

103:163 Philosophy of Language 3 s.h.

103:173 Generative Second Language Acquisition 3 s.h.

103:175 Introduction to Semantics 3 s.h.

103:176 Language Development 1-3 s.h.

103:177 Basic Neuroscience for Speech and Hearing 3 s.h.

103:206 First Language Acquisition 3 s.h.

103:212 Advanced Syntactic Theory 3 s.h.

103:216 Topics in Second Language Acquisition 3 s.h.

164:207 Sociolinguistics 3 s.h.

SPECIALIZATION COURSES

Each student selects one of three specialization areas—linguistics, language program direction, or technology. Students take five courses, for a total of 15 s.h., in their chosen area. An individually designed specialization may be developed in consultation with the advisor.

Linguistics Specialization

Requirements for the linguistics specialization are as follows.

One of the following three-course sequences (Group 1 or Group 2):

Group 1

103:203 Introduction to Phonology 3 s.h.

103:204 Phonological Theory 3 s.h.

103:214 Advanced Phonological Theory 3 s.h.

Group 2	
103:201 Introduction to Syntax	3 s.h.
103:202 Syntactic Theory	3 s.h.
103:212 Advanced Syntactic Theory	3 s.h.

One of these:
 103:173 Generative Second Language Acquisition 3 s.h.

An alternate course on linguistic theory and second language acquisition

One of these:
 031:122 Language Development 3 s.h.
 031:218 Cognitive Development 3 s.h.

An alternate course on parsing/psycholinguistic mechanisms

Language Program Direction Specialization

Students who choose the language program direction specialization take five of the following courses (chosen from those not taken to satisfy the foundation requirements).

07S:180 Issues in Foreign Language Education	3 s.h.
07S:183 Second Language Classroom Learning	3 s.h.
07S:184 Reading in a Second Language	3 s.h.
07S:197 Principles of Course Design for Second Language Instruction	3 s.h.
07S:202 Second Language Program Management	3 s.h.
07S:208 Designing Materials for Second Language Instruction	3 s.h.
39J:258 Second Language Acquisition of Japanese	3 s.h.
164:205 Analysis of L1 and L2 Data	3 s.h.
164:221 Topics in Second Language Acquisition: Speaking	3 s.h.
164:222 Advanced Japanese Pedagogy	3 s.h.
164:223 Topics in Second Language Acquisition: Listening	3 s.h.
164:224 Second Language Acquisition of Japanese	3 s.h.
164:225 Grammar in Second Language Teaching and Learning	3 s.h.
164:226 Reading in the Non-Roman Scripts	3 s.h.
164:227 Topics in Second Language Acquisition: Writing	3 s.h.
164:228 Special Topics in Japanese Linguistics	3 s.h.
164:229 Cultural Curriculum	3 s.h.

Some students may include an internship experience as part of the specialization.

164:230 Internship	arr.
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Technology Specialization

Requirements for the technology specialization are as follows.

A three-course sequence in psychological and quantitative foundations:

One of these:
 07P:205 Design of Instruction 3 s.h.
 07P:275 Constructivism and Design of Instruction 3 s.h.

Both of these:
 07P:208 Designing Educational Multimedia 3 s.h.
 07P:215 Web-Based Learning 3 s.h.

Students choose their remaining specialization course work from the following (others may be approved by the student's advisor).

07P:203 Learning, Technology, and Effective Teaching	3 s.h.
021:120 Computing Foundations	3 s.h.
021:220 Programming for Text Manipulation	3 s.h.
22C:104 Introduction to Informatics	3 s.h.
103:157 Electronic Corpora and Linguistic Analysis	3 s.h.
164:212 Practicum in CALL Software Development	1-4 s.h.
164:214 Advanced CALL Curriculum Development	3 s.h.
A practicum course	3 s.h.

Either of these (if not taken for the three-course sequence in psychological and quantitative foundations, above):

07P:205 Design of Instruction	3 s.h.
07P:275 Constructivism and Design of Instruction	3 s.h.

*Either of these:

07P:293 Independent Instruction in Psychological and Quantitative Foundations	3 s.h.
164:302 Special Projects in Language Acquisition	3 s.h.

*May be taken after students have completed the core design and technology courses (07P:205 or 07P:275, 07P:208, 07P:215).

THESIS

All candidates must complete a thesis (164:303 Ph.D. Thesis), for which they may earn up to 18 s.h.

OPTIONAL COURSE WORK

Students may include the following optional course work in their degree programs.

- 164:300 Special Topics in Second Language Acquisition arr.
- 164:301 Readings in Second Language Acquisition arr.
- 164:302 Special Projects in Second Language Acquisition arr.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Strong applicants hold a master's degree in a related area, have a cumulative g.p.a. of at least 3.50 in master's degree work, and speak and write English and another language at a professional level. Applicants must submit a writing sample that demonstrates their ability to synthesize and analyze information using standard academic English.

Financial Support

Teaching assistantships are available through the Foreign Language Acquisition Research and Education Program (FLARE). Assistantships usually involve teaching elementary or intermediate language courses. FLARE also offers a limited number of research assistantships. Contact the Second Language Acquisition Program for details.

Courses

- 164:201 Second Language Acquisition Research and Theory I** 3 s.h.
Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as 009:237, 035:201, 039:200, 39J:201.
- 164:202 Second Language Acquisition Research and Theory II** 3 s.h.
Continuation of 164:201. Prerequisite: 164:201 or consent of instructor. Same as 035:202, 039:201.
- 164:205 Analysis of L1 and L2 Data** 3 s.h.
Issues in qualitative and quantitative analysis of first- and second-language data; data collection, analytical frameworks and approaches. Prerequisite: 164:201 or consent of instructor. Same as 039:205.
- 164:207 Sociolinguistics** 3 s.h.
Topics such as discourse and conversation analyses, linguistic pragmatics, linguistic variations, issues of language and gender. Prerequisite: 103:100 or equivalent. Same as 039:207.
- 164:211 Multimedia and Second Language Acquisition** 3 s.h.
Foreign language multimedia in the context of current second language acquisition theories and research; readings on

interactivity, interface design, feedback, learner control, and acquisition of vocabulary, grammar, and culture; multimedia development project. Prerequisite: foreign language teaching methodology course or consent of instructor. Same as 009:238, 013:253, 035:212.

- 164:212 Practicum in CALL Software Development** 1-4 s.h.
Supervised experience in an applied setting involving development of computer-assisted language learning (CALL) software. Repeatable. Prerequisites: 164:211, faculty sponsor, and consent of instructor.
- 164:214 Advanced CALL Curriculum Development** 3 s.h.
Advanced instruction in a variety of software and hardware tools for development of multimedia computer-assisted language learning (CALL) courseware; students develop software for a General Education Program or third-year language course in collaboration with course supervisor. Prerequisite: 164:212. Same as 009:239, 013:254, 035:214.
- 164:221 Topics in Second Language Acquisition: Speaking** 3 s.h.
Theory, pedagogy, research, and assessment in second language speaking. Same as 009:236, 035:228.
- 164:222 Advanced Japanese Pedagogy** 3 s.h.
Same as 39J:203.
- 164:223 Topics in Second Language Acquisition: Listening** 3 s.h.
Theory, pedagogy, research, and assessment in second language listening. Same as 039:223.
- 164:224 Second Language Acquisition of Japanese** 3 s.h.
Same as 39J:258.
- 164:225 Grammar in Second Language Teaching and Learning** 3 s.h.
Same as 009:209.
- 164:226 Reading in the Non-Roman Scripts** 3 s.h.
Theory and practice of reading in languages that use non-Roman alphabets, syllabary, logographic systems; reading in first- and second-language contexts; instructional and literacy development issues. Prerequisite: 07E:171 or 07P:270 or 07S:184 or equivalent. Same as 07S:207.
- 164:227 Topics in Second Language Acquisition: Writing** 3 s.h.
Theory, pedagogy, research, and assessment in second language writing. Same as 010:275, 035:227.
- 164:228 Special Topics in Japanese Linguistics** 3 s.h.
Same as 39J:239.
- 164:229 Cultural Curriculum** 3 s.h.
Same as 07S:209.
- 164:230 Internship** arr.
Prerequisite: consent of instructor.
- 164:299 Special Topics in German Linguistics** 3 s.h.
Same as 013:299, 103:232.
- 164:300 Special Topics in Second Language Acquisition** arr.
Repeatable. Prerequisite: consent of instructor.
- 164:301 Readings in Second Language Acquisition** arr.
Repeatable. Prerequisite: consent of instructor.
- 164:302 Special Projects in Second Language Acquisition** arr.
Repeatable. Prerequisite: consent of instructor.
- 164:303 Ph.D. Thesis** arr.

Translational Biomedicine

Chair: Gary W. Hunnninghake (Internal Medicine)
Executive committee: John Engelhardt (Anatomy and Cell Biology/Internal Medicine), William Haynes (Internal Medicine), Val Sheffield (Pediatrics), James Torner (Epidemiology)

Affiliated faculty: Francois M. Abboud (Internal Medicine/Physiology and Biophysics), Nancy C. Andreasen (Psychiatry), Michael A. Apicella (Microbiology), Gale A. Bishop (Microbiology/Internal Medicine), Joseph A. Buckwalter (Orthopaedics and Rehabilitation), Garry R. Buettner (Free Radical and Radiation Biology), Trudy L. Burns (Biostatistics), Kevin P. Campbell (Physiology and Biophysics), Michael B. Cohen (Pathology), Beverley L. Davidson (Internal Medicine), Gerald F. Gebhart (Pharmacology), E. Peter Greenberg (Microbiology), Gregory S. Hageman (Ophthalmology and Visual Sciences), Donald D. Heistad (Internal Medicine/Pharmacology), Eric A. Hoffman (Radiology/Biomedical Engineering), Matthew A. Howard III (Neurosurgery), Ronald M. Lauer (Pediatrics), Steven R. Lentz (Internal Medicine), Andrew J. Lotery (Ophthalmology and Visual Sciences), Charles F. Lynch (Epidemiology), Allyn L. Mark (Internal Medicine), Paul B. McCray (Pediatrics), Geoffrey McLennan (Internal Medicine), Larry W. Oberley (Free Radical and Radiation Biology), M. Sue O'Dorisio (Pediatrics), Henry L. Paulson (Neurology), Stanley Perlman (Pediatrics/Microbiology), Timothy L. Ratliff (Urology), Andrew F. Russo (Physiology and Biophysics), D. Michael Shasby (Internal Medicine), Curt D. Sigmund (Internal Medicine/Physiology and Biophysics), Richard J.H. Smith (Otolaryngology), M. Bento Soares (Pediatrics/Biochemistry), Richard D. Sontheimer (Dermatology), Arthur A. Spector (Biochemistry/Internal Medicine), Jack T. Stapleton (Internal Medicine), John B. Stokes, III (Internal Medicine), Edwin M. Stone (Ophthalmology and Visual Sciences), William T. Talman (Neurology), James C. Torner (Epidemiology), Veronica Vieland (Biostatistics/Psychiatry), Robert B. Wallace (Epidemiology/Internal Medicine), George J. Weiner (Internal Medicine), Joel V. Weinstock (Internal Medicine), Jerrold P. Weiss (Internal Medicine), Michael J. Welsh (Internal Medicine/Physiology and Biophysics), Mary E. Wilson (Internal Medicine/Microbiology), Joseph Zabner (Internal Medicine)

Graduate degrees: M.S., Ph.D. in Translational Biomedicine

Web site: <http://www.medicine.uiowa.edu/gptbr/>

The Translational Biomedicine Program prepares skilled clinicians to pursue new knowledge about health and disease through patient-based research. The program's goal is to support the medical research enterprise in its efforts to advance the prevention, treatment, and cure of disease.

Students in the program are trained to conduct rigorous, original clinical investigations using basic biological and physiological principles. They receive didactic training and engage in substantial mentored research opportunities in the areas of disease mechanisms, or etiology; new clinical insights into diagnosis or natural history of disease; objective assessment and outcome of therapeutic intervention; medical informatics; and development of new approaches to therapeutics.

Master of Science

The Graduate College requires a minimum of 30 s.h. of graduate credit for a Master of Science. However, Translational Biomedicine Program course work and research requirements over a three-year span are equivalent to 60 s.h. Each student's plan of study is based on his or her chosen discipline. All students take background courses in epidemiology, study design, and statistics as well as advanced courses in basic sciences relevant to their individual research areas.

Students also must write a proposal for a K23 Mentored Patient-Oriented Research Career Development Award from the National Institutes of Health. For M.S. students, the K23 proposal replaces the thesis. A draft of the K23 proposal must pass an internal review by the end of the student's second year.

Students may choose to pursue research areas in any of the health sciences disciplines, and they enjoy considerable flexibility in scheduling course work and beginning research.

The following courses are required. All students must register for 050:224 and 050:225 each semester in the program.

050:224 Seminar in Translational Biomedicine	1 s.h.
050:225 Translational Biomedical Research	arr.

050:270 Responsible Conduct in Research	0 s.h.
060:204 Survival Skills for a Research Career	1 s.h.
171:161 Introduction to Biostatistics	3 s.h.
171:162 Design and Analysis of Biomedical Studies	3 s.h.
171:241 Applied Categorical Data Analysis	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.
173:160 Introduction to Epidemiology Data Analysis with Computers	2 s.h.
173:240 Epidemiology II: Advanced Methods	3 s.h.

SAMPLE SCHEDULE

First Semester

050:224 Seminar in Translational Biomedicine	1 s.h.
060:204 Survival Skills for a Research Career	1 s.h.
171:161 Introduction to Biostatistics	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.
173:160 Introduction to Epidemiology Data Analysis with Computers	2 s.h.

Second Semester

050:224 Seminar in Translational Biomedicine	1 s.h.
050:225 Translational Biomedical Research	arr.
050:270 Responsible Conduct in Research	0 s.h.
171:162 Design and Analysis of Biomedical Studies	3 s.h.
171:241 Applied Categorical Data Analysis	3 s.h.
173:240 Epidemiology II: Advanced Methods	3 s.h.

Third and Following Semesters

050:224 Seminar in Translational Biomedicine	1 s.h.
050:225 Translational Biomedical Research	arr.

Doctor of Philosophy

The Graduate College requires a minimum of 72 s.h. of graduate credit for a Doctor of Philosophy. For information about the Ph.D., contact the Translational Biomedicine Program.

Admission

The Translational Biomedicine Program welcomes students with diverse educational and

scientific backgrounds and varied research interests. Applicants to the program should have strong interest and background in a health science profession and knowledge of basic sciences and medicine. They should hold an advanced degree in one of the health sciences (e.g., M.D., D.O., D.D.S., D.V.M., M.S.N., Pharm.D., Ph.D.).

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Admission is based on applicants' undergraduate and graduate academic achievement, performance on the Graduate Record Examination (GRE) General Test, and letters of recommendation. Applicants whose first language is not English must take the Test of English as a Foreign Language (TOEFL).

The program helps applicants find suitable mentors. All prospective students, and their mentors, must guarantee that once accepted to the program, applicants will be able to devote essentially all of their time over a three-year period to training. For instance, a fellow in the Carver College of Medicine could spend no more than two months each year working on clinical assignments (e.g., two months of inpatient assignments and one-half day per week in a clinic).

Financial Support

Funding of tuition and salaries or stipends is available from a number of sources. Contact the Translational Biomedicine Program for information.

Facilities

Training is conducted mainly in the laboratories and teaching facilities of the Carver College of Medicine and the College of Public Health. The University of Iowa Clinical Research Center is available for research training. The program also is linked with the Carver College of Medicine's graduate training program in clinical research.

Associated Courses

050:224 Seminar in Translational Biomedicine	1 s.h.
050:225 Translational Biomedical Research	arr.

Transportation Studies

Director: David J. Forkenbrock

Affiliated faculty: Marc P. Armstrong (Geography), M. Asghar Bhatti (Civil and Environmental Engineering), Linda N. Boyle (Mechanical and Industrial Engineering), David J. Forkenbrock (Civil and Environmental Engineering), John W. Fuller (Urban and Regional Planning/Economics), Paul F. Hanley (Urban and Regional Planning), Hosin David Lee (Civil and Environmental Engineering), John D. Lee (Mechanical and Industrial Engineering), Wilfrid A. Nixon (Civil and Environmental Engineering), Gerard Rushton (Geography/Health Management and Policy), Thomas Schnell (Mechanical and Industrial Engineering), James W. Stoner (Civil and Environmental Engineering/Urban and Regional Planning)

Graduate nondegree program: Certificate in Transportation Studies

Web site: <http://ppc.uiowa.edu>

Transportation is vital to modern society. The United States, like other nations, faces many critical transportation problems and issues. The highway system is reaching an advanced stage of its life cycle, public transit operating deficits are growing, the quality of transportation available to many citizens is unacceptably low, serious inequities exist between transportation modes, and extensive changes are called for in traditional transportation institutions.

Transportation engineers and planners draw on a number of skills to respond to the challenges they face. They must analyze and forecast the movement of people and goods within and between cities; identify effective and efficient means for providing desired transportation services; price these services properly; and evaluate the impact that transportation changes have on land use, environmental quality, the local or regional economy, and various subgroups within society.

Certificate

No single academic discipline can supply all of the theories, principles, or methods needed to address the varied and complex problems in transportation. Recognizing this, the Department of Civil and Environmental Engineering and the Urban and Regional Planning Program participate in the interdisciplinary Transportation Studies Program, through which students in the participating units can earn the Certificate in Transportation along with their graduate degrees.

The Department of Mechanical and Industrial Engineering also participates in the transportation certificate program, offering courses in human factors and safety issues in transportation, and the Department of Geography offers courses in geographic information systems (GIS), location theory, and other related areas.

The Certificate in Transportation is coordinated by the Public Policy Center in conjunction with the Graduate College. Completion of the certificate requirements is noted on the student's transcript. The certificate is awarded in conjunction with the established degree requirements of the individual academic units.

Students who enroll in a course of study leading to the certificate also may wish to participate in faculty-led transportation research, which may explore topics such as system planning, traffic operations and engineering, spatial data systems and analysis, simulation applications, and policy issues.

Certificate with M.S. or Ph.D. in Civil and Environmental Engineering

The Department of Civil and Environmental Engineering offers transportation degrees at both the Master of Science and Doctor of Philosophy levels. The M.S. requires a minimum of 30 s.h. of graduate credit and may be earned either with or without thesis. Thesis students may count up to 6 s.h. of credit for thesis research toward the 30 s.h. required for the degree. Nonthesis students usually are required to complete a research paper based on independent study and to defend the paper in an oral examination.

Students who wish to complete the M.S. in a single academic year must complete 15 s.h. during both the fall and spring semesters.

The Ph.D. degree requires a minimum of 72 s.h. of graduate credit; up to 18 s.h. may be earned for dissertation research. A minimum of one year of campus residency is required. For detailed information on the residency requirement, see section XII.C of the Manual of Rules and Regulations of the Graduate College.

Individuals with degrees in other transportation-related disciplines are encouraged to apply to the Transportation Studies Program. Depending on a student's background, additional

course work in statistics, computer programming, simulation, mathematics, and operations research may be required for the certificate. Credit earned in these courses may not be applicable to the student's degree program.

The following courses are required.

Six courses in transportation:

053:162 Design of Transportation Systems	3 s.h.
053:163 Traffic Engineering	3 s.h.
053:165 Pavement Analysis and Design	3 s.h.
053:166 Infrastructure Management System	3 s.h.
053:262 Transportation Demand Analysis	3 s.h.
102:267 Transportation Policy Analysis	3 s.h.

One general core course:

053:115 Computer-Aided Engineering	3 s.h.
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A typical master's certificate program in civil and environmental engineering includes the following courses.

First Semester

053:115 Computer-Aided Engineering	3 s.h.
053:162 Design of Transportation Systems	3 s.h.
053:166 Infrastructure Management System	3 s.h.
102:269 Transportation Program Seminar	1 s.h.

Second Semester

053:163 Traffic Engineering	3 s.h.
053:165 Pavement Analysis and Design	3 s.h.
053:199 Research: Civil and Environmental Engineering, M.S. Thesis	arr.
053:262 Transportation Demand Analysis	3 s.h.
Technical elective	3 s.h.

Third Semester

053:199 Research: Civil and Environmental Engineering, M.S. Thesis	arr.
102:267 Transportation Policy Analysis	3 s.h.
Technical electives	6 s.h.

Technical electives are advanced courses in engineering operations research, information technology computer-aided design, urban and regional planning, business, or economics. Specific course requirements are sufficiently flexible to conform to a student's graduation schedule and area of specialization.

Technical electives include the following.

053:133 Finite Element I	3 s.h.
053:164 Winter Highway Maintenance	3 s.h.

Applications should be made through the Graduate College and the Department of Civil and Environmental Engineering.

Certificate with M.A. or M.S. in Urban and Regional Planning

The graduate Urban and Regional Planning Program offers Master of Arts and Master of Science degrees with a transportation concentration. Both degrees require 50 s.h. of graduate credit. During the first year, students complete an integrated core curriculum (20 s.h.) consisting of courses in planning economics and public finance, analytic methods, planning theory, and law. Beginning in the second semester, students take courses in an area of concentration (minimum of 9 s.h.), such as transportation, where core concepts are applied to a selected specialization. The planning curriculum is intended to provide students with the capability to examine policy in transportation, devise workable options, evaluate these optional courses of action, and work toward the implementation of policy solutions.

Electives complete the remaining credit. Students who select the thesis option may register for up to 6 s.h. of thesis credit and 8 s.h. of readings. Students may apply 3 s.h. of readings to the area of concentration requirement and substitute the thesis for the portfolio.

The transportation major in urban and regional planning typically includes the following courses.

First Semester

102:200 Analytic Methods in Planning I	3 s.h.
102:202 Land Use Planning: Law and Practice	4 s.h.
102:203 History and Theories of Planning	3 s.h.
102:205 Economics for Policy Analysis	3 s.h.
102:208 Program Seminar in Planning Practice	1 s.h.

Second Semester

102:201 Analytic Methods in Planning II	2 s.h.
102:260 Transportation Policy and Planning	2 s.h.
Planning elective	4-5 s.h.

Third Semester

102:209 Field Problems in Planning I	1 s.h.
102:265 Transportation Regulation and Finance	3 s.h.
102:267 Transportation Policy Analysis	3 s.h.
102:269 Transportation Program Seminar	1 s.h.

Fourth Semester

102:210 Field Problems in Planning II 3 s.h.
102:262 Transportation Demand Analysis 3 s.h.

Two of these:

102:263 Applied Simulation to
Transportation 3 s.h.
102:264 Transportation Planning Process 3 s.h.
Planning elective 3 s.h.

Students select optional transportation courses according to their individual interests. Electives typically include 102:295 Economic Development Policy (3 s.h.).

Applications should be made through the Graduate College and the Urban and Regional Planning Program.

Urban and Regional Planning

Chair: Alan H. Peters

Professors: Peter S. Fisher, John W. Fuller, Alan H. Peters, James A. Throgmorton

Associate professors: Heather I. MacDonald, James W. Stoner

Assistant professors: Jerry A. Anthony, Richard Funderburg, Paul F. Hanley, Lucie Laurian

Adjunct lecturers: Douglas Boothroy, Garth Frable, Rick Havel, Teresa McMahon, Dan Swartzendruber, David Swenson, John Yapp

Graduate degrees: M.A., M.S. in Urban and Regional Planning

Web site: <http://www.urban.uiowa.edu>

Urban and regional planning is a dynamic and exciting field encompassing the development and implementation of public policies that improve the quality of life in cities and regions. Today's planners find themselves in demand for such diverse jobs as transport planner, zoning administrator, environmental analyst with a natural resources agency, economic development planner, regional solid waste management coordinator, state public health planner, neighborhood planner, state legislative analyst, and transportation consultant.

The Urban and Regional Planning Program offers a Master of Arts and a Master of Science in urban and regional planning. It also offers several joint degree programs with other academic units: B.S.E./M.A. or M.S. with the College of Engineering; J.D./M.A. with the College of Law; M.H.A./M.A. and M.S./M.A. with the College of Public Health; and M.S.W./M.A. with the School of Social Work. Students also may pursue the Certificate in Transportation Studies in conjunction with an M.A. or M.S. in planning. Joint programs and the certificate are described later in this section.

The Master of Arts and Master of Science are two-year degree programs fully accredited by the Planning Accreditation Board. Each is built on the premise that planners must be educated in methods of policy analysis and that there is a common body of knowledge, represented in the core curriculum, that provides a solid foundation for all specializations in the field.

A wide range of educational backgrounds provide good preparation for graduate study in urban and regional planning. Students with undergraduate majors such as geography, economics, English, political science, engineering, architecture,

sociology, urban studies, and history currently study in the program. Usually up to 50 full-time and a few part-time students are enrolled. About half of them are women, and about 10 percent are international students.

The common core of courses and the design of the facilities allow students to get to know each other quickly. Students interact closely with faculty members in the classroom, in informal conversation, and while working on research projects.

Recent graduates of the program have taken positions with city, metropolitan, and regional planning agencies, state and federal government, nonprofit organizations, and private consulting firms. They work in all geographic regions of the United States and in several countries around the world.

Master of Arts, Master of Science

The Master of Arts and Master of Science require 50 s.h. of graduate credit, including 20 s.h. of core courses, 9 s.h. of courses in an area of concentration, and 21 s.h. of electives. Students may earn 2 s.h. for completion of an approved internship with a planning agency during summer or the academic year.

All students, including those in joint degree programs, must complete a minimum of 35 s.h. of planning courses (prefix 102). Up to 15 s.h. of course work from other departments can be counted toward the planning degree. Students must earn a grade of B- or higher in all core and concentration area courses and must maintain an overall graduate g.p.a. of at least 3.00.

The curriculum is based on the philosophy that planners must develop the theoretical and analytic skills that will permit them to analyze social problems and evaluate public policies. Planners also must cultivate professional skills such as report writing, oral presentation, computer use, and team management in order to work effectively in various organizational and political environments.

CORE CURRICULUM

The core curriculum helps students develop an understanding of the institutions—social,

economic, political, administrative, and legal systems—that provide the context for policy analysis and constrain public choices. It also promotes development of the ability to identify social goals and normative criteria for evaluating public policies, as well as the analytic skills to perform such investigations. In total, the core accounts for 20 s.h. (14 s.h. in the first fall semester, 2 s.h. in the spring semester, and 4 s.h. in the second year).

Courses in the first semester are drawn primarily from traditional disciplines, particularly economics and statistics, together with an introduction to theories and practice of planning and to land use planning. As students proceed through the curriculum, increasing emphasis is placed on the development of critical judgment and insight, achieved through the application of theory and methods to realistic planning problems and case studies.

Core curriculum courses and required semester hours are noted in the following typical class schedule.

Students may request a waiver of selected core courses on the basis of previous course work.

First Semester

102:200 Analytic Methods in Planning I	3 s.h.
102:202 Land Use Planning: Law and Practice	4 s.h.
102:203 History and Theories of Planning	3 s.h.
102:205 Economics for Policy Analysis	3 s.h.
102:208 Program Seminar in Planning Practice	1 s.h.

Second Semester

102:201 Analytic Methods in Planning II	2 s.h.
Electives and area of concentration courses	10 s.h.

Third Semester

102:209 Field Problems in Planning I	1 s.h.
Electives and area of concentration courses	9 s.h.
Internship	2 s.h.

Fourth Semester

102:210 Field Problems in Planning II	3 s.h.
Electives and area of concentration courses	9 s.h.

CONCENTRATION AREA

Beginning in the second semester of the program, students develop an area of concentration by applying the concepts and skills developed in the core to a specific field of planning. Currently,

there are four areas of concentration supported by faculty and course offerings in the planning program: transportation planning, housing and community development, economic development, and land use and environmental planning.

Students complete at least 9 s.h. of courses in their area of concentration. Courses offered by other University departments may supplement those offered by the planning program.

Students may combine two areas of concentration. Examples of combined areas are environmental and economic development planning, and transportation and community development planning. Students also may design other areas of concentration, subject to faculty approval. For example, students can specialize in health services planning with appropriate course work in the Department of Health Management and Policy or Occupational and Environmental Health, or in human services planning with courses in the School of Social Work.

PORTFOLIO

Students must complete a portfolio of papers that are approved by the final exam committee.

Options

THESIS

A thesis is not required, although students may petition to write one. Students may register for up to 6 s.h. of thesis credit. In addition, they may take up to 8 s.h. of readings to develop a thesis topic and prepare a literature review. Students may apply 3 s.h. of readings to the area of concentration requirement and substitute the thesis for the portfolio.

INTERNSHIP

Students are encouraged to complete an internship in a planning agency or related organization. To earn 2 s.h. of credit for the internship, students must submit a brief paper summarizing and evaluating their experience. Internships usually are paid staff positions and are completed during the summer between the first and second years or during the academic year.

PRACTICUM

An extended internship, consisting of at least five months of full-time employment in a planning-related organization, may qualify as a practicum. A practicum generally takes place during the summer and into the fall semester of the second year. It carries 5 s.h. of credit and

substitutes for the required field problems courses, 102:209 Field Problems in Planning I and 102:210 Field Problems in Planning II, and the internship.

INTERNATIONAL THEME

Many of the program's elective courses have an international component. Moreover, each year the program offers a seminar covering international planning issues and a course in comparative aspects of planning. It is possible to register for summer courses through Iowa State University's College of Design in Rome, Italy.

Joint B.S.E./M.A. in Planning

Students pursuing a B.S.E. in civil and environmental engineering may apply for admission to the joint program with urban and regional planning, beginning in their junior year. Graduates of the joint program with engineering have technical skills and an understanding of policy development and implementation, a combination of skills that prepares them for employment as public works directors, city engineers, transportation engineers, or in public utilities.

The B.S.E. requires 128 s.h. The joint program reduces the total semester hours required for both degrees from 178 to 152. Students earn 117 s.h. in engineering courses and 35 s.h. in graduate planning courses. In their junior year they begin taking required and elective planning courses that count toward the secondary area of focus requirement for the B.S.E.

Separate admission to each degree program is required. See Civil and Environmental Engineering (College of Engineering) in the Catalog.

Joint J.D./M.A. in Planning

The Juris Doctor/Master of Arts is the planning program's most popular joint degree. Its graduates typically seek employment as city managers, city attorneys, city planners, planning administrators, or positions as land use or environmental law specialists in legal firms or advocacy organizations.

The joint J.D./M.A. requires a minimum of 113 s.h. of graduate credit, including 78 s.h. for the J.D. and 35 s.h. for the M.A. It normally is completed in four years, but students who enter the accelerated law program may earn both degrees in three years, including two summers.

Completion of both programs separately requires a total of 140 s.h. and five years.

Separate admission to each degree program is required. See College of Law in the Catalog.

Joint M.H.A./M.A. in Planning

Students interested in community and health planning may pursue a joint master's degree offered by the Urban and Regional Planning Program and the Department of Health Management and Policy in the College of Public Health. This three-year program requires 76 s.h. of graduate credit and leads to an M.A. in planning and an M.H.A. (Master of Health Administration). Completing the joint program takes one year less than completion of the two programs separately. Separate admission to each degree program is required.

The health management and policy degree enables students to strengthen their credentials as health planners or expand their job options to include administrative positions in the health field as well as health planning jobs. Graduates of the joint program typically find employment in hospitals, state departments of health, and other private, nonprofit, or public health agencies. See Health Management and Policy (College of Public Health) in the Catalog.

Joint M.S. in Occupational and Environmental Health/M.A. in Planning

Students interested in environmental health may elect to pursue a joint master's degree offered by the Urban and Regional Planning Program and the College of Public Health. This option results in an M.A. in planning and an M.S. in occupational and environmental health. The joint program requires 65 s.h. of credit, including 35 s.h. earned in urban and regional planning and 30 s.h. earned in occupational and environmental health. The program can be completed in five semesters. Separate admission to each degree program is required.

Graduates of the program typically find employment in the public health field, with state health and human services departments, or as health or environmental planners. See Occupational and Environmental Health (College of Public Health) in the Catalog.

Joint M.S.W./M.A. in Planning

For those interested in a career in social service delivery or human services planning, a joint program is offered by urban and regional planning and the School of Social Work, leading to an M.A. in planning and an M.S.W. in social work. Up to 12 s.h. earned in one discipline can be applied to the other. It is possible to complete the program in three years, although some students may require an additional semester. Separate admission to each degree program is required.

Graduates of this joint program find careers as human services planners for local planning agencies, nonprofit social service agencies, and state governments. See Social Work (College of Liberal Arts and Sciences) in the Catalog.

M.A. or M.S. in Planning/Certificate in Transportation

Urban and regional planning students who satisfactorily complete a prescribed set of transportation courses can earn the Certificate in Transportation Studies. The certificate program includes courses in urban and regional planning, engineering, and economics. Completion of the certificate is noted on the student's transcript.

The Transportation Studies Program is administered through the University's Public Policy Center. See Transportation Studies (Graduate College) in the Catalog.

Admission

Admission to the Urban and Regional Planning Program is open to students from any undergraduate major or area of concentration.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Admission is based on Graduate Record Examination (GRE) General Test scores (verbal, quantitative, and analytical writing), letters of recommendation, previous academic performance, and a written statement of purpose. International applicants whose first language is not English are required to submit official TOEFL scores.

Applicants should submit the application form, GRE General Test scores, TOEFL score (for

international students), recommendation letters, statement of purpose, and transcripts. For fall admission, applications should be submitted to arrive early in the year (preferably by January 15), although applications are accepted until July 15 (April 15 for international students). Applications for spring admission should be received by October 1 and no later than December 1. Fall admission is strongly preferred. Students applying for financial aid should submit their materials by January 15.

Financial Support

Students in the Urban and Regional Planning Program receive financial support from the program primarily in the form of teaching or research assistantships and contract or grant-funded assistantships. Assistantships typically require 10 hours of work per week under the direction of a faculty member. A few full or partial tuition scholarships also are available.

Students initiate applications for financial support, and awards are made on the basis of merit, experience, and interests. Assistantships may be renewed for up to a total of four semesters. The planning program has been successful in providing support to the majority of its students.

Students applying for financial support are encouraged to submit application materials and requests for support by January 15. Students who apply after that date are considered only as remaining funds permit. Financial support usually is not available for students beginning the program in the spring semester.

Courses

102:055 The Splendor of Cities 3 s.h.
Evolution of city structure in response to social, cultural, political, and economic forces; cities through time and across continents; varied resource materials, including video, novels, texts. Same as 033:056.

102:101 Planning Livable Cities 3 s.h.
Development of livable cities in the United States; economic, physical, environmental, and political forces that shape their growth; impact of planning, how it shapes the future of cities. Same as 044:136.

102:112 The City: Narrative and Design 3 s.h.
History, culture, and built environment of a major city (e.g., Berlin, Germany); how storytelling and city building interact to create the city as it currently exists and as it might exist in the future; films, novels, physical plans, histories, social science texts. Same as 033:112.

102:125 Environmental Impact Analysis 4 s.h.
Fundamental concepts underlying measurement, assessment, and evaluation of environmental impacts; case studies in cost-benefit analysis, risk assessment, resource allocation, social impact

assessment, public participation, management information systems; field trips to environmental control facilities. Same as 044:125.

102:133 Introduction to Economics of Transportation 3 s.h.
 Overview of transportation markets—intercity, rural, urban; transportation modes—rail, highway, air, water, pipeline, transit; issues in finance, policy, planning, management, physical distribution, and environmental, economic, and safety regulation. Same as 06E:145, 044:133.

102:158 Storytelling and Urban Engagement 3 s.h.
 Storytelling's social role linked to the professional practice of urban planning; hands-on interaction with neighborhoods in Iowa City. Same as 008:158, 045:163.

102:200 Analytic Methods in Planning I 1-3 s.h.
 Methods used in planning and policy analysis; emphasis on application of statistical techniques and quantitative reasoning to planning problems; use of computers and data systems in planning analysis.

102:201 Analytic Methods in Planning II 2-3 s.h.
 Integration of methods with the planning process; application of multiple regression, population estimation and projection, survey methods, time series analysis, industrial growth and change; presentation of results to decision makers and the public.

102:202 Land Use Planning: Law and Practice 4 s.h.
 Legal, social foundations of land use planning; comprehensive planning, zoning and subdivision review; legal aspects of land use, environmental planning; ordinance drafting; staff report writing; citizen participation.

102:203 History and Theories of Planning 3 s.h.
 History of urban planning in America as a reflection of social and economic forces; alternative planning philosophies, roles, and ethical choices open to planners.

102:205 Economics for Policy Analysis 1-3 s.h.
 Principles of economics for planners; concepts and techniques of microeconomic analysis; income inequality; the role of government in the economy; tax and pricing policy; project evaluation; externalities.

102:208 Program Seminar in Planning Practice 1 s.h.
 Planning process, roles of planners, professional ethics and standards. Repeatable.

102:209 Field Problems in Planning I 1 s.h.
 Experience working on a two-semester project involving a current planning issue, usually for a client. Prerequisite: urban and regional planning graduate standing.

102:210 Field Problems in Planning II 3 s.h.
 Continuation of 102:209. Prerequisites: 102:209 and urban and regional planning graduate standing.

102:214 Land Use Policy and Planning 3 s.h.
 Environmental preservation, site development concepts, downtown revitalization, historic preservation, brownfields.

102:215 Applied GIS for Planners 2-3 s.h.
 Spatial matrices, routing, network flows, partitioning and clustering, facility location models; three-dimensional GIS analysis; statistical analysis in spatial context. Prerequisite: consent of instructor.

102:216 Conflict, Negotiation, and Planning 3 s.h.
 Conflict within communities, and planners' responses; networking, negotiating, mediating, coalition building, consensus building; case studies, role playing. Prerequisite: 102:203 or consent of instructor. Same as 160:216.

102:217 Spatial Analysis in Planning 2-3 s.h.
 Data bases, GIS, planning support systems; spatial model building and use of spatial statistics; applications to substantive problems in

transportation, environment, housing, economic development. Prerequisite: 102:215 or consent of instructor.

102:218 Applied GIS 1 s.h.
 Development, maintenance, and operation of an enterprise-wide Geographic Information System (GIS); implementation of a parcel-based data system model common to government entities; practical experience using data for land-use planning analysis. Prerequisite: consent of instructor.

102:219 Practicum 5 s.h.
 Full-time internship of at least five months with a planning-related organization. Prerequisite: urban and regional planning graduate standing.

102:220 Virtual Reality and Urban Development 2 s.h.
 Creation of terrain models from DEMs and CAD-based site plans, panoramas, incorporation of existing and proposed buildings into virtual reality models; use of VRML and presentation strategies, including digital movies. Pre- or corequisite: 102:215.

102:221 Poverty, Planning and Public Policy 3 s.h.
 Who and where the poor are in the United States; consequences of poverty; competing explanations of poverty; historical survey and critique of antipoverty policies at federal, state, and city levels; role of urban development policies. Prerequisites: 102:200, 102:203, and 102:205; or consent of instructor.

102:223 Financing Local Government 3 s.h.
 Financing of local government infrastructure through property taxes, bonding, impact fees, pricing, tax increment financing; institutional alternatives—downtown improvement districts, special districts, homeowners' associations; fiscal disparities and regional finance; case studies. Prerequisite: 102:205 or consent of instructor.

102:225 Social Equity Planning 2 s.h.

102:226 The Planning Process 3 s.h.
 The planning process; evaluation of plans and their quality, implementation, and outcomes; public participation mechanisms and issues; understanding of the planning process developed through study of actual planning projects and processes.

102:230 Land Use Administration 1 s.h.
 Process of administering zoning and other land use regulations at the local government level; personnel, management, enforcement issues.

102:233 The Land Development Process 2-3 s.h.
 How land is developed; analysis of site suitability, preparation of subdivision plan, site plan review, development approval process, infrastructure and site preparation, negotiating local development policies; field trips. Prerequisite: 102:202 or consent of instructor.

102:235 Growth Management 3 s.h.
 Causes and consequences of urban sprawl, shortfalls in conventional land use planning; local and state growth management policies, techniques of policy implementation, positive and negative impacts of such policies; Smart Growth; emerging challenges. Prerequisite: 102:202.

102:240 Environmental Processes and Institutions 1-3 s.h.
 Natural and engineered environmental processes and institutions within the United States; physical, chemical, and biological processes associated with pollution control systems for land, water, and air; environmental institutions—past and present structure, their efforts to reduce environmental pollution through political and legal means.

102:242 Urban Environmental Planning and Politics 3 s.h.
 Understanding and improving the practice of urban environmental planning; techniques and politics of planning drinking water supply, sewage treatment, natural areas conservation.

- 102:243 Healthy Cities and the Environment** 3 s.h.
Foundations of environmental planning for healthy cities and communities; how urban form, air and water quality, and natural hazards affect environmental planning and health.
- 102:244 Global Perspectives on Environmental Planning** 3 s.h.
Environmental issues such as sprawl, loss of open space, metropolitan traffic congestion, inefficient resource management, limited use of renewable energy, natural disaster mitigation and preparedness; solutions drawn from international planning practice.
- 102:245 Special Topics in Environmental Planning** 1 s.h.
Aspects of environmental planning and the most recent environmental management practices; perspectives from local, county, and state professionals; environmental planning field trips. Repeatable.
- 102:246 Environmental Policy** 3 s.h.
Environmental policy formation and politics; comparative international perspective on the United States' experience. Prerequisite: consent of instructor.
- 102:247 Environmental Management** 3 s.h.
Environmental best management practices for sustainable management of natural resources; open space and habitat protection, prairie and wetland restoration, water supplies management, natural hazard mitigation, farmland protection.
- 102:260 Transportation Policy and Planning** 2 s.h.
Institutional setting for transportation planning, evolution of domestic transportation policy, international influences, transportation modes and markets, current sources of transportation planning information, emerging policy issues.
- 102:262 Transportation Demand Analysis** 3 s.h.
City planning procedures and traffic engineering techniques applied to transportation problems; trip generation, distribution, assignment, mode choice models; travel surveys, data collection techniques; arterial flow, intersection performance, parking; transit system analysis. Same as 053:262.
- 102:263 Applied Simulation to Transportation** 3 s.h.
Same as 053:263.
- 102:264 Transportation Planning Process** 2-3 s.h.
Technical issues, political interface, citizen involvement, intermodal questions, public versus private roles; review and critique of transportation plans.
- 102:265 Transportation Regulation and Finance** 1-3 s.h.
Theories and methods of exerting public control over passenger and freight transportation; social and environmental regulation; effects of changing finance, regulation, and pricing policies, including privatization, tolls, impact fees. Same as 044:265.
- 102:266 Transportation and Land Use Planning** 3 s.h.
Policies and interactions between transportation and land use; location theories and practices; transportation infrastructure, land use, travel behavior modeling; current policies that influence travel behavior and urban form.
- 102:267 Transportation Policy Analysis** 2-3 s.h.
Applied methods for analyzing practical problems in transportation planning and policy; facility investment analysis, pricing of public services, social equity and redistributive effects, impacts of alternative financing approaches.
- 102:269 Transportation Program Seminar** 1 s.h.
Transportation finance, safety and economic regulation, planning processes, management, government policy issues at federal, state, and local levels. Repeatable.
- 102:271 Housing Policy** 3 s.h.
Recent housing policy initiatives at federal, state, and local levels.
- 102:273 Community Development** 1-3 s.h.
Community Development Corporation involvement in housing and neighborhood revitalization; infill housing development and preservation; comprehensive community development initiatives.
- 102:275 Development Policy and Planning in the Third World** 3 s.h.
Cross-cultural and interdisciplinary analysis of problems associated with urbanization and development in Third World countries. Same as 07B:275, 034:275, 042:275, 044:275, 113:275.
- 102:277 Affordable Housing Finance** 3 s.h.
Financing development or rehabilitation of affordable housing; low-income housing tax credits, the housing finance system and current regulatory issues, mortgage discrimination, improving financing for rental housing.
- 102:290 Economic Impact Assessment** 2-3 s.h.
Economic impact and growth analysis, including economic base, income expenditure, input-output analysis; use of economic impact analysis in a cost-benefit context; industrial location and mobility theory with statistics applications. Prerequisite: 102:205 or consent of instructor.
- 102:295 Economic Development Policy** 2-3 s.h.
Analysis of policies and programs at national, regional, state, and local levels that address problems of economic growth, development, decline. Prerequisite: consent of instructor.
- 102:297 Community Development Finance** 3 s.h.
Financial statements and small business finance; local revolving loan funds for small businesses; evaluation of loan proposals; community development agency financing of commercial redevelopment; case studies of community development lending. Prerequisite: 102:205 or consent of instructor.
- 102:300 Special Topics in Planning** 1-3 s.h.
- 102:301 International Seminar** 1 s.h.
- 102:305 Readings** arr.
- 102:315 Independent Study in Planning** 1-6 s.h.
Research and analysis of a special planning problem; opportunity for student to apply knowledge in area of specialization.
- 102:325 Thesis: Urban and Regional Planning** arr.
- 102:335 Internship** 2 s.h.
Work in a planning or related agency or nonprofit organization. Prerequisite: consent of instructor.

College of Law

Dean: Carolyn C. Jones

Associate deans: Eric G. Andersen, Arthur E. Bonfield, Linda A. McGuire, John C. Reitz

Executive librarian: Mary Ann Nelson

Professors: Eric G. Andersen, David C. Baldus (Joe B. Tye Professor), Patrick B. Bauer, Randall P. Bezanson (David H. Vernon Professor), Arthur E. Bonfield (Allan D. Vestal Professor), Willard L. Boyd (Rawlings-Miller Professor), Steven J. Burton (John F. Murray Professor), William G. Buss (O.K. Patton Professor), Patricia A. Cain (Aliber Family Professor), Jonathan C. Carlson, Enrique R. Carrasco, Marcella David, Ann Estin, Josephine Gittler (Wiley B. Rutledge Professor), N. William Hines Jr. (Joseph F. Rosenfield Professor), Herbert J. Hovenkamp (Ben and Dorothy Willie Professor), Mark Janis (H. Blair and Joan V. White Chair in Intellectual Property Law), Carolyn C. Jones (F. Wendell Miller Professor of Law), Shelly F. Kurtz (Percy Bordwell Professor), Marc Linder, Jean C. Love (Martha Ellen Tye Professor), Mark J. Osiel, Todd Pettys, Margaret Raymond, John C. Reitz (Edward L. Carmody Professor), Hillary A. Sale (F. Arnold Daum Chair in Corporate Finance and Law), Mark Sidel, Peggie R. Smith, Alexander Somek, John-Mark Stensvaag (Charlotte and Fred Hubbell Professor), James J. Tomkovicz (Edward A. Howrey Professor), Lea S. VanderVelde (Josephine R. Witte Professor), Larry D. Ward (Orville and Ermina Dykstra Professor), Burns Weston, Gerald B. Wetlaufer, Adrien Wing (Bessie Dutton Murray Professor)

Clinical professors: Patricia Acton, John S. Allen, Lois K. Cox, Reta Noble-Feld, Leonard Sandler, Barbara A. Schwartz, John Whiston

Associate professors: Christina Bohannon, Barry D. Matsumoto, Angela Onwuachi-Willig, Wendie Schneider, Ethan G. Stone, Tung Yin

Lecturers: Sean Berry, Thomas S. Collins, Alexander Dornin, Michelle Falkoff, Sarah Hanley, Mark D. Hansing, Randy J. Holland, Gary W. Howell, Andrew M. Ives, John A. Jarvey, Nicholas Johnson, Jane Kelly, Linda Kerber, Richard Koontz, Carrie LaSeur, Chris Liebeg, John C. MacQueen, Linda A. McGuire, Marc Mills, Paul Morf, Matthew J. Nagle, Linda Neuman, J.A. Patterson, Gay D. Pelzer, Mike Pitton, Ann M. Rhodes, Chris Rossi, Alex Ruskell, Mark E. Schantz, Caroline Sheerin, Karol Sparks, John L. Solow, Leon F. Spies, Serena Stier, George L. Stigler, Pamela Trimpe, C.J. Williams

Degrees: J.D., LL.M.

Web site: <http://www.law.uiowa.edu>

The University of Iowa College of Law, founded in 1865, is the oldest law school in continuous operation west of the Mississippi River. More than 650 students and a full-time faculty of around 50 are engaged at the college in a cooperative study of law, legal institutions, professional ethics, the role of law in public policy matters, and the intersection of law and other disciplines.

The college's student/faculty ratio of 12.5-to-1 is one of the best in American legal education. Seven members of the law faculty hold Ph.D. degrees in law-related disciplines.

Through traditional Socratic classes, research seminars, closely supervised writing exercises, ambitious professional skills training programs, and clinical experiences, the college seeks to produce public-spirited leaders who will be rigorous thinkers, trusted advisors, forceful advocates, creative policy makers, and innovative scholars.

The college conducts its programs in the Boyd Law Building, a 200,000-square-foot facility that opened in 1986. Its spacious library, three courtrooms, clinic suite, building-wide audiovisual system, and extensive computer technologies are recognized as outstanding features in an educational facility specially designed for modern legal training.

The college is home to one of the nation's premier law libraries. The Law Library has the largest collection of legal volumes and volume equivalents among all public law schools. Its staff numbers 30 library professionals and it provides comfortable seating for 700 patrons, with 440 private study carrels, each equipped with its own data port. The library boasts a fully computerized information retrieval system. WESTLAW and LEXIS are available at numerous terminals for training and research activities, and the online electronic card catalog provides instant information about all cataloged materials.

The college celebrates diversity. Its faculty includes six full-time professors from minority backgrounds, including African American, Asian

American, and Hispanic American. In 1967 the college undertook one of the nation's first and most aggressive affirmative action programs aimed at attracting a more racially and ethnically diverse student body. Its success in this continuing effort has resulted in a minority student population that routinely makes up 20-25 percent of the law college's current student body (the state of Iowa's minority population is around 5 percent).

The college offers a challenging curriculum that is carefully balanced between substantive courses, perspective offerings, examination of ethical values and professionalism, and skills-training programs, including a highly active in-house legal clinic. Iowa's writing program—one of the strongest among law schools nationwide—is an integral part of all students' academic experience. During both semesters of their first year, students take one small section class taught by a full-time professor who focuses individually on the development of each student's analytical, research, writing, and advocacy skills.

The college also requires four additional writing units at the upper level, a requirement that must be fulfilled with at least two credits of faculty-supervised written work. The remaining two may be satisfied through a range of options, including writing for one of the school's four law journals, participating in the clinical program, completing exercises in appellate advocacy, or enrolling in specific seminars or independent writing projects.

The Writing Resource Center supports and builds upon classroom writing instruction and assists students with a broad range of writing tasks (see "Resources"/"Writing Resource Center" later in this section). The center and the writing program as a whole exemplify the personalized attention and dedication to individual learning for which the college is renowned in legal circles.

The college is proud of its four student-run scholarly journals. The Iowa Law Review has served as a scholarly legal journal since 1915, analyzing developments in the law and recommending new paths for the law to follow. It frequently is ranked among the top 20 legal periodicals in the country, based on the frequency with which it is cited.

The Journal of Corporation Law is the nation's oldest and top-rated student-run legal periodical specializing in corporate law. It provides the legal and academic communities with high-quality articles on corporate issues and business law.

Transnational Law & Contemporary Problems, which began publication in 1991, addresses legal issues confronting the global community. It has earned an excellent reputation based on its symposiums on issues such as world food policy and global environmental regulation.

The Journal of Gender, Race & Justice hosts a symposium at the college each fall, attracting nationally renowned legal scholars and practitioners who discuss topics such as criminal justice, education, and critical race feminism. The journal publishes the papers presented at the symposium.

In keeping with its educational mission of encouraging the acquisition of broad social awareness and technical professional competence, the college offers a strong program in the rapidly expanding fields of international and comparative law. It does so for three reasons: in an era of global interdependence, an effective lawyer must understand international law and foreign legal systems; as professionals and community leaders, lawyers familiar with international and comparative law are crucial to the formulation of public policy at all levels of society; and the study of international and comparative law provides an essential theoretical foundation for all lawyers by affording unique insight into the nature of law and legal process.

All College of Law students benefit from international exposure through association with students in the college's Master of Laws program in international and comparative law. LL.M. students take most of their classes with J.D. students. In addition, each year non-U.S. law professors and other non-U.S.-trained jurists pursue research in the Law Library; they also may audit or speak in classes.

The journal Transnational Law & Contemporary Problems offers students a law review experience dedicated to international issues. The college also fields a team every year in the Philip C. Jessup International Moot Court Competition, and there are opportunities for students to get involved with two faculty-run centers, the University of Iowa Center for Human Rights and the University of Iowa Center for International Finance and Development, as well as student groups such as the International Law Society and the Iowa Coalition for Human Rights.

Over the years, the college has enjoyed great success in preparing women and men to be professional and civic leaders. In the 20th century, Iowa graduates served as U.S. senators and representatives, state governors, and presidents of the American Bar Association, of

major universities, and of the country's largest corporations. Iowa also has been a leader in preparing American law teachers. Currently two judges on the U.S. Court of Appeals for the Eighth Circuit are UI College of Law graduates, as are six of Iowa's U.S. district and magistrate judges, two of the Iowa Supreme Court's seven justices, and four of the nine judges on the Iowa Court of Appeals. Approximately 60 percent of the practicing lawyers in Iowa are UI College of Law graduates. The college is resolved to continue its traditional role of training future lawyers for positions of professional and community leadership in the 21st century.

Professional Programs

The College of Law offers the Juris Doctor (J.D.), and the Master of Laws (LL.M.) in international and comparative law. It also collaborates with a variety of University of Iowa graduate programs to offer joint J.D./graduate degree programs. See "Joint J.D./Graduate Degrees" later in this section.

Full-Time Policy

The faculty believes that students receive a better legal education when they devote substantially all of their time to educational pursuits. For this reason, students are expected to pursue their law training full time. This policy is consistent with the accreditation standards of the American Bar Association and the Association of American Law Schools.

In extraordinary circumstances, it may be possible for students to enroll for fewer than 10 s.h. per semester. Students who believe they may be unable to attend full time should contact the dean's office before registering for classes.

Entrance Dates

The college offers two starting dates to entering students: a class of around 30 students enters mid-May (at the beginning of the college's summer session) and approximately 180 students enroll in late August (at the beginning of the college's fall semester). All attend courses full time during fall and spring semesters and may attend the summer term at any point during their academic careers. Mid-May entrants can expect to graduate no earlier than 27 months after beginning law study.

The summer term consists of two periods of five-and-a-half week sessions, during which four

to five upperclass and three to four first-year courses usually are offered. Generally, students may attend either or both periods. Students who enter in May attend the entire 11-week session during their first summer.

Admission to the Iowa Bar

A rule adopted by the Iowa Supreme Court requires all law students who intend to apply for admission to the Iowa Bar to register that intention with the court by November 1 of the year they begin law school. Details are available from the College of Law registrar or the clerk of the Iowa Supreme Court.

Juris Doctor

The Juris Doctor requires 90 s.h., including required and elective courses. All entering students are expected to take all courses designated as first-year courses and may not register for different courses or fewer semester hours without permission of the associate dean. No student may be enrolled during any fall or spring semester for more than 18 s.h. applicable to the J.D., or for more than 13 s.h. during any two adjacent summer sessions.

To be eligible for the J.D., a student must:

- receive course credit for 90 s.h.;
- take and complete all required courses;
- satisfy the writing requirements;
- complete the course of study required for the degree in no fewer than 27 months after commencing law study at the College of Law or at a law school from which transfer credit has been accepted; and
- achieve a cumulative g.p.a. of at least 2.10 (65), a C average.

Receiving credit in a course is dependent upon successful completion of a final examination, or all assigned work, or both. In order to take the final examination, students must satisfy all requirements established by the instructor, including class attendance, written work, special readings, oral reports, and so forth.

First-Year Curriculum

Development of professional skills begins in the first year, with emphasis on careful reading, essential writing skills, legal research, and argumentation. Students concentrate on developing analytical skills (for example, reading and understanding judicial opinions), gain a sense

of the role of legal institutions in society, and focus on developing good writing and research skills.

A mandatory curve is applied to the grade distribution in all first-year courses.

First-year courses are as follows. Entering first-year students are expected to take all first-year courses and may not register for different courses or fewer hours without the associate dean's permission.

Fall Semester

091:102 Introduction to Law and Legal Reasoning	1 s.h.
091:120 Contracts and Sales Transactions	4 s.h.
091:130 Legal Analysis, Writing, and Research I	2 s.h.
091:132 Property	4 s.h.
091:364 Torts	4 s.h.

Spring Semester

091:104 Civil Procedure	4 s.h.
091:116 Constitutional Law I	3 s.h.
091:124 Criminal Law	3 s.h.
091:131 Legal Analysis, Writing, and Research II	2 s.h.
Legal bibliography	
One elective	3-4 s.h.

FIRST-YEAR PROGRAM

One of the distinctive benefits of law study at Iowa is the College of Law's focus on providing students with a foundation in basic skills that will support more advanced study and professional work. All first-year students take 091:130 Legal Analysis, Writing, and Research I (LAWR), a two-semester, 4 s.h. course designed to equip them with effective skills in oral and written communication, legal research, and analysis. LAWR is staffed by full-time faculty members with expertise in teaching legal research and writing. Class size is small, with around 20 students in each section of the course.

LAWR helps students develop legal analysis skills gradually. It teaches the value of critical reading, how to analyze facts and frame legal issues, how to determine which facts are legally significant, and how to extract legal rules from judicial opinions. As the year progresses, students learn how to generate arguments and counter arguments, and how to interpret facts in order to predict the likely outcome of a client's case. They also learn varied methods of legal analysis, including precedential analysis and analysis by analogy.

The first-year program emphasizes writing in small increments, with short assignments, frequent feedback, and revisions of written assignments. Because students will eventually practice in a range of legal settings, the program exposes them to varied forms of written documents, such as memoranda, trial briefs, client letters, motions, and appellate briefs, and provides instruction in appropriate formats for the varied documents (e.g., questions presented, argument headings).

The course uses peer review, requiring students to assess, discuss, and critique their peers' writing assignments. This cooperative process helps students gain insight into their own legal writing abilities and learn to appreciate different approaches to the same task. It also prepares them for the experience of collaborating as practicing lawyers.

Students begin to learn about research early in the first year, completing increasingly complex research tasks as the year progresses. LAWR reinforces research techniques covered in the classroom by integrating them into written assignments. It also teaches students the fundamentals of legal research by requiring hands-on library workshops.

Upperclass Curriculum

In the second and third years, students are exposed to a broad array of substantive areas of the law, with focus on fact gathering, interviewing, counseling, drafting, transaction planning, negotiation, and litigation. They also concentrate course work or writing and research opportunities in particular areas of interest.

Very few common requirements exist in the second and third years. All students must take 091:232 Constitutional Law II and a course in professional ethics.

Writing Requirement

All students must earn four upper-level writing units in order to graduate. At least two of the four units must be earned under direct faculty supervision, in courses, seminars, research projects, or legal clinical work. The remaining two may be earned through a combination of courses and activities that carry writing credit, including 091:402 Moot Court Board, advanced appellate advocacy activities, and journals, including the Iowa Law Review, The Journal of Corporation Law, The Journal of Gender, Race & Justice, and Transnational Law & Contemporary Problems.

Concentrated Study Opportunities

Students may pursue their interest in a particular subject area by selecting appropriate course work and independent research projects. For example, in the corporate business area, students may take several courses: 091:241 and 091:242 Corporations I and II (7 s.h.), 091:217 Corporate Finance (3 s.h.), 091:355 Securities Regulations (4 s.h.), 091:243 Taxation of Business Enterprise (3 s.h.), 091:239 Corporate Governance and Control (1 s.h.), and 091:253 Employment Discrimination (2-3 s.h.).

Independent Research

A student may sign up for 1-3 s.h. in 091:500 Independent Research Project after obtaining authorization from the faculty member who agrees to supervise the student's project. When independent research involves a paper, the work must include research and the submission of at least one draft to the faculty member for comments; a second draft generally is required, and the faculty member may require additional drafts. Students may earn additional credit for longer papers. Generally, each 1 s.h. of credit requires 20 pages of double-spaced text, excluding footnotes. Exceptions may be made for projects that involve substantial empirical work.

Students who wish to pursue independent research should contact one of the professors who have been designated to supervise a limited number of student writing and research projects during that semester; the designated professors are listed in the semester's registration materials.

Students may not register for more than 3 s.h. for a single research project. They also may apply no more than 6 s.h. of independent research toward the J.D., and they may take no more than 4 s.h. under the supervision of the same faculty member, unless the limit is waived by the dean or the dean's delegate.

Papers produced for independent research may be eligible for entry in competitions sponsored by varied groups. Cash prizes frequently are available. Competition announcements are posted on the bulletin boards outside the college's Writing Resource Center.

Supplementary Writing

In Supplementary Writing (091:502), a faculty member supervises one or more students in connection with a substantive course taught by the faculty member and for which the student has registered. The writing project builds on or proceeds from the materials covered in the

related course and entails work beyond the course's content. At the faculty member's discretion, students may take Supplementary Writing during the same semester as the substantive course or during the following semester. Supplementary Writing projects are graded separately from the related course. Registration materials typically include the names of faculty members offering the course, and for each faculty member, the name of the related substantive course, the number of writing units available, and reasonable details specified for structuring the writing.

Directed Research and Writing

In Directed Research and Writing (091:501), a faculty member supervises a student in a research and writing project unrelated to any substantive course. Each faculty member who plans to teach Directed Research and Writing lists the general subject area and/or specific topics he or she will supervise and may specify other details about how the writing supervision will be structured (e.g., topic selection, submission dates, required outlines, preliminary submissions). Students may register for the course without the faculty member's prior consent. Registration materials typically include the names of faculty members offering the course, and for each faculty member, the subject matter (a general category or detailed topics, at the faculty member's discretion), the number of writing units available, and reasonable details specified for structuring the writing.

Writing Tutorial

The Writing Tutorial (091:503) combines features of 091:504 Tutorial and 091:501 Directed Research and Writing. A faculty member lists the subject matter and/or specific topics he or she will supervise and provides the writing supervision in a group setting. The faculty member also specifies the subject and the general approach for group meetings and decides how the group members will interact in connection with the writing project (for instance, group members may work on separate parts of a single project, or on separate but related projects). Enrollment in Writing Tutorial is limited by the number of writing units the faculty member offers. Students earn the same number of semester hours and writing units for their work in a Writing Tutorial. Registration materials typically include the names of faculty members offering the course, and for each faculty member, the subject matter (a general category or more detailed topics, at the faculty member's discretion), the number of writing units available,

and reasonable details specified for structuring the writing and the tutorial's group process.

Seminars

Students should direct questions about a seminar's requirements to the College of Law registrar or the instructor before the seminar begins, because they may not be permitted to drop the class after it meets the first time.

Seminars usually offer up to 4 s.h., including up to 2 writing units. Seminar formats vary widely; consult the College of Law Guide to Courses and semester registration materials for details. Students are graded on the basis of a research paper, and at the instructor's discretion, for class participation and other seminar requirements.

A common seminar format consists of a class portion for 2 s.h. (usually in the fall), and a writing portion for 2 s.h. (usually in the spring). The total 4 s.h. must be allocated between the semesters as best accommodates the student's schedule. Reduction of credit for seminars requires the instructor's consent. In some seminars, the instructor may permit the student to enroll for the class portion but not the writing portion. The students' performance in the class portion is evaluated on the same basis as for other courses—by examinations, papers, class participation, or other methods at the faculty member's discretion. Students must obtain the instructor's consent before registering.

Papers produced for seminars may be eligible for entry in competitions sponsored by varied groups. Cash prizes frequently are available. Competition announcements are posted on the bulletin boards outside the college's Writing Resource Center.

Tutorial

A student may sign up for 1-3 s.h. for work in 091:504 Tutorial after obtaining authorization from the faculty member who agrees to supervise the student's project. Tutorials may involve different types of pedagogical techniques, such as discussion sessions, assignments of problems, or short papers. In all tutorials, the student and faculty member must meet for at least five hours for each 1 s.h. the student earns. No writing units are awarded for tutorials. To register, students must submit a form that confirms the arrangement with the faculty member; forms are available from the College of Law registrar.

Clinical Programs, Internships, Clerkships

Students who have completed the equivalent of three semesters toward their J.D. degrees (summer entrants may count the first full summer session as one semester) are eligible to apply their theoretical knowledge to real cases under the supervision of faculty members and other attorneys through participation in the College of Law's Clinical Law Programs.

Some 30 students participate each semester in the in-house programs. They may represent individual and organizational clients in a variety of areas including immigration, domestic violence, criminal defense, consumer/bankruptcy, disability, nonprofit organizations, civil rights, employment law, and general civil practice.

Other students may enroll in externships in Iowa City and the surrounding area, where they act as staff attorneys, assisting in all phases of the legal process. Typical placements include Student Legal Services, Iowa Legal Aid (Iowa City and Cedar Rapids), HELP Legal Services (Davenport), the City Attorney's Office (Iowa City), Kids First (Cedar Rapids), the federal public defender (Cedar Rapids), the United States Attorney's Offices (Cedar Rapids and Rock Island, Illinois), and several federal judges, including the U.S. Bankruptcy Court (Cedar Rapids). A clinical semester also is available, in which students spend an entire semester in the Iowa Attorney General's Office, the U.S. Attorney's Office, the Youth Law Center, or the federal court, all in Des Moines.

Students may earn a total of up to 15 s.h. in the Clinical Law Programs and up to 20 s.h. for clinic and nonlaw courses offered in other University of Iowa colleges.

The College of Law also is involved in programs that do not carry academic credit. Each summer it participates in the County Attorney Internship Program, through which students work as paid employees for county attorneys throughout the state and in the Poverty Law Internship Program, placing students in Iowa Legal Aid offices. The college also helps place students in a variety of unpaid clerkships and internships nationwide that provide insight into the workings of the legal system.

Joint J.D./Graduate Degrees

The college has developed joint degree programs with a number of University graduate programs through the Graduate College, under which

students pursue degrees simultaneously in both colleges.

Joint degree candidates may count up to 12 s.h. earned for the graduate degree toward the 90 s.h. required for the J.D., providing the courses are relevant to both degrees and the 12 s.h. are earned after admission to the combined degree program and after matriculation at the College of Law.

Separate admission to each program is required. Applicants to graduate programs must meet the admission requirements of the Graduate College; see Manual of Rules and Regulations of the Graduate College or Graduate College in the Catalog.

Graduate departments establish their own requirements for the joint degree program, including the number of semester hours taken for the J.D. that may be counted toward the graduate degree.

Joint graduate degree programs have been initiated with the Tippie College of Business, the Carver College of Medicine, and the College of Public Health; the Schools of Journalism and Mass Communication, Library and Information Science, and Social Work; the Departments of Accounting, American Studies, Anthropology, Chemistry, Computer Science, Educational Policy and Leadership Studies, English, History, Health Management and Policy, Management and Organizations, Philosophy, Political Science, Religious Studies, Sociology, Spanish and Portuguese, Urban and Regional Planning; and Counseling, Rehabilitation, and Student Development.

Many departments have advisors for the joint program. For more information, consult the associate dean of the College of Law and the individual graduate departments.

Master of Laws in International and Comparative Law

The Master of Laws (LL.M.) in international and comparative law is an important component of the College of Law's international approach to legal education. The program is designed for graduates of J.D. programs in the United States who wish to deepen their understanding of international and comparative law, including the law pertaining to international business transactions, and for jurists trained outside the United States who wish to receive advanced training in international and comparative law or a

comparative orientation to and specific training in U.S. law and legal institutions.

The LL.M. program is small. It generally admits around 15 students per year, allowing each student to receive substantial attention from the faculty. Each LL.M. student is encouraged to work with his or her faculty advisor to shape an individualized study program that makes best use of the college's resources. Admission is competitive.

The LL.M. requires a minimum of 24 s.h. earned in College of Law courses, which offer a strong focus on international and comparative law. With their advisor's approval, LL.M. students may count toward the degree up to 6 s.h. of law study abroad, or nonlaw graduate-level courses or externships.

LL.M. students take many courses in U.S., international, and comparative law with the college's J.D. students. This broad contact with U.S. law students and professors provides an effective comparative experience for non-U.S.-trained students, and U.S.-trained students benefit from close contact with non-U.S.-trained lawyers.

LL.M. applicants who are graduates of U.S. law schools must have been granted a J.D. from a school that is a member of the Association of American Law Schools or is approved by the American Bar Association. Non-U.S. law graduates must have completed the basic course of university studies that qualifies them to sit for the bar examination (e.g., the French *maitrise*, the German first state bar examination); if the bar exam does not require a specific degree, applicants should be experienced members of the bar or have completed at least the first university degree in law. Applicants without a degree from a four-year English-language university must score at least 580 (paper-based) or 237 (computer-based) on the Test of English as a Foreign Language (TOEFL); those with scores lower than a 600 (paper-based) or 250 (computer-based) may be required to take English course work upon entering The University of Iowa.

All applicants must present evidence of high academic potential, such as high class rank in their previous law studies; strong recommendations, especially from law professors who supervised their work in classes or seminars; and challenging professional work experience. The College of Law relies heavily on academic references to assess applicants' credentials. Because U.S. applicants and all others with first-language fluency in English are required to

produce a substantial publishable paper in the program, applicants must show evidence of ability to carry out complex research and writing projects.

Cocurricular Programs

As many as 6 of the 90 s.h. required for the J.D. may be earned through participation in the college's rich cocurricular program offerings.

Client Counseling

In the Client Counseling Program, students interview and counsel clients and witnesses. They gain experience in recognizing and resolving legal, nonlegal, and ethical issues arising in the context of those activities.

The intraschool client counseling competition is held in the fall to determine the two 2-person teams that will represent The University of Iowa College of Law in the regional client counseling competition, held in the spring.

Moot Court

The Moot Court appellate advocacy programs familiarize students with writing appellate briefs, acquaint them with citation form, develops research skills, and strengthens persuasive ability in oral argument at the appellate court level.

Each academic year, the Moot Court office administers 091:210 Appellate Advocacy I (required for graduation) in one semester, and three Moot Court competitions in the other semester. Students who rank in the top 96 scoring positions of Appellate Advocacy I (out of approximately 220 students) are eligible for the competitions according to their rank: the top 32 are eligible for 091:404 Van Oosterhout Moot Court Competition; the next 32 are eligible for 091:405 Baskerville Moot Court Competition; and the next 32 are eligible for 091:430 Jessup International Moot Court Competition.

The appellate advocacy program is administered by the Moot Court Board, which consists of 26 student judges and an executive board of 10 members.

Trial Advocacy

The Trial Advocacy Program (091:370 Trial Advocacy) is a student-run, faculty-supervised program in which students develop and refine skills used to prepare and try civil and criminal cases. The heart of the program is the two-semester-hour course in trial advocacy taught

by law school faculty, federal and state judges, and experienced trial attorneys. Students are on their feet during most class sessions, practicing the arts of jury selection, opening statement, direct and cross examination, introduction of exhibits, use of expert testimony, and closing argument. The course culminates with a full-scale trial—from the filing of pretrial motions to the rendering of a jury verdict—conducted by student co-counsel before a visiting judge and a jury of laypersons.

The Stephenson Competition is named after Judge Roy L. Stephenson, a U.S. District Court and Eighth Circuit Court of Appeals judge and a 1940 graduate of the College of Law. Students who demonstrate superior ability in advocacy skills during the trial advocacy courses participate in a series of mock trials judged by local members of the bench and bar. Individuals selected from the competition represent The University of Iowa in the national trial competition.

Journals

IOWA LAW REVIEW

Since its inception in 1915, the *Iowa Law Review* has served as a scholarly legal journal, noting and analyzing developments in the law and suggesting future paths for the law to follow. Students have managed the Review since 1935, editing and publishing articles by professors and students. The Review is published five times annually and is staffed by second-year student writers and third-year editors. To learn more about the *Iowa Law Review*, visit its web site (<http://law.uiowa.edu/journals/ilr>).

TRANSNATIONAL LAW & CONTEMPORARY PROBLEMS

Transnational Law & Contemporary Problems (TLCP) is produced three times a year by Iowa law students. TLCP's content includes matters that are of interest to the international and comparative law community and that are not commonly found in other journals and reviews. Past editions have featured symposiums with articles by distinguished legal scholars and practitioners; living history interviews with people of international accomplishment; and foreign legislative developments, treaties, conventions, and other international agreements. The journal also publishes articles written by Iowa law students and sponsors an internationally advertised student writing competition each year.

Law students who have completed at least two semesters may earn up to 2 s.h. of credit by

writing for TLCP. Highly qualified students who complete the writing and secondary hour requirements may be chosen to fill an editorial position, for which they earn additional credit. They also may be eligible for a monetary stipend. To learn more about *Transnational Law & Contemporary Problems*, visit its web site (<http://www.law.uiowa.edu/journals/tlcp>).

THE JOURNAL OF CORPORATION LAW

The Journal of Corporation Law is a student-operated periodical that publishes articles relevant to modern business enterprise. The journal's scope includes antitrust, intellectual property, labor law, securities, taxation, employment discrimination, insurance, products liability, and regulated industries, as well as traditional corporate topics. Selected articles submitted from practitioners and academics are published in each of four annual issues. Several student articles also are selected for publication.

All students who have completed two semesters of class work are eligible to write for the journal. Students who meet the writing and secondary hour requirements are eligible for selection to the journal's editorial board and may receive additional academic credit. They also may be eligible for a monetary stipend. To learn more about *The Journal of Corporation Law*, visit its web site (<http://www.law.uiowa.edu/journals-orgs/jcl.php>).

THE JOURNAL OF GENDER, RACE & JUSTICE

The Journal of Gender, Race & Justice pushes at the boundaries of traditional legal scholarship and theory in its focus on social justice issues. Each fall the journal hosts a live symposium, bringing nationally renowned legal scholars and practitioners to the college to discuss topics such as race, gender, economic class, ability, and identity. The journal publishes the papers presented at the symposium. Each issue also includes articles written by Iowa law students.

All students completing two semesters are eligible to write for the journal. Students who meet the writing and secondary hour requirements are eligible for a position on the editorial board. To learn more about *The Journal of Gender, Race & Justice*, visit its web site (<http://www.law.uiowa.edu/journals/grj>).

Study Abroad

A consortium of seven American law schools, coordinated through The University of Iowa College of Law, offers an annual study-abroad program in which students attend a spring

semester at Florida State University's London study center. There they study American and English law with faculty from the American schools and the University of London. Students participating in the program register for 660:824 London Law Consortium.

The College of Law also offers up to 8 s.h. of credit for intensive course work at Arcachon, France, in conjunction with the University of Bordeaux. Courses are offered for four weeks in May and June and are taught in English by professors from Iowa and Bordeaux. Application deadline is February 1. Students participating in the program register for 660:823 Program in Comparative Law in Bordeaux, France.

Two Iowa law students may attend the Bucerius Law School in Hamburg, Germany, each fall semester in an exchange program with that school. Students earn 12-15 s.h. of credit through course work taught in English.

The International Law Society and the College of Law Career Services Office provide information on other study-abroad programs.

Academic Achievement Program

The College of Law Academic Achievement Program (AAP) helps students achieve their potential as they go from successful undergraduate careers to the unique challenges of law study. Although AAP focuses on helping first-year students, its programs are open to all.

AAP presents a variety of programs, including a fall-semester lecture series for new students. Examples of content areas include time management for law study, developing effective study groups, outlining and organizing class notes and course materials, taking essay exams, and answering multiple choice tests. Several weeks before exams, a pre-exam series focuses on exam readiness. AAP group programs for the summer entering class are geared especially to the needs of summer term students.

Spring semester programming responds to special challenges of the second semester, including reviewing and learning from fall exams, taking on complex writing projects, exam preparation, and other matters.

In addition to offering group programs, AAP provides individual help with study skills. When personal issues affect a student's concentration or studying, the program provides direct help and refers students to University and community support resources.

Academic Honors

Order of the Coif

The Order of the Coif, a national legal honor society, has a chapter at The University of Iowa. The order is dedicated to scholarship and advancement of high ethical standards in the legal profession. Membership is drawn from the top 10 percent of the senior class. Initiates are selected by the faculty after graduation.

Prizes and Awards

Hancher-Finkbine Medallions are awarded each year by the University to outstanding graduates; honorees are chosen from nominations made by University departments and colleges based on learning, leadership, and loyalty.

The **Philip G. Hubbard Human Rights Award** is presented each year by the University to recognize outstanding contributions to human rights and equal opportunity, as described in the University's Human Rights Policy.

The **Sandy Boyd Prize** is presented to the student who has demonstrated outstanding ability and creativity in the development of written legal scholarship.

The **Alan I. Widiss Faculty Scholar Award** is presented to the student who has made an especially outstanding and distinctive contribution to the development of written legal scholarship.

The **Randy J. Holland Award for Corporate Scholarships** is presented to the student who has written an outstanding scholarly paper in the area of corporate law.

The **Robert S. Hunt Legal History Award** is presented to a student who has written an outstanding scholarly paper in the field of legal history.

The **Donald P. Lay Faculty Recognition Award** is presented to the student who has made distinctive contributions to the College of Law's cocurricular, community, or education programs.

The **Iowa State Bar Association Prize** is presented to the student who possesses the attitude, ability, and other qualities that indicate success as a future leader of the bar association.

The **Antonia "D.J." Miller Award for Advancement of Human Rights** recognizes outstanding contributions by a student to the advancement of human rights in the law school community.

The **Dean's Achievement Award** is presented each year to a student, who, through his or her achievements, has exemplified, promoted, or contributed to cultural, racial, or ethnic diversity in the law school.

The **National Association of Women Lawyers Award** is presented to a law student who contributes to the advancement of women in society and women in the legal profession and who also has attained high academic achievement.

The **Erich D. Mathias Award for International Social Justice** is presented to a student who has made an outstanding contribution or demonstrated commitment to attaining international social justice.

The **John F. Murray Award** recognizes the student with the highest academic standing in the graduating class.

The **ALI-ABA Scholarship and Leadership Award** is presented to a student who represents an outstanding combination of scholarship and leadership, the qualities embodied by the American Law Institute and the American Bar Association.

Awards for Outstanding Scholastic Achievement (West Group) are presented to students who have shown outstanding performance in both the academic and cocurricular programs of the College of Law.

The **Russell Goldman Award** recognizes the student who has demonstrated the most improved academic performance after the first year.

The **Iowa College of Law Appellate Advocacy Award** is presented to a student for outstanding achievement in and service to the appellate advocacy program.

The **Iowa Academy of Trial Lawyers Award** is presented to a student for outstanding achievement in the Roy L. Stephenson Trial Advocacy Competition.

The **International Academy of Trial Lawyers Award** is presented to a student who has demonstrated distinction in trial advocacy skills.

The **Michelle R. Bennett Client Representation Award** recognizes outstanding service in the college's clinical law programs.

The **ABA/BNA Award for Excellence in the Study of Intellectual Property** is presented to a student who has demonstrated excellence in the study of intellectual property law.

The **American Bankruptcy Institute Medal for Excellence in Bankruptcy Studies** is presented to a student who has demonstrated excellence in the field of bankruptcy.

The **Joan Hueffner and Stephen Steinbrink Real Estate Law and Property Award** is presented to a student who has demonstrated excellence and promise in the field of real estate law.

The **Dillon Prize** is presented to a student who has written an outstanding essay on legal history or on the intersection of law and another discipline.

Admission

Undergraduate Education and Law School

Applicants for admission to The University of Iowa College of Law must complete all requirements for the baccalaureate degree before beginning law school.

Fulfillment of the basic requirements does not guarantee admission. The College of Law Admissions Committee selects applicants it deems best able to help the college fulfill its primary mission of providing a high quality legal education in a diverse and stimulating environment and preparing students to serve as leaders in their professional and civic communities. Preference is given to applicants who are residents of Iowa (approximately 55 percent of each entering class is drawn from Iowa residents).

The services that College of Law graduates are called upon to perform are so varied, and the possible fields of endeavor so broad and diverse, that the college prescribes no uniform undergraduate program for those planning to enter law school. With the assistance of faculty advisors, each student should develop an undergraduate program that explores and develops that student's particular intellectual interests.

Iowa strongly endorses the three basic objectives recommended by a committee of the Association of American Law Schools: education for comprehension and expression in words; education for a critical understanding of the human institutions and values with which the law deals; and education for greater power in thinking. Anyone thinking of attending law school should keep these objectives in mind while planning an undergraduate course of study.

The association's recommendations emphasize that undergraduate education of students for a full life through liberal education is far more important than education directed too pointedly toward later professional training and practice. Students are urged not to sacrifice broad perspective for detailed specialization.

Selection of Applicants

The college uses multiple criteria in evaluating applicants for admission. Part of the entering class is admitted under a "presumptive admit" process, in which the faculty admissions committee admits students primarily on the strength of their numbers, namely the cumulative undergraduate grade-point average and LSAT score. Before admission offers are made, each applicant's complete file is reviewed to ensure that the overall record suggests the applicant's suitability for admission, in keeping with the primary mission of the law school.

Although undergraduate academic record and performance on the LSAT are both important admission criteria, the college recognizes that in some circumstances they do not accurately reflect an applicant's potential to succeed in the study of law, develop skills as a leader, enrich the learning environment of his or her fellow students, and serve the public interest as a lawyer.

To evaluate applicants' total suitability for admission, the college has developed a "numbers-plus" admissions policy, under which part of each entering class is admitted. Under the "numbers-plus" policy, undergraduate record and LSAT scores are supplemented by nonquantifiable factors that may provide insight to an applicant's overall potential for success in the study and practice of law.

For example, an applicant who can substantiate that his or her standardized test scores are not predictive of academic performance in law school may receive proportionately greater consideration from the committee for his or her grade-point average. Other factors the committee may consider include special academic or professional abilities not reflected in the grade-point average, disability or serious health factors that affected prior academic performance, extracurricular activities, exceptional school-year work commitments due to family financial circumstances, postbaccalaureate academic success (including graduate study), law-related employment experience, public service commitment, leadership in groups historically underrepresented in the legal profession,

educational or socioeconomic disadvantage, native language other than English, unusual motivation or perseverance in overcoming obstacles to law study, and any other information the committee considers relevant to the applicant's potential for law study.

Candidates who wish to bring such factors to the committee's attention may do so in their personal statement, through letters of recommendation, or by other documentation included with their application.

Entrance Dates

Applicants may apply for either May or August admission, or both (with a preference indicated on the application). Admission to the May entering class does not guarantee admission to the August entering class, and vice versa. Students who enter in May have the opportunity to graduate in less than three years.

Applications for both entrance dates are accepted beginning September 1 of the year prior to admission, with an application deadline of March 1 in the year of admission. Because the college has a rolling admissions process, applicants are encouraged to submit their applications as soon as possible.

Each application must include an application fee, which is nonrefundable. Students from disadvantaged backgrounds who cannot afford the fee should apply for a waiver.

For additional information, contact the College of Law Office of Admissions and Financial Aid, c/o College of Law, The University of Iowa, Iowa City, IA 52242-1113. Applications are available online at <http://www.law.uiowa.edu/admissions>.

Application Process

LSDAS Report and Transcripts

The University of Iowa College of Law participates in the Law School Data Assembly Service (LSDAS). Applicants must register for this service through the Law School Admission Council (LSAC); foreign-educated applicants are exempt from this requirement. Prospective law applicants find the information they need to complete their application for admission to the law school in the council's free, annual publication, *Law Services Registration and Information Book*, and on LSAC's web site (<http://www.lsac.org>). It takes approximately

three weeks from the time the College of Law requests the LSDAS report until it arrives.

Applicants whose fall course work does not appear on the LSDAS report should send an official transcript of that course work to the University's Office of Admissions. Applicants who are already University of Iowa students or are not registered for fall classes are exempt.

Applicants are responsible for submitting an official transcript from each college or university they have attended to Law School Admission Council, Box 2000, Newtown, PA 18940-0998.

Each applicant's undergraduate institution must forward the applicant's class rank or the grade distribution for the applicant's class to the College of Law, if such information is available. Information about class rank is helpful in the application process, but not required. Currently enrolled or former University of Iowa students need not provide this information.

Before classes begin, every applicant who accepts admission to the College of Law must file official transcripts showing conferral of degree with the University's Office of Admissions.

Letters of Recommendation

The college requires applicants to submit at least one letter of recommendation. Recommendations from professors or others who can comment on the candidate's critical thinking, writing skills, and potential for success in law school are particularly welcome.

The college participates in the Letter of Recommendation Service offered by the Law School Admission Council. A letter of recommendation form can be downloaded at <http://www.lsac.org>. Recommenders should send letters of recommendation with the required forms, to Law School Admission Council, P.O. Box 8508, Newtown, PA 18940-8508.

Law School Admission Test

Applicants for admission must take the Law School Admission Test (LSAT). The test is given several times each year and may be taken at numerous locations in the United States and abroad. Test application forms may be obtained from the Law School Admission Council.

Applicants are urged to take the test no later than the fall preceding the fall semester or summer session for which they are applying. Applicants' LSAT scores may not be available until approximately four weeks after their test date.

The February test date is the last one that the admissions committee can consider for applicants requesting admission the following summer or fall. Scores more than five years old are not accepted.

Applicants whose first language is not English also must take the Test of English as a Foreign Language (TOEFL).

Deferrals

Admission is for the year of application; deferrals are granted only in extraordinary circumstances.

Deposit upon Acceptance

All applicants must make a nonrefundable deposit of \$250 (U.S.). Summer entrants accepted before February 15 must submit the deposit by March 1; those accepted after February 15 have two weeks to submit the deposit. Fall entrants accepted before March 15 must submit the deposit by April 1; those accepted after March 15 have two weeks to submit the deposit.

Fall entrants must pay a second nonrefundable deposit of \$150 (U.S.) by June 1.

For those who enroll, the deposit is credited toward tuition and fees. All accepted applicants, including scholarship, fellowship, and loan recipients, are required to pay the deposit. Applicants who fail to make the deposit by the specified time forfeit their place in the entering class.

Financial Support

The College of Law administers its substantial financial aid program to advance the goals of its selective admission policy. Grants, scholarships, work-study funds, and loans are awarded on the basis of need or merit to provide access to legal education for the talented and diverse students admitted to the college. A number of part-time employment opportunities also are available to upper-level students.

Inquiries regarding financial aid should be directed either to the University's Office of Student Financial Aid or to the College of Law Office of Admissions and Financial Aid.

All financial aid information is subject to change without notice.

Application for Financial Aid

Eligibility for financial aid is based on need established by completion of the Free Application

for Federal Student Aid (FAFSA) and the required supporting documents. The FAFSA should be completed online at www.fafsa.ed.gov after January 1 each year and should be completed as soon as possible thereafter, since some financial aid is subject to the availability of funds.

Although financial aid awards are not made until after applicants are admitted to the College of Law, applicants should not wait for the notice of admission before filing the FAFSA. Admitted students who provide the required documents are informed of their eligibility for financial aid on the award notification letter. Students must reapply for aid every year.

Applicants are urged to investigate other sources of aid. Public libraries, private and civic organizations, and the Internet are excellent sources for information about financial aid resources.

Scholarships, Fellowships

Merit-Based Support

All students admitted to the College of Law are considered for merit-based scholarships and fellowships based on their academic achievement. A separate application is not required. Recipients are notified by letter. Potential aid renewal for the second and third year for some scholarships and fellowships requires continuing class rank in the top 25 percent. Awards may range from \$500 to full resident tuition with a research assistantship component in upper-level years.

Need-Based Scholarships

All admitted students who file a Free Application for Federal Student Aid (FAFSA) and required supporting documents are considered automatically for need-based scholarships. Recipients are notified by award letter. Awards may range from \$500 to full resident tuition.

Iowa Law School Foundation Scholarships

The University of Iowa Law School Foundation Scholarships include scholarships based on need, merit, or a combination of need and merit. These scholarships are available to a limited number of students who meet the criteria established by the scholarship donors. All admitted students are considered for the merit-based scholarships, and all admitted students who file the FAFSA and required supporting documents are considered

automatically for the need-based scholarships. A separate application is not required. Recipients are notified by award letter. Awards may range from \$200 to full resident tuition.

Law Opportunity Fellowship

The College of Law is committed to affording opportunity for a legal career to persons historically underrepresented in the legal profession. The Law Opportunity Fellowship Program was established by the University to provide access to law school for students from groups and backgrounds historically underrepresented within the academic community. Among criteria considered in awarding the fellowships are educationally and/or socioeconomically disadvantaged backgrounds, existing educational debt load, leadership potential, academic merit, and importance of the fellowship award to the student's financial ability to attend law school.

The Law Opportunity Fellowship may provide up to full resident tuition for three years and the opportunity to hold a research assistant position for the second and third years. All admitted students who file the FAFSA and required supporting documents are considered for the Law Opportunity Fellowship. A separate application is not required. Recipients are notified by award letter.

Employment

The College of Law discourages student employment during the first year of law school, due to the intensive course schedule. In no event may a full-time student work more than 20 hours per week.

Research Assistant Positions

Research assistant positions are available with many faculty members for second- and third-year students. Students classified as nonresidents who hold quarter-time research assistantships (10 hours per week) automatically qualify for resident tuition status during the semester(s) in which they serve as research assistants.

UI Part-Time Employment

The University offers a variety of part-time employment positions for students. Students do not need to apply for financial aid in order to work in these positions. Information about part-time employment is available from the University's Office of Student Financial Aid.

College Work-Study

Federal College Work-Study is a need-based employment opportunity for a limited number of students in their second and/or third year at the law college. College Work-Study may reduce the student's William D. Ford Federal Direct Loan eligibility. Students must demonstrate financial eligibility for work-study through the FAFSA and its required documents.

Community Employment

A limited number of jobs are available throughout the local legal community, and there are many opportunities for nonlegal employment in the area. Students should contact employers directly.

Loans

All admitted students who file the FAFSA and required supporting documents are considered for the University of Iowa Law Foundation Loan, the Federal Perkins Loan, and the William D. Ford Federal Direct Loans.

Iowa Law School Foundation Loan, Federal Perkins Loan

These are low-interest loans based on exceptional financial need. Interest does not accrue and payments are not required until the student is no longer enrolled at least half-time in school.

Federal Direct Ford Loans

The William D. Ford Federal Direct Subsidized Loan is a low-interest loan based on financial need. Interest does not accrue and payments are not required until the student is no longer enrolled at least half-time in school. Interest on the Federal Direct Unsubsidized Ford Loan accrues while the student is in school; however, both principal and interest payments may be deferred while the student is in school.

The interest rate for the Federal Direct Subsidized Ford Loan is variable. Adjusted annually, it is not to exceed an annual percentage rate of 8.25 percent.

Law Access, Iowa Partnership, and Law Achiever Loans

The Law Access Loan, the Iowa Partnership Law Loan, and the Law Achiever Loan are private loan programs for students whose cost of attending law school has not been met through

other sources of financial aid. A separate application is required, and a credit check is a required part of the process to determine eligibility.

Academic Policies

Transfer Credit

No more than 30 s.h. may be transferred to Iowa from another law school. To qualify for transfer credit, courses must have been completed at a law school accredited by the American Bar Association. Grades received at another law school are not counted in calculating the cumulative grade-point average.

Courses Taken Before Admission to the College of Law

Students may not count toward the J.D. credit earned in courses they took before matriculation at the College of Law, with the exception of transfer students from other law schools.

Courses Taken Outside the College of Law

Students who take courses outside the College of Law must first obtain permission from the associate dean. If “special permission of the instructor required” is indicated on ISIS (Iowa Student Information Services web site), the student also must obtain the instructor’s signature.

Students not enrolled in a joint degree program may apply toward the J.D. a maximum of 6 s.h. earned in courses outside the College of Law. Such courses are approved only if they contribute directly to the professional competence of an attorney or broaden the student’s understanding of law, the legal process, or any particular legal subject. More information about limitations on accreditation of non-College of Law courses is available from the associate dean.

Courses Taken at Another Law School After Enrollment at Iowa

With the permission of the dean, enrolled students may receive credit for courses taken and passed at other law schools accredited by the American Bar Association, up to a maximum of 30 s.h. Grades of C and higher are reflected on the student’s transcript as credit for the designated semester hours. Grades of D are reflected as 1.80-2.00 (63) on the Iowa transcript.

Externships

Students may be able to arrange externships for academic credit with certain nonprofit organizations and government agencies. Most externships are established for the summer, for a maximum of 6 s.h. of credit. Externships also may be arranged for the fall or spring semester. All students who participate in externships must write a research paper. Externship credit counts toward the maximum allowable clinic credit.

Students have arranged recent externships with the U.S. Department of Justice, the Small Business Administration, U.S. district court judges, bankruptcy judges, and the American Civil Liberties Union, among others.

Grading Policy

The College of Law has adopted a new numbering system for grading, effective for students who entered the college in May 2004 and later. In the following text, the new number is listed first; the pre-May 2004 number follows in parentheses.

A numerical grade is assigned to each student in each course, except as otherwise provided (e.g., for courses graded pass/fail, for courses that continue the following term, for grades of incomplete). Grades are recorded in the University’s permanent record.

The highest grade awarded at the College of Law is 4.30 (92), the lowest 1.50 (55). No academic credit is given for grades below 1.80 (60) or for grades of “fail.”

Numerical grades may be translated into a letter grade as follows.

4.30-4.20 (92-91) = A+
 4.10-3.90 (90-88) = A
 3.80-3.60 (87-85) = A-
 3.50-3.30 (84-80) = B+
 3.20-3.00 (79-75) = B
 2.90-2.70 (74-70) = B-
 2.60-2.40 (69-67) = C
 2.30-2.10 (66-65) = C-
 2.00-1.80 (64-60) = D
 1.70-1.50 (59-55) = F

Professors may disenroll students for cause or reduce grades for inappropriate academic conduct, for example, plagiarism. Such measures are subject to appropriate due process.

With the dean’s permission, a student may retake a course in which he or she has received a failing grade. The second grade is recorded either as pass—a grade of 2.10 (65) or higher—or fail and is not used in computing the student’s

cumulative grade-point average. Rather, the first grade received for the course remains on the transcript and is used in computing the grade-point average.

If the course being retaken is sectioned, the dean designates the section to which the student will be assigned.

The faculty does not apply a mandatory grade curve beyond the first year, but grades in second- and third-year courses are expected to approximate the curve used in large-section first-year courses.

Pass/Fail Grades

Credit for certain courses is offered only on a pass/fail basis. In the case of a failing academic performance in a pass/fail course, the faculty supervisor or instructor may assign a failing numerical grade, i.e., between 1.70 (59) and 1.50 (55). Individual faculty members may allow students to withdraw from a course rather than receive a failing grade.

Miscellaneous Grading Marks

Marks other than pass, fail, and numerical grades are as follows.

R means registered. It indicates that a student has completed the first half of a year-long program, such as a seminar or journal, for which a grade cannot be assigned until the second half of the program has been completed.

W means withdrawn. It carries no course or residency credit and is not used in computing the cumulative grade-point average.

I means incomplete. It carries no course credit toward a degree until it is changed, nor is it used in computing the cumulative grade-point average. A mark of I may be reported only in exceptional cases and only if the unfinished part of the work is small and is unfinished for reasons acceptable to the instructor, and if the student's standing in the course is satisfactory. Students remove an incomplete by completing the unfinished work during their next period of residence.

Class Ranking

Students in the top 10 percent in each class may be informed of their exact rank; grade-point averages at the 87.5 percentile and 62.5 percentile are posted.

Students are ranked following the fall semester, spring semester, and summer session each year. Final class standing is determined each August

and is available in September. It includes students who completed all graduation requirements in August, May, and the previous December. For purposes of ranking underclass students, the same system is used, based on the expected graduation date.

Release of Transcripts

A student's grades are not given to persons outside the College of Law, including prospective employers, without written permission of the student.

Class Attendance and Preparation

Students must be regular and punctual in attending classes and must be prepared to participate in class discussions. Students may be dropped from a course or failed, at the discretion of the instructor, for excessive absence or repeated lack of preparation. Students also are expected to attend special class meetings and be punctual in submitting course assignments, memos, and papers.

Examination Policy

One examination is given in each course, with few exceptions. Before taking an exam, each student is assigned an identification number for that exam. Instructors report final exam grades by each student's number to the dean's office, where the grades are kept on file for two years. After the grades are recorded, the dean's office gives the names corresponding to the students' numbers to the instructor, who then assigns final grades for the course. This permits the instructor to award credit for class participation and ensures anonymity in exam grading. Students and the Office of the Registrar receive only the final grades.

Students are offered the option of taking some exams on their personal laptops. Each course's instructor determines whether this option is available for his or her specific course.

Students who have more than one examination scheduled for the same day, two exams within 24 hours, or exams four days in a row may schedule a make-up time for one of the exams. Students who have exams three days in a row may reschedule one only with permission of the instructor.

Students usually reschedule exams on the Saturday morning immediately following the regularly scheduled exam. Whenever possible, the dean sets aside one to three days as an

upperclass study period between the end of regular classes and the first regularly scheduled upperclass exam.

Extra Exam Time for Students Whose Native Language Is Not English

Students who are at a substantial disadvantage in taking a timed exam because their native language is not English may receive additional time to complete the exam, commensurate with the extent of their disadvantage.

Students seeking additional time must make a written request in the dean's office by the deadline announced for the semester in which the exam is to be taken. An undergraduate degree from an English-speaking college or university is considered prima facie evidence that the student is not qualified for extra time.

Accommodations for Students with Disabilities

A physical or mental disability may put a law student at a substantial disadvantage in taking an examination. For purposes of the college's policy on exam accommodations for students with disabilities, a student with a disability is one who has a physical or mental impairment that substantially limits one or more of the student's major life activities. Commensurate with the nature and extent of the disadvantage, the College of Law makes reasonable accommodations in exam conditions for students, while respecting faculty members' discretion to decide how to test the substantive knowledge and analytical skills essential to the course and the legal profession and preserving the fairness of exams for students without disabilities. Students who believe they may be entitled to exam accommodations are encouraged to consult with the associate dean as soon as possible after entering law school, even if they have not yet decided whether to request an exam accommodation. Whenever possible, instructors do not learn the identity of a student who requests or receives exam or instructional program accommodations.

In addition to exam accommodations, the college is committed to providing reasonable accommodations for students with disabilities for all instructional, cocurricular, and extracurricular activities it sponsors.

Drop/Add Policy

Students may add or drop a regularly scheduled course or seminar during the first two weeks it

meets. Starting with the first day of class, students must have written consent of the instructor to add or drop a course.

A student may not drop a course once the final examination in the course has been distributed to the student. Individual instructors may set a policy of not permitting drops past a certain time limit, except in hardship cases; they are encouraged to distribute written notices of their policies during the first week of class.

A student who, after two weeks, drops an elective course for reasons not related to hardship may not reenroll in the course in a later semester without the instructor's permission.

Students who wish to drop the advanced appellate advocacy programs without showing cause may do so prior to the distribution of the problem and the finalization of participants in their rounds. After the problem has been distributed, only the faculty advisor may authorize a drop and then only upon show of cause.

Withdrawal

First-year students who withdraw during the academic year or who fail to reenroll for the second semester are not eligible to return to school. Instead, they must compete with other applicants for the year in which they wish to return. The reason for the withdrawal and the quality of work done prior to withdrawal or failure to reenroll are considered when students reapply.

Unless granted a leave of absence by the dean, second- and third-year students who fail to enroll for any semester during the academic year must obtain permission from the admissions committee if they wish to reenroll. (Students are considered first-year if they have fewer than 27 s.h. of credit at the time of withdrawal or failure to enroll.)

The associate dean may grant a second- or third-year student a leave of absence for up to one year, if the student shows good cause.

Students who withdraw from the College of Law after paying tuition are entitled to a pro rata refund.

Audit

Students may audit a class with the instructor's permission, provided the class is not filled within the preregistration period.

Student Conduct

Students are expected to act in a manner appropriate at a professional school. An act or omission that is dishonest or designed to take unfair advantage may subject a student to sanctions as serious as expulsion from school. Misconduct policies and procedures are published annually in the college's *Student Handbook*.

Academic Advising

The **Associate dean for academic affairs** works with the dean on academic programs and problems of the law school.

The **Associate dean for student affairs** provides academic advice and counseling to students; advocates for student concerns; offers information and makes referrals for students with professional, personal, or family problems; facilitates operation of the student discipline system; and arranges reasonable accommodations for disabled students. The associate dean also advises law students pursuing combined degrees in University of Iowa graduate programs and serves as the liaison with those programs.

Each **faculty advisor** advises five or six students on course selection, academic matters, and when necessary, other concerns.

Small section instructors advise students enrolled in their small sections during students' first year of study.

Each year one or two tenured faculty members are selected by the Iowa Student Bar Association to serve as College of Law **ombudspersons**. Students who have a problem or grievance should seek an ombudsperson's help. All complaints are handled in strict confidence.

The College of Law **registrar** is in charge of student record keeping and should be students' first recourse for information about course enrollment, scheduling, residence requirements, combined program status, student certification for various loan agencies and state bar applications, and progress toward graduation.

The **Student Services Committee** oversees coordination and periodic review of how the college provides academic and curricular counseling to law students. The committee reviews and coordinates the college's efforts to provide information, offer services and programs, and make referrals regarding its students' mental and emotional health. The committee has oversight for assignment of faculty academic advisors to law students, for matters of

faculty/student collegiality, and for the Academic Achievement Program.

Resources

Iowa Law Library

The centerpiece of the Boyd Law Building is the University of Iowa Law Library, which occupies space on four floors and is one of the major repositories of legal materials in the United States.

Iowa's collection currently is ranked second in the number of volumes and volume equivalents, and number of titles among all U.S. law school libraries. It contains more than 1 million volumes and volume equivalents and covers a full range of Anglo-American, foreign, international, and comparative law. The library contains in-depth collections on law of the United States and of every state and territory. Its collection of early English legal source materials and its holdings of state documents are extensive. Since 1968 the library has been a selective Federal Documents Depository. An open-stack policy makes the collection accessible to all patrons, and a full staff of professional librarians serves students, faculty members, and other users.

The WESTLAW and LEXIS/NEXIS computerized information retrieval systems are available for training and research activities. Several CD-ROM and online data retrieval systems are available on workstations open to the public.

The entire collection of the law library is cataloged on the InfoHawk database, including the collection of U.S. government documents. The InfoHawk system also features an automated circulation system for checking materials out of the library.

The library uses both OCLC, the Online Computer Library Center, and RLG (Research Libraries Group) for online cataloging, catalog card production, and interlibrary loans. OCLC's database contains the collections of most of the public and state historical libraries throughout the United States. RLG's database includes the major research collections in the country and abroad.

Writing Resource Center

The Writing Resource Center is dedicated to strengthening law students' command of writing skills central to the study and practice of law. The first writing center in the country established

specifically for a law school community, the Writing Resource Center serves as an extension of the classroom and supplements the college's first-year legal writing, analysis, and research program.

Members of the writing center's staff help law students with a broad range of writing, including class assignments, seminar papers, law journal articles, and symposium presentations. They also assist students with résumés, application letters, and writing samples.

In addition to helping students with general writing skills in one-on-one tutorial sessions, the center's staff trains editors in editing skills, sets up individualized programs of study, offers grammar and style workshops, and provides strategies for overcoming writer's block and adapting material for various audiences.

The Writing Resource Center is staffed by writers, including second- and third-year law students, lawyers, and a director whose Ph.D. degree is in the area of writing instruction.

Career Services Office

The College of Law Career Services Office provides career planning and job search assistance to law students. Each year the office sponsors a comprehensive series of programs on career options and job search skills. It also maintains a library of resources and provides individual advising by professional staff. Job search assistance also is available to alumni.

The special rigor that characterizes Iowa's distinctive brand of legal education attracts a wide variety and growing number of recruiters to campus each year. During a typical academic year, more than 200 employers send representatives to Iowa City to conduct job interviews, and many more firms use the college's Career Services Office to search for prospective employees through written inquiries and off-campus interviews.

Iowa graduates traditionally have had excellent success in finding employment; usually, more than 98 percent are employed within a few months of graduation. The career services staff is happy to talk with prospective students regarding the college's programs and the success of its graduates.

Facilities

The Willard L. Boyd Law Building exemplifies Iowa's continuing commitment to legal education and the legal profession. The large,

circular structure reflects the special character of the Iowa law school and allows the college to operate in a physical environment in which every square foot of space is designed to promote the college's academic and professional programs.

Classrooms in the Boyd Law Building provide an atmosphere conducive to the college's goals. They are air conditioned, carpeted, and properly lit. Small seminar rooms, the clinic suite, and special-purpose learning areas are distributed throughout the building to permit students and faculty members to work together in close professional interaction. The largest classroom seats only 100 people. The student lounge, faculty lounge, and faculty offices are located on the same floor, encouraging interaction between students and faculty members.

Student Services

Bookstore

The College of Law has its own bookstore, which carries all assigned texts and materials for law classes. It also stocks a variety of professionally prepared outlines, hornbooks, and other study aids, as well as a limited selection of school supplies, including pens, notebook paper, binders, USB flashdrives, computer disks, and so forth.

Photocopied handouts and teaching materials assigned by course instructors are available through the bookstore.

Students may charge costs for books, class materials, and supplies directly to their University accounts. The bookstore does not accept credit cards.

Computers and Word Processing

Since electronic information technologies are vital in legal and business work, the College of Law encourages all law students to become proficient with computers. Access to word processing software also helps law students draft the many papers, articles, and other manuscripts that are a regular part of the law curriculum. The college has installed 41 personal computers attached to a local area network for use by its students. Students also are encouraged to purchase computers, if possible, and to use them in connection with their law school work.

The law college provides network and Internet access from all student library carrels. To participate, law students supply their own laptop

computers, which must meet required specifications. Specifications are available from the Law Library computer support office. Wireless internet access is available in most areas of the Law Library and in the fourth-floor student lounge.

The college's computers are loaded with WordPerfect and Microsoft Word software and the college provides training for and access to the two major online computer research databases, West Publishing Company's WESTLAW and Mead Data's LEXIS. Once students complete the training, they have unlimited free access to these services at home via their own PCs and on the student and public workstations in the Law Library.

The Law Library also provides CD-ROM workstations that allow access to databases in CD-ROM formats. Some of the titles available are United Nations documents, complete from 1945; Index to Legal Periodicals; TIARA, a database containing treaties; and numerous U.S. government documents published on CD-ROM.

The University provides free e-mail accounts to its students, faculty, and staff through its Information Technology Services office (ITS). Students can sign up for e-mail accounts online or at the ITS offices in south Lindquist Center. ITS advises University of Iowa students, faculty, and staff on computer hardware and software needs and can provide information about educational discounts on some purchases. ITS also offers a wide variety of free computer short courses throughout the year. For information on computing resources at the University, consult "Computing" on the University of Iowa home page.

Copy Services

Copy machines are available on each floor of the law library. Students with a copy card can use any of the machines. Cards are available for purchase from the library's circulation desk. Students also may use networked printers in the library and charge them to their University accounts.

For better quality and/or high-volume copying, there is a University-operated copy service on the first floor of the Boyd Law Building. Prices are comparable with those at commercial centers, and students may charge copying to their University bills.

Student Activities and Organizations

Link to the student organizations' web sites via the college's Journals & Organizations web page (<http://www.law.uiowa.edu/journals-orgs/index.php>).

The **American Constitution Society** (ACS) is a new nonpartisan organization whose goal is to foster discussion of important issues of law and policy.

The **Asian American Law Students Association** (AALSA) seeks to instill greater awareness among law students of the needs of the Asian American community, and to encourage a greater commitment toward meeting those needs.

The Iowa chapter of the **Black Law Students Association** (BLSA) focuses on the relationship of black attorneys to the American legal structure and works to foster an attitude of professional competence. BLSA strives to promote the needs and goals of black law students, instill a greater awareness among law students of the needs of the black community, and encourage a greater commitment toward meeting those needs. The chapter seeks involvement in the local community and in recruitment programs. Membership is open to all students who support the association's goals.

The **Christian Legal Society** maintains a Christian law fellowship at the College of Law whose mission is to enable its members to love their Lord and to love their neighbors as themselves.

The college's **Equal Justice Foundation** (EJF), a chapter of the national foundation, supports public interest law concerns, with emphasis on promoting equal access and adequate representation in the courts and other forums for citizens and citizens' groups. The UI chapter's professional activities are aligned with those of the national organization. They include work in varied legal activities statewide; College of Law activities, including coordination with other student organizations to provide the college with a better public interest support base; promotion of public interest career opportunities; and provision of information about public interest activities and concerns. Membership is open to all College of Law students.

The **Environmental Law Society** provides an educational forum for environmental law topics. During spring semester, the organization sponsors a lecture series featuring professors and experts

in environmental law. The group also provides limited legal research and counseling services for attorneys, organizations, and citizens who have questions concerning environmental law. Membership is open to all College of Law students.

The Federalist Society fosters critical thought and debate about the application of conservative and libertarian principles to the law. Its mission is to promote, advocate, and defend its founding principles and further their application through its activities, which are aimed at reordering the legal system's priorities to place a premium on individual liberty and the rule of law, and restoring recognition of those principles among law students, faculty members, lawyers, and judges.

The **Intellectual Property Law Society (IPLS)** promotes exploration of traditional areas of intellectual property law (patent, trademark, copyright) and related areas such as antitrust and entertainment law. The society provides a forum for faculty and student discussion of contemporary issues relating to intellectual property law and its practice; fosters interaction between law students and intellectual property law practitioners through a mentor program that pairs members with intellectual property law practitioners; and offers symposia. All members of the University community are welcome to attend a Society meeting or symposium.

The **Iowa Law Student Animal Legal Defense Fund (SALDF)** is dedicated to providing a forum for education, advocacy, and scholarship aimed at protecting the lives and advancing the interests of animals through the legal system, and to raising the profile of the field of animal law. The organization has three goals: to educate the College of Law community about forms of institutionalized animal abuse, to foster awareness of litigation as a means to combat this abuse, and to provide opportunities for students to work with attorneys on litigation projects aimed at protecting animals' lives and interests.

The **International Law Society** aims to increase student and faculty awareness of international law and related issues. The society's brown bag lunch lecture series and annual spring conference expose students and faculty to a wide variety of contemporary legal issues surrounding the study and practice of international law. Members also work to support the activities of the University of Iowa Center for Human Rights; promote the Iowa-Arcachon, France, summer program in comparative and international law; participate in the annual Philip C. Jessup International Moot Court Competition; and bring together faculty

members and students who share an interest in international affairs.

The **Iowa Campaign for Human Rights (ICHR)** promotes human rights awareness and education at the College of Law, among University of Iowa students, and across the Iowa City community.

The **Iowa Human Trafficking Awareness Project** educates the public about human trafficking and human rights abuses inherent to the practice. The organization also lobbies for the creation of state and local laws that criminalize the act of human trafficking and advocates for the rights of human trafficking victims locally and globally.

The **Iowa Student Bar Association (ISBA)** acts as the College of Law's student government. Governed by an executive council, the association provides a collective voice for the student body and a source of organization and funding for a variety of college activities and programs. Law students may get involved with the association by serving as class representatives or on faculty-student committees, which deal with admissions, curriculum, financial aid, placement, and so forth. The association presents speakers, sponsors events with other organizations, publishes a newsletter, and sponsors social events. Its legal guardian program assigns entering law students to upperclass students, who provide encouragement and information.

The **J. Reuben Clark Law Society** emphasizes three basic values and attitudes toward the practice of law and the place of law in modern society: public service, loyalty to the rule of the law and the Constitution of the United States, and appreciation for the religious dimension in American society and in lawyers' personal lives.

The **Latino/a Law Student Association (LLSA)** promotes viable changes within existing legal institutions in order to develop constructive legal and community programs, produce competent and effective Latino and Latina attorneys, and utilize available resources—activities necessary to safeguard and advance the rights and opportunities of oppressed peoples. To achieve these goals, LLSA recruits for the law school. LLSA's philosophy is that national unity is fundamental for the collective awareness needed to bring about progressive policies in legal education. The association welcomes all students.

Law Students for Choice is committed to increasing education and professional training in reproductive rights law. The society supports

Iowa law student activism, advocacy, and networking in order to ensure that new lawyers can successfully defend and expand family planning rights and reproductive freedoms.

The Native American Law Students Association (NALSA) promotes awareness of legal, political, cultural, and social issues that affect Native Americans, Alaskan Natives, Native Hawaiians, and other indigenous peoples. NALSA also seeks to promote the study of federal Indian law and provides a forum for the exploration of issues in tribal sovereignty, natural resources, family law, trust obligations, and cultural identity.

The National Lawyers Guild (NLG) is dedicated to the use of law as a means to promote progressive social change. Iowa's student chapter sponsors discussion panels on topics such as South African divestment and has cosponsored events with other student organizations. It also invites faculty members to speak in the college's student lounge on topics ranging from the political aspects of selecting Supreme Court justices to employment discrimination. Membership in the Iowa chapter is open to all College of Law students. Membership in the national organization is optional.

The National Security and Law Society (NSLS) works to foster interest in and understanding of programs that address issues in national security and law. NSLS helps members who are pursuing careers in related fields and contributes to the development of national security law.

The Organization for Women Law Students and Staff (OWLSS) aims to address the changing needs and problems of women in the legal profession and to develop, recommend, and implement new programs, especially those that meet the needs of women at the College of Law. It also sponsors programs of interest to the general law school community. OWLSS has sponsored fall recruitment of prospective women law students, a safety-in-numbers program, brown bag lunches with guest speakers, sponsorship of members to the annual National Women and the Law Conference, a support network, a regular newsletter, and joint programs with women student groups in medicine and dentistry. Membership is open to all College of Law students, faculty members, and staff members.

The Outlaws provides a common forum for gay, lesbian, bisexual, and transgendered persons interested in the law, and promotes a climate of mutual support, protection, and professional

advancement. Membership is open to all College of Law students and faculty members.

Founded in 1902, **Phi Alpha Delta** (PADS) is the nation's oldest and largest law fraternity. It was the first law fraternity to remove membership restrictions based on race, color, creed, national origin, and grade-point average. Iowa's Hammond Chapter was established in 1908 and became the first PADS chapter to accept students of all races and religions. It participates in fund-raisers and other service projects to benefit local and national service organizations. Membership is open to all College of Law students.

The **Pro Bono Society** exists to reinforce the value of public service and volunteerism in the legal profession. Membership in the Pro Bono Society is earned through objectively measured activities during the academic year. Iowa law students who complete and report 15 hours of voluntary public service in each of two consecutive semesters are considered for membership. Time donated to a charitable or public service cause, which may be law-related or not, is considered voluntary public service; the requirement is interpreted broadly, so that students may volunteer in an area of interest to them. Members receive a certificate of membership and are invited to attend the annual recognition dinner. The society is a project of the Iowa Student Bar Association.

Special Activities

Parents and Partners Day

Each fall, the parents, spouses, and friends of all students are invited to the campus for activities sponsored by the Iowa Student Bar Association and the Iowa Law School Foundation. Past activities have included a simulated class, a brunch, a musical or auction, and a tour of the college. The weekend is a good opportunity for families and friends to see what the life of a law student is really like.

Supreme Court Day

The College of Law hosts the Iowa Supreme Court on The University of Iowa campus each fall. Third-year students present oral arguments in a moot case to the court, and faculty members host receptions at their homes for the justices, attorneys, and students, providing an opportunity for informal visits with members of the court.

Iowa Advocate

Iowa Advocate, the law school's alumni magazine, is published twice a year. It features articles and news about the college and its alumni, faculty, and students.

Iowa Law School Foundation

During the three years that students spend at the College of Law, many of the classes, programs, and projects in which they participate are partially or totally supported by private gifts from law alumni and friends.

The Iowa Law School Foundation was created by the 1952 graduating class to promote close relations between the college and its alumni and to solicit gifts for scholarships, faculty support, and other projects that benefit the college.

Foundation funding benefits student scholarships, loans, and research assistantships; guest speakers; student orientation activities; the clinical law programs; Moot Court, Trial Advocacy, and Client Counseling programs; the student-edited law journals, and *Iowa Advocate*.

In order to support these programs and activities, the Iowa Law School Foundation actively solicits contributions from the college's approximately 9,000 alumni.

Legal Aid

Students in need of legal assistance may consider turning to the University's Student Legal Services. The Legal Services Corporation of Iowa also provides civil representation to indigent clients.

Courses

The following list includes all approved College of Law courses. The college does not offer each course every year. For information on current course offerings, consult the College of Law registrar. The College of Law Guide to Courses contains a list of courses that have been offered within the past two academic years. It also lists courses the college expects to offer during the next academic year.

First Year

091:102 Introduction to Law and Legal Reasoning 1 s.h.
Basic concepts and intellectual skills necessary for understanding the first-year curriculum.

091:104 Civil Procedure 4 s.h.
Procedure before trial; commencement of a suit; jurisdiction over the person and venue; pleadings, motion practice, including summary judgment, simple joinder of parties and claims in determining scope and size of the lawsuit; pretrial discovery procedures, the trial, claim and issue preclusion.

091:116 Constitutional Law I 3-5 s.h.
Constitutional allocation of governmental powers; doctrine of judicial review and nature of judicial function in constitutional cases; relationships among branches of national government; the federal system, including powers delegated to national government, powers reserved to states, and intergovernmental immunities; relationship between state and national governments.

091:120 Contracts and Sales Transactions 4 s.h.
Law that governs the otherwise unregulated sector of the economy; making and enforcement of promises, usually as part of a bargain; formation of agreements, consideration, invalidating causes, parole evidence and interpretation, conditions, and remedies; roles of promises and promissory exchanges in a modern economy; the law's limitations on freedom of contract; may include introduction to Uniform Commercial Code, Article 2.

091:121 Contracts and Sales Transactions II 3-5 s.h.

091:124 Criminal Law 3 s.h.
Basic understanding of the substantive criminal law; underlying premises of and justifications for criminal law; emphasis on general doctrines that dictate the minimum elements necessary to impose criminal liability, essential requirements of culpable conduct, blameworthy mental state; rape, homicide, causation, attempt, conspiracy, accomplice liability; various defenses to criminality, such as self-defense, duress, intoxication, insanity, diminished capacity.

091:130 Legal Analysis, Writing, and Research I 2 s.h.
Structured development of effective skills in legal analysis, writing, and research; first of a two-semester sequence.

091:131 Legal Analysis, Writing, and Research II 2 s.h.
Structured development of effective skills in legal analysis, writing, and research; second of a two-semester sequence.

091:132 Property 4 s.h.
Concept of private property as one of the legal system's basic foundations; historical development of Anglo-American property law examined in conjunction with changing currents of economic, social, and political thought; emphasis on understanding decision making by courts in the common-law tradition, and its interplay with legislative enactments intended to change common law; fundamental notions relating to the origins of property rights; relationship of possession and ownership, with emphasis on capacity of property law to recognize a wide range of interest configurations; impetus for promoting ease and reliability in conveyance of property interests, commercially and gratuitously; function of land title system in providing stability to transfers of interest in land; role of adverse possession and prescriptive use in curing defective titles and recognizing expectations based on long-standing property relationships; responsiveness of property law to social change as illustrated by modern reforms in landlord-tenant act.

091:136 Property II 3 s.h.
Continuation of 091:132; limitations imposed on landowner's use of their property by private agreements, judicial actions, and public regulations; problem areas including restrictive and affirmative covenants, nuisance, eminent domain, constitutional limitations on governmental activities adversely affecting private property, zoning, other forms of local land use control; relative effectiveness of private ordering, judicial decisions, legislative enactments and administrative processes for resolving conflicts over use of land resources; relationships between law and other disciplines, particularly economics in forging solutions to land use issues; law's utility as an instrument for achieving societal objectives regarding land use.

091:364 Torts 4 s.h.
 Development of tort principles; civil responsibility for harms to tangible personal and property interests; roles of legislatures, judges, juries; intentional harms, negligence, and strict liability from perspectives of jurisprudence, economics, and moral philosophy.

091:203 Income Taxation of Estates and Trusts 3 s.h.
 Income tax basis of property acquired by gift or devise, part-gift/part-sale transactions, income and deductions in respect of a decedent, allocation of receipts and expenditures between income and principal, income taxation of trusts and estates, treatment of distributions of cash and property to beneficiaries, administration of marital-deduction formula clauses. Prerequisite: 091:272. Corequisite: 091:378.

Second and Third Year

091:125 Criminal Procedure: Investigation 3-4 s.h.
 Guarantees and rights of the Fourth, Fifth, and Sixth Amendments to the U.S. Constitution against police and prosecutorial practices designed to investigate and prove criminal cases; protection against unreasonable searches and seizures, guarantee against extraction of involuntary confessions, privilege against self-incrimination, constraints upon securing confessions (i.e., *Miranda*), due process protection against unreliably suggestive identification procedures, right to counsel, protection against inculpatory admissions and identification practices; exclusionary rules and remedies that enforce guarantees and rights.

091:204 Administrative Law 3 s.h.
 Formal and informal procedures, processes, and functions of state and federal administrative agencies; legislative, executive, and judicial control of their actions.

091:206 Criminal Procedure: Adjudication 3-4 s.h.
 Adjudicatory phases of the criminal justice system: indictments and the charging process, preliminary hearings, applications for release on bail and pretrial detention, processes of discovery, guilty pleas, jury selection, conduct of criminal trials, sentencing proceedings and post-trial motions, appellate review, collateral remedies; focus on constitutional rights, specifically the Fifth, Sixth, Eighth, and Fourteenth Amendments; statutory provisions, rules of criminal procedure.

091:192 Art, Law, and Ethics 3 s.h.
 How law and ethics apply to the individuals and institutions concerned with the visual arts; historical focus; issues from 18th century to present; how to evaluate the ways in which law and ethics support and constrain the visual arts; development of vocabulary critical for recognizing and evaluating legal and ethical issues in the visual arts. Same as 01H:182, 024:161, 033:175.

091:207 Arbitration 2 s.h.
 Arbitration's role in modern conflict resolution, in varied settings.

091:208 Antitrust Law 3 s.h.
 Laws dealing with restraints of trade, monopolization and mergers; history of these laws and their development in the courts; current doctrine and its underlying legal and economic theories; analytical tools of trade: sufficiency of economic efficiency as the measure of justice.

091:193 Human Rights in the World Community 1-3 s.h.
 Human rights, their moral and legal basis, their promotion and protection through governments and international organizations; comparative and international analysis of equality and nondiscrimination; human rights issues that confront the contemporary world; how the world community enforces human rights at global, regional, and national levels and in the private sector. Prerequisite: junior, senior, or graduate standing.

091:209 Advanced Torts 3 s.h.

091:210 Appellate Advocacy I 0-1 s.h.
 Experience based on an assigned fictitious case: writing an appellate brief asserting the client's position, and arguing the case before a panel of students, faculty, community attorneys.

091:195 Introduction to Public International Law 1-3 s.h.
 Principles of law that determine rights and duties of nations in their dealings with each other, with focus on interests in the United States; procedural aspects of international law involving international institutions, including the International Court of Justice.

091:211 Appellate Advocacy II 1 s.h.
 Continuation of 091:210; increased complexity; for second-year students who want more experience in appellate advocacy.

091:196 Child Maltreatment, Juvenile Justice, and the Welfare System arr.
 Coercive state intervention through the juvenile justice and child welfare systems to protect children from maltreatment by parents and other caretakers; definitions of child abuse and neglect, reporting laws, civil child abuse and neglect proceedings, foster care and out-of-home placement of children, termination of parental rights, role of attorneys and guardians ad litem in child abuse and neglect proceedings.

091:213 Business Reorganizations 3 s.h.
 Reorganization of business under Chapter 11 of the federal bankruptcy code; commencement of proceedings, mechanisms for continuation or cessation of business operations, case administration, executory contracts and avoidance powers, determination of claims, formulation and confirmation of reorganization plans, discharge and other effects of a confirmed plan. Prerequisite: 091:214 (preferred) or 091:222 or 091:244 or 091:332.

091:198 Advanced Legal Research 2 s.h.
 American legal resources, in-depth; nonlegal information sources; introduction to research resources of other legal jurisdictions and international law.

091:214 Bankruptcy 3-4 s.h.
 Rights of individuals and entities under the federal bankruptcy laws, from perspectives of debtors and creditors; foundational topics from liquidation bankruptcy (chapter 7) to reorganization bankruptcy (chapters 11 and 13); consumer and business bankruptcies; advanced bankruptcy topics such as small business reorganizations, farm bankruptcies, ethical issues and bankruptcy law, international insolvencies.

091:200 Agricultural Law 1 s.h.
 Topics in agricultural law and policy, such as legal efforts to control the structure of agriculture (including payment limitations and legal restrictions on farm land ownership), agricultural cooperatives, commodity promotion boards, government price and income support programs, soil and water conservation regulations, control over location and operation of animal confinement facilities, mechanisms for regulating food sources and safety.

091:215 Debt Transactions 4 s.h.
 Laws and practices of modern lending; procedures for collection of unsecured debts, including enforcement of judgments, exemptions, judgment remedies, fraudulent conveyances, statutory liens; secured transactions that involve real property (mortgages) and personal property (security interests governed by Uniform Commercial Code, Article 9); consumer and commercial transactions, counseling creditor or debtor clients, understanding realities that shape enforcement of credit agreements.

091:202 Advanced Civil Procedure 3 s.h.
 Complex civil litigation, personal and subject matter jurisdiction, discovery, intervention, mandatory joinder, interpleader, class actions, appellate jurisdiction, class actions.

091:217 Corporate Finance 1, 3 s.h.
 Applications of modern financial theory to modern corporate law topics, including use of valuation techniques, portfolio theory, diversification strategies, financial statement analysis. Prerequisite: 091:241.

- 091:218 Corporate Crimes** 3 s.h.
How corporations and their officers, directors, employees, and agents can violate criminal law; liability imposed under state and federal laws in the United States, criminal liability under laws of other countries; fundamentals of U.S. law; case studies of recent prosecutions involving American corporations.
- 091:219 Civil Procedure in Pretrial Theory and Practice** arr.
The law of pleadings and other pretrial matters presented in 091:104; hypothetical case developed from interview to pleading to early pretrial stages; experience drafting relevant pleadings and motions.
- 091:220 Notable American Trials: Trial Skills** 2-3 s.h.
Trial skills and strategy; real trial transcripts, contemporary accounts of the selected trials, secondary literature evaluating what actually happened in the courtroom and relevant history.
- 091:221 Creating Value in Business Deals and Conflicts** 1 s.h.
Development of skills for managing situations creating value for clients in conflicts.
- 091:222 Commercial Transactions** 3-4 s.h.
Commercial and consumer transactions, with focus on use of negotiable instruments and personal property security interests; basic legal structure of articles 3, 4, and 9 of the Uniform Commercial Code; related provisions of the Bankruptcy Code.
- 091:224 Comparative Law** 2-3 s.h.
Comparative study of origins, development, and characteristic features of the world's main legal systems; common and civil law traditions; historical development of the main legal systems, their sources, ideologies, techniques; subjects important to international legal practice (e.g., international judicial assistance, application of foreign law in American courts, application of American law in foreign courts); in-depth study may include United States, France, Germany, China, Russia, South Africa, or Palestine. Same as 144:142.
- 091:225 Comparative Law in Post-Communist Countries** arr.
Law and legal reforms in Russia, the newly independent states (NIS), and post-communist countries of eastern and central Europe.
- 091:226 The Regulation of Banking in the United States** 2-3 s.h.
Existing and ideal role of regulation in facilitating economic growth and ensuring sound banking practices; main federal laws addressing market entry/expansion, bank and holding company supervision, deposit insurance/bank failure.
- 091:227 Comparative Constitutional Law** 2-3 s.h.
Constitutional law structures; decision making and substantive results under a variety of different constitutional systems, including major Western and non-Western systems; forms of judicial review and separation of powers, forms of federalism and alternatives to federalism, conceptions of fundamental human rights.
- 091:228 Conflict of Laws** 2-3 s.h.
Problems created when a transaction or relationship has associations with more than one jurisdiction; emphasis on selection of appropriate jurisdiction-selecting rules, recognition of other states' judgments; current evolution in theoretical approaches to these problems.
- 091:229 International Intellectual Property Law** 3 s.h.
International instruments in intellectual property (e.g., TRIPS agreement, Berne Convention, Paris Convention) and key regional agreements (e.g., European Patent Convention); intellectual property regimes and doctrines of interest within those regimes. Prerequisite: an intellectual property course or consent of instructor. Recommended: 091:295.
- 091:230 Consumer Law** 3 s.h.
Whether and how law should regulate rights of consumers and businesses to transact freely with each other; tension between laws that protect consumers from harmful consequences and principles of freedom to contract, caveat emptor, and free market economies that dominate traditional contract and tort law; state and federal consumer protection statutes, including Truth in Lending Act, Equal Credit Opportunity Act, Unfair and Deceptive Practices Act; current topics in consumer law, including predatory lending, marketing fraud, arbitration clauses; realities faced by attorneys who advise businesses on compliance with consumer laws, competing concerns of plaintiffs' attorneys and government officials who seek to enforce consumer laws.
- 091:231 Antitrust Policy** 3 s.h.
Federal antitrust policy concerning mergers, distribution restraint, franchising, government regulation.
- 091:232 Constitutional Law II** 3, 5 s.h.
Limits on governmental power imposed by the national constitution for protection of individuals; protection of life, liberty, and property by due process and equal protection; freedom of expression and association; religious freedom and the guarantee against establishment of religion; 1st and 14th Amendments.
- 091:234 Commercial Contract Drafting** 2-3 s.h.
Components of common commercial contracts, analytical and technical processes involved in drafting contracts for commercial purposes; settlement agreements, contracts for services, agency agreements, employment agreements, stock or asset purchase agreement, leases, problems associated with data processing contracts; trial drafting of appropriate clauses for contract problems in varied commercial settings. Prerequisite: third-year standing. Corequisite: 091:241.
- 091:236 Contemporary Russian Law in Historical Context** 3 s.h.
Contemporary law and legal reforms in Russia, in context of Russian, Soviet, and European history; introduction to the current Russian legal system; similarities and differences in the contemporary Russian legal system and the traditional (pre-1917) and Soviet legal models; major legal issues of contemporary Russia; degree to which Russian law is characterized by continuity or change relative to law of former Russian empire and USSR.
- 091:237 Comparative Criminal Law Issues: United States and United Kingdom** 1-3 s.h.
Right of silence/right against self-incrimination in Britain and America; historical origins, recent development, and practical application of these rights; effects of capacity and age on the exercise of these rights, the prosecution's obligation of disclosure and discovery, confessions, admissibility of evidence.
- 091:238 Comparative Law of Foreign Relations** 3 s.h.
Comparison of legal foundations for external relations in the United States, the European Union, post-Communist states, and other countries; external powers and objectives; instruments, principles, and actors who determine and carry out external policies; legal effects of international agreements and other aspects of international law; basic questions of constitutionalism raised by foreign relations law (i.e., division of competencies, separation of powers, protection of fundamental rights, issues of democracy and legitimacy, judicial review).
- 091:239 Corporate Governance and Control** 1-3 s.h.
Principal issues in creation of appropriate governance and control systems for large publicly-held corporations. Recommended: 091:241.
- 091:240 Advanced Arbitration** 1-2 s.h.
Advancement of fundamental legal concepts explored in 091:207 through analysis in context of varied applications and hypothetical problems; stages of arbitration, from agreement to arbitrate and selection of arbitrators to final award; post-award remedies, judicial review. Prerequisite: 091:207.

091:241 Corporations I 3-4 s.h.

Structure, characteristics of both large publicly and closely held corporations; distribution of powers among management, directors, shareholders, fiduciary duties that limit those powers; may include basic principles of agency, partnership, and limited partnership law.

091:242 Corporations II 2-3 s.h.

Shareholders' derivative actions, appraisal remedies, financial aspects of shares and insider trading. Prerequisite: 091:241.

091:243 Taxation of Business Enterprise 3-4 s.h.

Income tax treatment of corporations, partnerships, and limited liability companies, with focus on closely held firms and their owners. Prerequisite: 091:272. Corequisite: 091:241.

091:244 Debt Collection Law 2 s.h.

Procedures for collection of unsecured debt; mechanisms for enforcement of money judgments, exempt property, sheriff's sales, regulation of abusive collection practices, prejudgment remedies, statutory liens, constitutional limitations, fraudulent conveyances, state law insolvency procedures.

091:245 Domestic Abuse Law arr.

The law's response to domestic abuse [i.e., the pattern of violent and coercive control used in adult intimate relationships]; cultural contexts of domestic violence, legal and social reform efforts of the past decade and their impact on the administration of justice, use of common law and statutory injunctions, the criminal justice system's response, constitutional and interspousal torts, mediation, federal legislation.

091:246 Family Law in the World Community arr.

Family law topics from an international and comparative law perspective; treatment of family law problems in various legal systems, application of international treaties and conventions to issues such as child custody, adoption, reproductive freedom, domestic violence. Prerequisite: 091:195 or 091:268 or consent of instructor.

091:249 Election Law 2-3 s.h.

Major areas of law governing elections and political participation in the United States; how election laws influence political activity, and vice versa; Constitutional right to political participation, the doctrine of one person one vote, race discrimination in voting rights, role of political parties, law of campaign finance; legal issues of 2000 presidential election.

091:250 Employment Law 2-3 s.h.

Rights of employers, employees in unorganized workplaces; legal issues that arise between employers and employees in nonunionized settings; hiring, discipline, termination, minimum wage, covenants not to compete, employment-related intellectual property issues, occupational safety and health, unemployment.

091:251 Employee Benefits arr.

The basic act and its detailed implementing regulations; types of qualified plans, plan funding mechanisms, participation standards, permissible discrimination in benefits and contributions, vesting requirements, tax deductions to employers, taxation of distribution to employees, fiduciary concepts, IRAs, and plans for self-employed individuals. Prerequisite: 091:272.

091:252 Gender and the Law 3 s.h.

How considerations of gender have shaped the development of constitutional law and argument, from the American Revolution to present. Same as 16A:175.

091:253 Employment Discrimination 2-3 s.h.

Legal prohibitions against discrimination in employment on the basis of race, sex, national origin, age; focus on Title VII of the Civil Rights Act of 1964; procedural and remedial problems, elementary issues of proof.

091:254 Education Law 3 s.h.

Federal and state authority to govern public and private schools; rights of parents, teachers, students; powers of legislators, judges, educators; interaction of law and education policy. Corequisite: 091:232.

091:255 Environmental Law 3 s.h.

Role of the legal system in addressing problems of environmental disruption, with special emphasis on air, water, hazardous waste pollution.

091:256 Federal Criminal Practice 2 s.h.

Individual steps in the criminal process, development of advocacy skills required for effective practice of law. Prerequisite: 091:125.

091:257 Establishing a Business in the EU 1 s.h.

Legal and practical issues related to establishing and conducting businesses in the European Union; issues that affect how businesses are organized and run under the laws of the union and its member states; business organization, labor regulations, competition law issues, dispute resolution alternatives.

091:258 Arts and Entertainment Law 1-2 s.h.

The entertainment industry; issues affecting creative artists, financiers, producers, other participants in the world of theater, print publishing, motion pictures, television, music, fine arts.

091:259 Government Contracts arr.

Legal structure under which the federal government places contracts and through which it attempts to advance public policy goals; differences and similarities between the government's process of specialized litigation forums and the common law of contracts and UCC Article 2 law; efficacy of litigation forums and policy goals.

091:260 Foreign Relations Law arr.

Impact of the constitutional distribution of powers on the conduct of U.S. foreign relations; influence of separation of powers doctrines on conduct of foreign relations, status of international law in the U.S. legal system, role of courts in adjudicating issues affecting foreign relations, controversy over the distribution of war powers between the president and Congress.

091:261 Health Law 2-3 s.h.

Major areas of concern in health law; tension between quality, access, costs; may include malpractice, quality control, health care financing, access (insurance, Medicare, and Medicaid), licensing, bioethics (end-of-life decisions, informed consent, surrogacy, organ transplantation).

091:262 Federal Regulations of Health Care Industry: Fraud and Abuse 2 s.h.

Impact of governmental regulation on business planning and transactions in application of federal fraud and abuse laws to organizational entities; False Claims Act and the Stark Law, corporate compliance programs, enforcement efforts. Prerequisite: 091:241 or consent of instructor.

091:263 Disability, Law, and Society 2-3 s.h.

Policy issues, statutes, and case law examined in legal, societal, and historical contexts; the role of families in supporting full participation in society by children and others with severe disabilities.

091:264 Survey of British and Commonwealth Legal History 2-3 s.h.

British legal history from 16th to early 20th century; development of law in the British colonies; history of the jury, changing roles of defense counsel and prosecutors, development of law of evidence and defendant's rights, women and family, labor law, law and evolution of modern capitalism in the railway industry, legal education, family and labor law in the colonies.

091:265 Evidence 3 s.h.

Rules of evidence developed in common-law courts and under statutes; judicial notice; examination of witnesses; privilege and competence; remote and prejudicial evidence; hearsay; burden of proof and presumptions; roles of judge and jury.

091:266 European Union Law 2-3 s.h.

Law of the European Union; EU legal and institutional structure; role of the European Court of Justice in elaborating constitutional and administrative law for the EU on the basis of treaties and legislation; principle of free movement; progress of European integration.

- 091:267 Legal Externship** arr.
Experience in nonprofit organizations, government agencies; unpaid; usually summer.
- 091:268 Family Law** 3-4 s.h.
Creation, dissolution of marriage and parent-child relationships; lawyer's practical approach to family law problems combined with a broader view of how the law might treat those problems in light of findings from social and behavioral sciences.
- 091:269 Advanced Family Law** 3-4 s.h.
Advanced theory and practice in family law; central problems in family law practice from theoretical and practical perspectives. Prerequisite: 091:268.
- 091:271 The First Amendment** 3 s.h.
Emphasis on freedom of speech, freedom of the press. Corequisite: 091:232.
- 091:272 Basic Federal Income Taxation** 3-4 s.h.
Advanced theory and practice in family law; central problems in family law practice from theoretical and practical perspectives. Prerequisite: 091:268.
- 091:274 Federal Courts: Constitutional Litigation and the Dual Court System** 3 s.h.
Dual court and dual law system in the United States; emphasis on constitutional tort litigation (actions against governmental officials for violations of the U.S. Constitution); supremacy of federal law, preemption, federal incorporation of state law, federal and state court jurisdiction over cases arising under federal law, judicial federalism (including various abstention doctrines), the 11th Amendment; constitutional tort litigation, including the scope of the plaintiff's rights in constitutional tort actions; immunities that may be invoked by a defendant; range of legal and equitable remedies potentially available to a successful plaintiff.
- 091:275 Federal Courts: The Structure and Jurisdiction of the Federal Judiciary** 3 s.h.
Overview of federal courts' federal-question, diversity, supplemental, and appellate jurisdiction; venue, removal of cases from state to federal courts; other issues in powers of federal judiciary, such as Congress's power to alter the structure and jurisdiction of the federal courts, of forum non conveniens doctrine, federal habeas corpus petitions, transfer of cases, claim and issue preclusion, powers of legislative courts.
- 091:276 Private International Finance** 3 s.h.
International banking and securities transactions; major national markets of the United States, Europe, and Japan, and offshore markets; major areas of international regulation and policy, such as capital adequacy, clearance, and settlement.
- 091:277 Cyberspace Law** 2-3 s.h.
The Internet and World Wide Web's implications for law; application of traditional legal concepts to Internet transactions, the new changes in the practice of law and court procedures; focus on the Internet's unique implications for content regulation, copyright, defamation, e-business, jurisdiction, obscenity, privacy, taxation. Prerequisite: closed to students who have taken 091:624.
- 091:278 Federal Tax Practice and Procedures** 3 s.h.
Drafting and research techniques, with focus on civil tax litigation, from examination by the IRS to final resolution. Prerequisite: 091:272.
- 091:280 Immigration** 1-3 s.h.
Role of immigration, immigrants, immigration law in American culture; history of U.S. immigration policy, with emphasis on role of race and ethnicity in immigration laws, practices; various perspectives or ideas about immigration, including attitudes toward immigrants (such as nativism during Progressive Era), role of women and family life in households, tensions between immigrant and other laborers in the workplace; source, limits of federal power over immigration; immigration quotas and preferences; ground for exclusion and deportation; citizenship.
- 091:281 Interest-Based Negotiation for Lawyers** 2-3 s.h.
Theory and practice of interest-based or problem-solving negotiation; acquisition and enhancement of the skills for this approach to negotiation.
- 091:282 International Business Transactions** 1-3 s.h.
Legal and practical issues in international trade and investment; typical private transactions, such as the sale of goods (documentary sales transaction, INCOTERMS, letters of credit, agency, distribution), transfer of technology (franchising, licensing), and direct investment across national borders; how private international sales, investment, and licensing transactions are structured to permit private businesses to minimize and plan for the risks associated with conducting business on a global scale.
- 091:283 Copyrights** 3-4 s.h.
Federal law of copyrights, primarily the Copyright Act of 1976; emphasis on copyright protections affecting new technologies, such as videotape, computer hardware and software, electronic data transfer, cable television rebroadcast; ability of legal concepts to keep pace with technological developments. Recommended: 091:286.
- 091:284 Insurance** 3-4 s.h.
Legal principles and doctrines applicable to insurance marketing arrangements, contract formation, determination of persons and interests protected by insurance coverages, risks transferred, when rights will be at variance with insurance policy provisions, claims process, governmental regulations of the insurance business.
- 091:285 Foreign Comparative and International Legal Research** 1 s.h.
Treaty research, locating and identifying documents from international organizations and tribunals, legal research in selected jurisdictions outside the United States; print and electronic sources and research methods in foreign and international law; project to complete a pathfinder on a foreign or international law topic.
- 091:286 Introduction to Intellectual Property Law** 3-4 s.h.
Concept of intellectual property, survey of decisions in patents, trademark and unfair competition, copyright, trade secrets, related areas; issues arising from intersections of areas.
- 091:287 International Trade Law: Basic Norms and Regulations** 3 s.h.
Basic norms and legal framework of international trade as expressed in the GATT/WTO regime and U.S. trade laws; issues raised by regional trade blocs such as NAFTA; controversies such as the economic and philosophical justifications for, and objections to, free trade from a variety of perspectives.
- 091:288 Jurisprudence** 2-3 s.h.
Selected legal philosophies, with emphasis on legal positivism and natural law; relationship between law and morality. Same as 144:143.
- 091:290 Juvenile Delinquency and the Juvenile Justice System** 1-3 s.h.
Juvenile criminal offenders ("juvenile delinquents"), juvenile status offenders (e.g., runaways and truant), and the juvenile justice system; law governing investigation of juvenile crimes, juvenile court delinquency procedures, juvenile corrections; role of attorneys in delinquency proceedings.
- 091:291 International Environmental Law** 3 s.h.
Laws and institutions developed by the international community to deal with international environmental problems, including those of the atmosphere (acid rain, ozone depletion, radioactive fallout, climate change), hydrosphere (land-based sea pollution, sea-based vessel pollution, transboundary groundwater diversion), lithosphere (hazardous waste disposal, toxic pollutants, decerification), biosphere (driftnet fishing, endangered elephants, loss of tropical rainforests).

- 091:292 Labor Law** 3-4 s.h.
Federal law and its enforcement by judicial, administrative, arbitral tribunals relating to unionized employees and private firms; rights of employees to organize and engage in concerted activities and collective bargaining.
- 091:294 International Civil Litigation** 3 s.h.
Issues that arise in litigation between litigants located in different nation-states; choice of law and personal jurisdiction issues in context of international litigation; litigation-limiting doctrines and devices such as *forum non-conveniens* and *lis pendens*; international enforcement of judgments, sovereign immunity, international discovery.
- 091:295 International Commercial Arbitration** arr.
Arbitration agreements, proceedings, and enforcement of awards in an international context; student role-playing experience as arbitrators, advocates, other participants in arbitration-related legal proceedings.
- 091:297 Law and Accounting** 2-3 s.h.
Accounting as the language of business; familiarization with the vocabulary of accounting, knowledge and skill development in using accounting information as an analytical tool; for students with no business background.
- 091:298 English Legal System** 1 s.h.
Taught in spring London Law Consortium.
- 091:302 Estate Planning** 2 s.h.
Practical planning and drafting of policy issues related to wills, trusts, and other components of estate plans. Corequisite: 091:360 or 091:378.
- 091:303 Federal Indian Law** 3 s.h.
Specialized body of law that allocates power and authority in Indian country and has grown up around Native American peoples and their reservations; sovereignty arrangements, jurisdiction, federal Indian policy, tribal self-government. Same as 149:178.
- 091:304 Law in Asia in Transition** arr.
Development and reform of law and legal institutions in selected Asian countries, with focus on Vietnam and China; changing role of socialist constitutions; law and the regulation of civil society nonprofit organizations, philanthropy, grassroots organizations and the state; procuracy and prosecution reforming socialist institutions and legal process; transformation of legal profession; struggle for authority of law in socialist transitional states; law and globalization of export labor; foreign models and donor support.
- 091:305 Mental Health Law** 1-3 s.h.
Legal implications of the current medical concepts of mental disease and disorder; application of these medical concepts to legal problems such as civil and criminal commitment, mental illness, dangerousness, competency to refuse medical treatment; use of psychiatric testimony in criminal settings.
- 091:306 The Law of Electronic Media** 2-3 s.h.
Legal and public policy issues in the operation and regulation of broadcasting, cable, and new technologies. Prerequisite: junior or senior standing.
- 091:307 Law in the Muslim World** 2-3 s.h.
International and comparative law issues relevant to countries in the Muslim world; legal cultures, institutions, rules, actors, processes of several jurisdictions including Afghanistan, Saudi Arabia, Iran, Iraq, Algeria, Nigeria, Palestine, Pakistan; Islamic sharia law as practiced in Sunni and Shiite countries; the role of church versus state, fundamentalism versus secularism, as manifested in the legal system; tension between communitarianism and individualism in modern constitutionalism; intertwining of customary and religious legal practices; first, second, and third generations of human rights; international law on issues such as terrorism, self-determination; women's rights, including polygamy, divorce, child custody, inheritance. Prerequisite: junior or senior standing.
- 091:308 Professional Responsibility** 1-3 s.h.
Public and private professional responsibility of lawyers; organization of the profession; its economics, ethics, and sociology.
- 091:309 Law and Economics** 2-3 s.h.
Introduction to law and economics, including traditional and newer ways of using economic and other social science tools to study and solve legal problems; topics from first-year curriculum and others, including corporate law, insurance, family law, regulatory topics; how legal rules affect behavior and enhance social welfare; impact of legal rules on resource allocation, risk bearing, distribution of economic well-being; how legal rules are created. Recommended: microeconomics class.
- 091:311 Law of France and the European Union** 2-3 s.h.
Summer abroad program.
- 091:315 Mediation: Theory and Practice** 1-3 s.h.
Essential characteristics; comparison of mediation with litigation and other alternative dispute resolution processes; stages of mediation; confidentiality; enforceability of agreement; ethical problems, particularly lawyer-mediator.
- 091:320 Nonprofit Organizational Effectiveness I** 3 s.h.
Operational and financial aspects of nonprofit management, including organizational mission and governance; strategic planning necessary for effective management, including finance, budget, income generation, fund-raising. Same as 06J:247, 021:263, 024:247, 028:257, 032:227, 042:247, 174:247.
- 091:321 Alternative Dispute Resolution Methods** 3 s.h.
Introduction to theory and practice of nonadversarial dispute resolution; characteristics of negotiation, mediation, arbitration, other dispute resolution methods; student role-playing, videotapes, demonstrations.
- 091:322 Nonprofit Organizational Effectiveness II** 3 s.h.
Qualities vital for leaders of nonprofit organizations, including those affecting relationships with staff and volunteers; relationship of a nonprofit to the world—nonprofit's community constituencies, governmental entities, professional associations, collaboration with other organizations; marketing, public relations, advocacy strategies for nonprofits. Prerequisite: 091:320 or consent of instructor. Same as 06J:248, 021:265, 024:248, 028:258, 032:228, 042:248, 174:248.
- 091:323 Natural Resource Law** 2-3 s.h.
Disputes over use of natural resources for public lands; constitutional and statutory framework for public natural resource law, including mining, water, and forestry law; wildlife conservation.
- 091:324 Patent Law** 2-4 s.h.
All aspects of U.S. patent law; patent claims, adequacy of disclosure, statutory subject matter, validity, inequitable conduct, infringement, remedies, varied specialized doctrines; focus on recent pronouncements from the Court of Appeals for the Federal Circuit. Recommended: 091:295.
- 091:325 Philanthropy and the Law** arr.
Overview of law applicable to the American philanthropic sector; recent and controversial issues in the interface between philanthropy and the law; comparative and international aspects of the regulation of philanthropy and the nonprofit sector.
- 091:327 Payment Systems** 2-3 s.h.
Basic law of modern payment systems; traditional law of negotiable instruments, bank collection law, rules governing consumer and commercial electronic payments; Articles 3, 4, and 4A of the Uniform Commercial Code, and varied federal regulations.
- 091:328 Presidential Power** 1 s.h.
The president's constitutional power and how it is, or ought to be, subject to control by Congress or the judiciary; the president's powers in historical and contemporary contexts; topics such as presidential control of the executive branch (the Unitary

Executive Theory), the presidency's protective power, the presidency's role in foreign policy and national security.

091:332 Real Estate Transfer and Finance 3 s.h.

Modern real estate transactions, including problems of real estate brokers, land-sale contracts, mortgages, insurance, conveyancing practices, title examinations, financing techniques, organization of real estate development ventures.

091:335 Selected Issues in Land Use Control 1 s.h.

Zoning, comprehensive planning, provision of services and subdivision development ordinances, and the role they play in construction of local community; mechanics of varied procedural devices; coordination of control efforts; Kelo and eminent domain, Hurricane Katrina and land use matters; residential segregation through zoning ordinances; bringing requests for variance to a zoning board of adjustment; concepts from 091:136 in greater depth.

091:340 Remedies 3 s.h.

Legal and equitable remedies by which the law corrects injustice and redresses legal wrongs; remedies for tortious wrongs, including damages and injunctive relief; remedies for breaches of contract, including damages, specific performance, rescission, reformation; law of restitution, with emphasis on restitutionary remedies (quasi-contract, constructive trust, equitable lien).

091:341 Managing National Security 1-3 s.h.

Substance, process, and practice of national security law.

091:342 Negotiations 2-4 s.h.

Nature and theory of negotiations, diverse rhetorics (including the rhetoric of legal argument) relevant to conduct of negotiations, conflict between ethics and effectiveness; readings from game theory, social psychology, anthropology, rhetoric and ethics.

091:343 Corporate Control and Shareholder Democracy 1 s.h.

Mechanisms provided by securities laws to ensure accuracy of disclosure, with focus on Sarbanes-Oxley Act; consequences for firms and individuals who violate securities, civil enforcement by the SEC, criminal enforcement by the Justice Department. Prerequisite: 091:241.

091:344 Sales of Goods 3 s.h.

Role of the Uniform Commercial Code in governing unsecured sales of goods; applicability of Article 2, formation of sales contracts, warranties, performance obligations and gap fillers, entrustment and remedies; leases of goods (Article 2B); United Nations contention on the International Sale of Goods.

091:345 Sentencing 3 s.h.

Introduction to the law, history, and policies that govern criminal sentencing in federal and state systems; traditional indeterminate sentencing, modern determinate sentencing at federal and state levels, capital sentencing.

091:347 The Supreme Court in Wartime 1 s.h.

Facts and outcomes of Supreme Court cases as well as wartime pressures on the course (including cold war) that generate deference to the executive branch, including the military.

091:354 State and Local Government 1-3 s.h.

Allocation of decision-making authority in our society; principles and policies that underlie legal doctrines and the relationship of those principles and policies.

091:355 Securities Regulation arr.

Regulation and sale of securities to the public under the Securities Act of 1933 and state blue-sky laws; remedies provided through the Securities Act; regulation and litigation under the Securities Exchange Act of 1934, which focuses on companies with publicly-traded securities. Prerequisite: 091:241.

091:356 Structure and Function of Appellate Courts 1 s.h.

State and federal appellate courts in their roles of shaping and maintaining rule of law in the United States; modern appellate courts in relation to other branches of government; access to and

limits on appellate review; administrative and adjudicative duties; collegiality and decision making; procedural responses to challenge of giving law in high-volume courts; work of law clerks and staff attorneys; related issues.

091:357 A Survey of Gender Work and the Law arr.

Impact of law and legal norms on the economic status of women workers; historical and contemporary concerns, theoretical analyses, doctrinal developments, practical applications; intersections of race, class, ethnicity, gender, sexual orientation.

091:358 Forms of Argument/Systems of Belief 2-3 s.h.

Major theories of law relevant to study and practice of law in contemporary America; six distinct operating systems, including legal formalism, legal realism, the legal process school, law and economics, the legal positivist/analytic tradition, and critical legal theory (including legal studies, feminist legal theory, critical race theory); diverse forms of legal argument, including those associated with particular theories of law.

091:360 Taxation of Gratuitous Transfers 1-3 s.h.

Justification of wealth taxation, effectiveness of current law, alternate methods of wealth taxation; federal estate, gift, and generation-skipping taxes; tax and estate planning. Prerequisites: 091:272 and 091:378.

091:369 Trademarks and Unfair Competition Law 3-4 s.h.

Acquisition and retention of trademark rights, registration, infringement, remedies; application of section 43 (a) of the Lanham Act to protect creative as well as commercial products. Recommended: 091:286.

091:370 Trial Advocacy 2 s.h.

Basic skills of trial advocacy, aspects of trial technique; student participation in a full trial. Prerequisite: 091:265.

091:371 Trial Advocacy Board 1-2 s.h.

Administration of Trial Advocacy Program and Stephenson Competition; research and writing in connection with trial problems and readings used in program; critique of performances of trial problems. Prerequisites: 091:265 and 091:370.

091:372 Stephenson Trial Advocacy Competition 1-3 s.h.

Presentation of at least two full trials by teams of two students; finalists represent the College of Law at a regional and national trial advocacy competition. Held in January. Prerequisites: 091:370 and 091:265.

091:373 Stephenson Trial Advocacy Team arr.

Student participation as College of Law representatives in Stephenson Trial Advocacy Competition.

091:378 Trusts and Estates 1-4 s.h.

Transmittal of wealth within the family; policy of donative freedom, with focus on property law, including intestate succession, wills, lifetime transfers in trust or otherwise, powers of appointment, future interests; experience drafting a will, trust, or other estate planning document; for 4 s.h., additional classes on federal estate, gift, generation skipping transfer taxes, their effect on wealth transfer.

091:381 Workers Compensation 2-3 s.h.

Principles of workers' compensation law nationwide, with emphasis on Iowa statutory and case law; policy underpinnings, coverage formulas, benefit calculation, third-party suits, administrative procedure, medical issues.

091:390 British Legal Externship Program 3 s.h.

British Law externship; placement in London law office under guidance of barrister or solicitor; seminar and enrollment in course on English legal system taught by faculty of King's College, University of London.

091:399 Judicial Externship arr.

One-semester student assignments to the chambers of selected judges, at both trial and appellate levels; experience participating in work of the chambers, including researching and writing memoranda to the court, drafting opinions, other court business.

091:400 Law Review 1-2 s.h.

Work on *Iowa Law Review*.

091:401 Student Journal Editor—Law Review arr.

Experience on the *Iowa Law Review* editorial staff: managing production, overseeing business operations, administering student writing program, selecting and editing articles for publication, supervising student research and writing. Eligibility based on previous writing for the journal.

091:402 Moot Court Board 1-3 s.h.

Experience as member of the Moot Court Board administering the Appellate Advocacy Program, researching appellate cases used in the program, judging appellate arguments. Prerequisite: membership based on performance in 091:210 and 091:211.

091:403 Chicago Moot Court Team 1 s.h.

Student participation as College of Law representatives in Chicago Moot Court Competition. Fall of third year.

091:404 Van Oosterhout Moot Court Competition 1 s.h.

Single-elimination tournament culminating in the final four advocates arguing before a panel of judges; advocates write a portion of the brief, argue for and against the issue they briefed.

091:405 Baskerville Moot Court Competition 1 s.h.

Skill-building for student advocates, who write a portion of the brief and argue for and against the issue they briefed.

091:406 Clinical Law Program—Internship arr.

Experience working directly with faculty members on cases and in-house program; full participation in interviewing, fact investigation, negotiation, courtroom proceedings.

091:407 Clinical Law Program—Externship arr.

Experience representing clients through legal assistance offices in eastern Iowa, under supervision of faculty members and staff attorneys.

091:408 National Moot Court Competition 1 s.h.

Participation by third-year students as law school's representatives in the regional Moot Court competition (fall semester), and in judging intramural Moot Court competitions (spring semester). Prerequisite: placement as one of four finalists in 091:404.

091:409 Child and Family Advocacy Clinic arr.

Experience working with faculty members on cases involving children with health problems and their families; representation of clients in connection with health insurance, social security disability, education, and public benefits (e.g., food stamps, school lunch programs, WIC, housing, fuel and utility assistance, income support); interviews, fact investigation, negotiation, administrative and courtroom proceedings; close work with Carver College of Medicine faculty members and residents who staff pediatric units at University of Iowa Hospitals and Clinics.

091:410 Client Counseling I 1 s.h.

Foundation for recognizing and resolving legal, nonlegal, ethical issues in the legal interview; interviewing and counseling skills developed through practice sessions, lectures, observation.

091:412 Client Counseling Board arr.

Coordination of client counseling program and Intraschool Client Counseling Competition under supervision of faculty advisor. Prerequisite: 091:410.

091:413 Client Counseling Competition 1 s.h.

091:415 Journal of Corporation Law 1-2 s.h.

Experience editing articles and writing commentaries for *The Journal of Corporation Law*, a student-operated scholarly publication that examines subjects of current importance to businesses and the bar.

091:416 Student Journal Editor—Journal of Corporate Law arr.

Experience on *The Journal of Corporation Law* editorial staff: managing production, overseeing business operations,

administering student writing program, selecting and editing articles for publication, supervising student research and writing. Eligibility based on previous writing for the journal. Prerequisite: 091:415.

091:420 Transnational Law and Contemporary Problems Journal 1-2 s.h.

Experience researching and writing on issues in international and comparative law for the journal *Transnational Law & Contemporary Problems*. Prerequisite: second- or third-year law standing.

091:421 Student Journal Editor—TLCP Journal arr.

Experience researching, writing, and editing on issues in international and comparative law for the journal *Transnational Law & Contemporary Problems*. Prerequisite: second- or third-year law standing.

091:425 Journal of Gender, Race and Justice 1-2 s.h.

Academic year experience on *The Journal of Gender, Race & Justice*: writing two journal pieces, including a recent development and a note or a comment, and performing office duties. Prerequisite: second- or third-year law standing.

091:426 Student Journal Editor—Gender, Race and Justice arr.

Experience on *The Journal of Gender, Race & Justice* editorial staff: managing student writing program, overseeing business operations and production, selecting symposium topic and participants, selecting and editing all publications pieces; eligibility based on writing and editing experience.

091:430 Jessup International Moot Court Competition 1 s.h.

Participation by second-year students in intramural regional- and national-level moot court competition in international law; intensive criticism in appellate brief writing and oral argument. Prerequisite: 091:210.

091:431 Jessup Moot Court Competition Team 1-2 s.h.

Participation as team member in Jessup International Moot Court Competition; preparation of memorials in fall, travel to February regional rounds; travel to international competition in Washington, D.C., for top two teams.

091:450 Corporate Law Practicum arr.

One-semester externship with Justice Holland of the Delaware Supreme Court.

091:455 Health Law and Policy Practicum 1-3 s.h.

Opportunity to participate in research involving current health law and policy issues, in collaboration with organizations such as public health agencies, health professional organizations. Prerequisite: consent of instructor.

091:460 Law Study Abroad at Bucerius arr.

Exchange student study at Bucerius Law School, Hamburg, Germany. Fall semester.

091:500 Independent Research Project arr.

Work under faculty supervision.

091:501 Directed Research and Writing arr.

Research and writing project unrelated to any substantive course, supervised by a faculty member.

091:502 Supplementary Writing arr.

Supplemental writing project that is related to a student's course, but goes beyond the requirements for the course, and is supervised by the faculty member who teaches the course.

091:503 Writing Tutorial arr.

Group writing project on a subject or topical area specified by the supervising faculty member; group meetings.

091:504 Tutorial 1-4 s.h.

Work under faculty supervision; may involve substantive area of the law of jurisprudential ideas as they appear in various intellectual spheres.

- 091:505 UI Center for International Finance and Development Tutorial** arr.
Experience maintaining a globally-read web site that hosts the E-Book on International Finance & Development and posts issues on important topics in international finance and development; aspects of public international finance, with focus on the International Monetary Fund and the World Bank.
- 091:507 Banking Law Tutorial** 2-3 s.h.
- 091:509 Journalism and Freedom of the Press** 2-3 s.h.
Constitutional theory and doctrine under the First Amendment, with focus on the free press guarantee and protection for news and journalism; prior restraints and injunctions against publication; libel; privacy; other communicative torts; commercial speech and news publications; public forum and time, place, and manner restrictions on the press and publishers; ownership, control, copyright, related intellectual property interests of the press; meaning of journalism, news, and news organizations; governmental control or sponsorship of news organizations; subsidies for the press; taxation of the press; access to the press; newsgathering; press privileges; equality and press freedom; problems in the financial and regulated sectors, such as regulation of business news periodicals; control of advertising by news organizations; advertorial practices and First Amendment freedoms; limits of press speech and journalism. Pre- or corequisite: 091:232.
- 091:600 Abused, Neglected, and Dependent Children** arr.
Laws relating to abused, neglected, and dependent children—those not receiving proper parental care and protection as defined by statutes and case law; history of child abuse, neglect, and dependency laws; jurisdiction of juvenile and family courts; abuse, neglect, dependency proceedings; termination of parental rights in abuse, neglect, and dependency cases.
- 091:601 Advanced Topics in Corporate Law** arr.
Wide range of topics; theory of the firm, fiduciary duties, corporate counseling issues, history of corporate law, and so forth. Prerequisite: one law or business course in corporate law or consent of instructor.
- 091:602 Asian Americans and the Law** arr.
Legal issues encountered by Asians and Asian Americans in the United States; how those issues have been addressed by Congress, state legislatures, the judiciary, the executive branch, the public, and the legal community.
- 091:603 Capital Punishment Seminar** arr.
Death penalty as presently applied in America.
- 091:604 Patent Prosecution Seminar** 3-4 s.h.
Drafting seminar on patent application preparation and prosecution; student drafting exercises and presentations on advanced patent law topics; administrative rules and procedures governing practice before the U.S. Patent and Trademark Office; for students who plan to practice patent law. Prerequisite: 091:324.
- 091:605 Advanced Problems in International Environmental Law** arr.
Topics vary.
- 091:606 Advanced Problems in International Business and Economic Relations** arr.
Legal aspects of contemporary problems in transnational business and economic relations; year-long seminar. Prerequisite: 091:282 or 091:287.
- 091:607 Animals and the Law** arr.
Issues concerning nonhuman animals and the laws that affect them; historic and philosophical rationales for conferring or refusing to confer legally cognizable rights upon nonhuman animals; topics such as laws governing use of animals (e.g., for scientific research, human consumption, companionship, entertainment), laws to preserve endangered species, laws governing international animal trafficking, laws governing efforts to establish standing in lawsuits aimed at improving animals' welfare; how laws relating to animals intersect with issues of broader concern, such as the rights of children and persons with severe mental disabilities, respect owed to cultural differences when crafting laws regarding fundamental areas of human activity, evolution of modern thought regarding basic human rights.
- 091:609 Children, Families, and the Law** arr.
Constitutional principles and laws governing the relationships between children, families, and the state and status, rights, and obligations of children; focus on coercive state intervention through juvenile and child welfare systems and criminal justice system to protect children from abuse and neglect.
- 091:611 Citizen Enforcement of Environmental Laws** arr.
Implementation of the citizen suit—a novel, experimental feature of modern environmental statutes; simulated initiation, defense of fictitious citizen suits, with student participation on two-attorney teams. Prerequisite: 091:255.
- 091:618 Cultural Property** arr.
Concept of cultural property, measures for its protection, impact of these measures on the transfer of cultural items; traditional art and architecture, biological and fossil material, human remains; contexts in which issues have arisen, such as stolen cultural property, property acquired during armed conflict and in colonial settings, and property collected in the field or excavated; international, national, and state law, including UNESCO convention on illicit transfer of cultural property, U.S. Archaeological Resources Protection Act, Native American Graves Protection and Repatriation Act; how developing professional ethics codes affect the concept of cultural property.
- 091:619 Farm Labor Regulation** arr.
Farm labor regulation; seminar.
- 091:620 Law and Technology Seminar** arr.
Production of a model statute addressing the range of issues in the selected subject area with suggested solutions; definition of statute's scope, research projects to identify existing law and develop competing ideas and approaches; further definition and a vote on the statute's scope and policies; further research memoranda as the statute takes shape; drafting of the statute with seminar review sessions; students work as a draft committee modeled after the Commission on Uniform State Laws.
- 091:623 Critical Race Theory** arr.
Social, political, and legal writings on aspects of race in development and evolution of American law; how race pervades the fabric of our society, how the law might be used to address social conditions involving commercial, constitutional, and criminal law.
- 091:624 Cyberspace Law Seminar** arr.
The wide range of legal and public policy issues created by the newly-emerging electronic technologies; focus on student research, writing, presentations, discussion.
- 091:626 Federal Antitrust Policy** arr.
Topics in federal antitrust laws; cartels and other horizontal restraints of trade, measurement of market power, exclusionary practices by dominant firms, vertical restraints, the Robinson-Patman Act, public and private enforcement, remedies, history of antitrust policy; antitrust enforcement in particular markets, such as health care, computer technology, the learned professions. Prerequisite: a law or business antitrust course or consent of instructor.
- 091:627 Seminar: Gender and Sexuality in U.S. Law** arr.
Same as 016:279.
- 091:628 History of Crime and Punishment** arr.
History of crime and punishment, mainly in America and Britain, also continental Europe; measurement of historical crime rates, decline and resurgence of violent crime, women's crime, crime and class status, philosophies of punishment, death penalty, the penitentiary, parole system, development of public prosecution system.

091:629 History of Regulation of Smoking and Tobacco arr.

Regulation of smoking and tobacco use; history, beginning with 19th and early-20th centuries; state statutes and case law; OSHA, EPA, and FDA regulations; class action litigation, involvement of law firms in formulating tobacco company strategies, use of medical studies, economic history of the tobacco industry.

091:630 History of the Legal Profession arr.

History of Anglo-American legal profession; amateur lawyers and Anglicization of the American bar; why there are no barristers in the United States; 19th-century professional reform in Britain; lawyers and changing trial practice; rise of the large firm; 19th-century changes in legal education; growth of professional associations; rules to regulate conduct; Legal Realism and 20th-century changes in legal education; diversity and the bar; dilemmas of self-regulation, autonomy versus loyalty to clients, role of law education. Two semesters.

091:632 Higher Education and the Law arr.

Practice of law in and for a complex institution; problems confronting attorneys in higher education, doctrinal issues prevalent in a university setting; focus on real or hypothetical problems considered in light of background reading rather than doctrinal analysis.

091:633 International Criminal Law arr.

How a single crime may occur in or harm more than one nation; questions addressed: which courts have jurisdiction, whose law governs; when countries may apply their criminal law extraterritorially; collaborative enforcement; the International Criminal Court.

091:637 International Law and U.S. Domestic Law arr.

Relationship between domestic and international law; issues affecting the practice of contract, property, criminal, and constitutional law in the United States; international treaties and structures that affect domestic law; arbitration, interjurisdictional differences, and the nation-state's capacity to implement public policy through its own courts and law.

091:639 International Human Rights and Child Labor arr.

International human rights law and the worldwide problem of child labor, particularly the worst forms of child labor.

091:640 Human Trafficking arr.

Scope of international human trafficking; framework of international law; American law governing trafficking, involuntary servitude, and related offenses from 13th Amendment to the present, including recent statutory developments such as the Trafficking Act of 2000 and amended act of 2003; prosecution strategies used by the Departments of Justice and Labor, other executive agencies; the combined prosecution/prevention/protection model in the United States; civil litigation by trafficking victims against their traffickers; potential and limits of state antitrafficking legislation; relationship between trafficking law and labor law; the annual State Department Trafficking in Persons report's role in U.S. foreign policy and its international law implications; varied legal issues involving trafficking and involuntary servitude.

091:642 Innovation, Business, and Law arr.

Topics in antitrust, intellectual property, corporate, and securities law or the interfaces between those areas.

091:643 Freedom of Speech Seminar arr.

Philosophical foundations—self-governance, pursuit of truth, self-realization, distrust of government; importance of these foundations in selected areas—national security, violence, commercial speech, obscenity, political spending, abortion counseling, government subsidies, academic freedom. Prerequisite: 091:232. States; difficulty of implementing employee codes of ethics,

091:646 Non-Profit and Philanthropic Organizations arr.

Legal regulation of philanthropic and nonprofit institutions; role, nature, and history of such institutions; tax exemption, tax treatment (including property and donor tax issues); political and

legislative activities, and roles of members, directors, officers; problems of external regulation, accreditation, ethics; issues for community foundations, universities, development of philanthropic and nonprofit activity in selected Third World countries.

091:647 The Law of the Frontier: U.S. 1820-1870 arr.

How law really functioned at the edges of the nation's jurisdictional limits; earlier patterns of power, adjustments for environmental circumstances; difference between concepts of law and justice.

091:648 Law and Development arr.

Use of law since the late 19th century to promote legal and economic development; spread of law reform in developing countries; role of foreign countries, multilateral agencies, bilateral agencies, other institutions in the law reform process; focus on American efforts abroad; activities by other countries, including developing countries.

091:650 Law and Colonialism arr.

The role of law in colonial and imperial expansion, with focus on the history of Anglo-American empires; how importation of common law as part of the colonial enterprise changed indigenous societies (e.g., labor relations, property rights, family law, criminal justice); use of the rule of law to justify colonialism, law as a practical dilemma for administrators; how colonialism's legal history fits into broader theories of imperialism; current globalization of common law.

091:652 Law and the Civil Rights Movement in Alabama 1955-65 arr.

Alabama and civil rights, from the Montgomery Bus boycott to the Selma March, major civil rights organizations and their most visible leaders, fair hearings for constitutional challenges in the Alabama federal court, courageous local lawyers, and resistance to the dismantling of segregation embodied by George C. Wallace; significance of law and legal institutions in advancing or retarding a political movement of extraordinary significance, complexity, and volatility; impact of legal developments arising from the Civil Rights Movement on other protest/reform movements in subsequent periods; perspectives from recent literature commemorating *Brown v. Board of Education*. Same as 016:286.

091:654 Law, Politics, and the Family arr.

Issues raised under the U.S. Constitution regarding state regulation of families; family and individual privacy, right to marry, procreation rights, parents' and children's rights.

091:655 Law of War, Peace, and Military Affairs arr.

Three aspects of law's efforts to govern military affairs: international law of war, U.S. law regulating foreign commitment of the nation's military forces, rights of individual soldiers (particularly women, homosexuals, religious observers).

091:656 Labor Standards Legislation arr.

Two federal statutes designed to intervene in the free play of market forces in certain segments of the labor market: Fair Labor Standards Act, Migrant and Seasonal Agricultural Worker Protection Act.

091:657 LL.M. Seminar arr.

Basic research and analytical methodologies for the international and comparative law fields; workshop approach to project proposals, drafts.

091:658 Seminar on the First Amendment arr.

Issues decided in the Supreme Court's unfolding jurisprudence under the First Amendment religion guarantees; conduct as free exercise of religion; strict separation of church and state in contexts of education, public funding, and use of public space; claims of religion for exemption from general law (e.g. *Yoder, Smith*); school prayer and its legacy (pledge of allegiance, Ten Commandments in public spaces); evolution, creationism, intelligent design in public school curricula; relationship between free speech and free exercise of religion; vouchers and public funding of private religious schools, need- and merit-based

scholarship funding; cases, historical sources, religious and philosophical views.

091:659 Law and Lawyers in Literature arr.

Fundamental societal issues and ethical questions examined through discussion of literary works, including novels and plays by writers such as Camus, Coetzee, Dostoyevsky, Durrenmatt, Faulkner, Ibsen, Kafka, Melville, Schaffer, Thucydides.

091:660 Medical Tutorial for Law Students arr.

Participation on medical and/or surgical rounds under supervision of attending physician; didactic sessions on legal, medical, and ethical issues arising from the clinical experience, and issues such as peer review, credentialing, quality assurance, cost containment, AIDS, reproductive technology; recent developments in medical technologies. Cosponsored by Carver College of Medicine. Prerequisite: 091:261 or equivalent.

091:661 Legal Issues: Intercollegiate Athletics arr.

Legal issues affecting college and university athletics and athletes; includes drug testing, recruitment, gender equity (Title IX), NCAA regulations, endorsement contracts, coaching contracts, trademark licensing, and broadcasting rights.

091:662 Problems in International Law and Policy Research Seminar arr.

American exceptionalism (U.S. unilateral conduct of foreign policy) during 20th and early 21st centuries; relevant treaties, conventions, and events; matters of legitimacy in law and policy.

091:663 Problems of International Law arr.

Issues arising from contemporary problems of public international law; topics such as the law of use of force and armed conflict, international law relating to religious persecution, protection of minorities, the "girl child," role of international organizations in peaceful settlement of disputes and in administration of justice.

091:664 Postconviction Remedies arr.

Three postconviction remedies traditionally available to prisoners who wish to challenge their continued confinement: state postconviction relief, federal habeas relief, executive clemency.

091:665 National Security Law and Government Powers in Emergencies arr.

National security powers of the federal government in national and international emergencies and crises; constitutional and statutory framework within which national security powers are exercised; conflicts between national security powers and individual rights, war powers and the rules of engagement, apprehension of foreign aliens through extradition or force; military tribunals and indefinite detentions of suspected terrorists, government practices in withholding information from the public and extracting critical information through extraordinary conduct, imposition of obligations on the United States under international law.

091:674 Poverty Law arr.

Governmental responses to poverty in the United States; federal, state, and local social welfare programs for low-income persons; policy issues, history of welfare provision; state responses to federal welfare devolution, women and welfare, immigration.

091:676 Social Justice arr.

Social justice and what is at stake in the context of fundamental rights jurisprudence and social legislation; five approaches to social justice—libertarianism, utilitarianism, intuitionism, justice as fairness, equality of resources; questions of public policy from each point of view—employment insurance, unconditional basic income, universal health insurance, educational grants.

091:680 Supreme Court Seminar arr.

Supreme Court practice, procedure, jurisdiction; the art of opinion writing; in-depth analysis of cases on the court's pending docket; writing briefs, conducting research, conferencing cases sitting as a mock Supreme Court, assigning and preparing opinions, soliciting votes of colleagues; preparation of two opinions.

091:683 Rethinking Public International Law arr.

Major transformations of public international law; how to integrate human rights into a system designed to secure world peace; transformation of laws of war; emergence of new sites of authority (supranational, international); blurring of line between public international law and constitutional law; conflicts of interpretation in relations between major players (United States, European and Asian countries).

091:685 Special Topics in Employee Benefits Law arr.

Remedies under ERISA—what equitable relief means after the Supreme Court's decision in *Great-West Life*; cases, articles, treatises on remedies and restitution.

091:690 Transnational Business Disputes arr.

When representing or suing foreign enterprises, whose law applies to the case, when a judgment from one country is enforceable in another, how such issues affect choice of forum, and when a governmental defendant may assert sovereign immunity or act of state; questions that must be posed to foreign counsel, how the answers may be used.

091:693 Transitional Justice arr.

How states resolve and manage tensions between objectives of social peace, justice, reconciliation (e.g., redress past abuses of basic rights); judicial and nonjudicial responses, including criminal prosecution, truth-seeking initiatives, private lawsuits for compensation from wrongdoers, monetary reparations by states to victims, displacement of perpetrators from prominent positions; strengths and weaknesses of each approach and conditions under which an approach is suitable, examined through countries including South Africa, Peru, Chile, Argentina, Rwanda, Sierra Leone, former Yugoslavia; how methods increasingly are combined to achieve comprehensive societal remediation in aftermath of abuse.

Law Study Abroad

660:823 Program in Comparative Law in Bordeaux, France arr.

Intensive course work in France taught by professors from Iowa and France. Five-week courses in May and June.

660:824 London Law Consortium arr.

Study abroad program for students from seven law schools (Iowa, Georgia, Utah, Kansas, Missouri-Columbia, Indiana-Bloomington, Chicago-Kent); American and British law taught by faculty drawn from the seven schools and British universities; clinical law program, work with British barristers and solicitors.

Carver College of Medicine

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Dean: Jean E. Robillard

Executive associate dean: Peter Densen

Senior associate dean: Allyn L. Mark

Associate dean for student affairs and curriculum:
Kimberly S. Ephgrave

Associate dean for finance and administration:
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**Associate dean for research and graduate
programs:** Allyn L. Mark

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advancement:** Steven Maravetz

Assistant deans: Daniel S. Fick, James D. Henderson,
Jess Mandel, Catherine Solow, Roger D. Tracy

**Assistant to the dean for facilities planning and
management:** Richard K. Schmidt

**Assistant to the dean for financial management
and controls:** Mark Hingtgen

Degrees: B.S., M.A., M.D., M.P.A.S., M.P.T., M.S.,
Ph.D.

Web site: <http://www.medicine.uiowa.edu>

The Roy J. and Lucille A. Carver College of Medicine is an integral part of The University of Iowa. It contributes to the education of several thousand University students, is home to ground-breaking research in a wide array of disciplines, and provides a statewide educational health care resource.

The Carver College of Medicine is the only college in Iowa that offers a curriculum leading to the Doctor of Medicine. It also is home to the Division of Associated Medical Sciences, which provides programs of education and training for physician assistants, clinical laboratory scientists, nuclear medicine technologists, physical therapists, and radiation sciences professionals.

The college participates in the education of students in the Colleges of Dentistry, Nursing, Pharmacy, and Public Health, and in the life-sciences and health-related programs of the College of Liberal Arts and Sciences, the College of Engineering, and the Graduate College.

Health professionals from throughout the Midwest take part in the college's year-round program of continuing medical education. They update their knowledge and skills through refresher courses, clinics, and conferences.

Doctor of Medicine and other health science students have a number of opportunities to gain experience in private medical offices and community hospitals. M.D. graduates may pursue further training in the specialties of family medicine, internal medicine, surgery, and pediatrics at one of 10 University of Iowa-affiliated residence programs in six Iowa cities. They also have access to two transitional-year programs. The Carver College of Medicine also offers a variety of services in support of Iowa physicians and community hospitals.

In addition to its responsibilities for educating physicians, the college addresses broad public issues of distribution and organization of health care services. Its faculty members advise and serve on national, state, and regional health planning councils, health boards, and various health agencies; some faculty members also take part in the University's Center for Health Services Research.

Accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges, the Carver College of Medicine meets the requirements of all state licensing boards. Its M.D. diploma admits the holder to all privileges granted to graduates of all medical colleges before such boards. All other professional

programs administered by the college are accredited by their respective accrediting bodies.

Professional Program (M.D.)

Doctor of Medicine

The Carver College of Medicine accepts 142 first-year students annually into its four-year course of study leading to the Doctor of Medicine (M.D.).

First and Second Years: Basic Medical Sciences and Foundations

The first three semesters present a core of sciences basic to the study of medicine and introduce the student to the foundations of clinical practice.

FIRST SEMESTER

099:163 Medical Biochemistry presents concepts concerning structures of biological macromolecules, cellular metabolism, molecular biology and genetics, and extra- and intracellular signaling mechanisms. It uses clinical examples to illustrate how alterations in these molecules and pathways can lead to pathological conditions.

060:103 Medical Gross Human Anatomy includes complete dissection of the human body, stressing the relationship to the living system. Clinically relevant areas of anatomical radiology, surface anatomy, human embryology, and clinical correlations are included in lectures accompanying the dissection.

060:116 Medical Cell Biology presents concepts concerning the structure and function of the cell and its organelles at the molecular level. The course consists of basic science lectures and clinical correlations and relates basic cell biological concepts to the understanding and treatment of human disease.

070:110 Medical Genetics is integrated with ongoing classes in anatomy, biochemistry, and cell biology. It provides an overview of clinical and medical genetics, with particular emphasis on recent changes that affect clinical practice with respect to common diseases that have a genetic component.

050:162 Foundations of Clinical Practice I is the first semester of a sequential four-semester course that introduces clinical skills students need in order to become practicing primary care physicians.

The five major goals for students over the four-semester course are to develop knowledge, attitudes, and skills that are necessary for:

- maturating into a competent and confident clinician;

- maintaining a lifelong process of learning the practice of medicine;

- application of relevant basic science and clinical concepts and other scientific advances to the practice of medicine;

- application of the principles of health promotion and disease prevention to the practice of medicine; and

- increasing awareness of the ethical and social context in which medicine is practiced.

Through large group lectures, small case-based learning groups, and small-group skill building sessions, students focus on communication in the doctor-patient relationship, accessing and managing medical information, and applying basic principles of evidence-based medicine and medical ethics.

SECOND SEMESTER

060:234 Medical Neuroscience is a course for medical students, physical therapy students, and graduate students in the basic medical or related sciences. Through lectures, clinical correlate presentations, laboratories, and small group discussion sessions, the course emphasizes the interdisciplinary and integrated study of the human central nervous system. Its faculty is drawn from basic science and clinical departments.

148:251 Principles of Medical Immunology is offered by the interdisciplinary Immunology Program. Its goals are to teach basic components and mechanisms of the immune response as well as medical principles of normal and abnormal immunity. The course consists of lectures by Immunology Program faculty and small group case analysis sessions.

050:240 Human Organ Systems is an interdepartmental course that presents the normal structure (histology) and function (physiology) of human organ systems in a coordinated and integrated organ systems approach. The course is designed to emphasize structure/function relationships by integrating the microscopic anatomic and physiologic function of normal human organ systems. The course's faculty includes members of basic science departments and clinical departments.

050:163 Foundations of Clinical Practice II is the second semester of a sequential, four-semester course that introduces clinical skills students need in order to become practicing primary care physicians (see 050:162 for overall course goals). In this semester, students continue to work toward course goals through small case-based learning groups, large-group lectures, and small-group skill acquisition sessions. They also are introduced to clinical medicine in a shadowing experience with health care providers. Principles of doctor-patient communication are reinforced and performance of the components of the general physical examination are taught and practiced. Multiculturalism, preventive medicine and health promotion, medical informatics, and the social context of medicine are included.

THIRD SEMESTER

071:105 Pharmacology for Health Sciences: Medical bridges the clinical and basic sciences and provides students with principles that must be understood in order to describe properly the actions of drugs in patients.

061:103 Principles of Infectious Diseases presents a comprehensive approach to the microbiology of infectious diseases, covering infectious agents at both the organism and molecular levels. The molecular aspects of pathogenesis are presented as the basis for present and future preventive and therapeutic measures. The laboratory includes hands-on experiments ranging from principles of aseptic technique to the most modern molecular aspects of diagnostic microbiology.

069:205 Medical Pathology I starts with general principles of disease: cell injury, inflammation, immune mechanisms, neoplasia, and hemodynamic disorders, followed by etiology, pathogenesis, epidemiology, and major clinical and morphologic manifestations of disease by organ systems. The course combines lecture information, small group analytic skills, and observation of current laboratory procedures.

050:164 Foundations of Clinical Practice III is the third semester of a sequential, four-semester course that introduces clinical skills students need in order to become practicing primary care physicians (see 050:162 for overall course goals). This semester continues the knowledge, attitude, and skill acquisition begun in the preceding two semesters. Students continue to learn through small patient-centered learning groups as well as lecture and clinical skill-building small groups. Content areas include human sexuality, biomedical ethics, and

problem-specific medical history and physical exams. Students begin to apply clinical history taking and physical exam skills learned in preceding semesters by taking complete histories and performing physical exams on simulated and real patients.

Some elective courses are available to students during the first and second years. These normally carry 1 or 2 s.h. of credit. Topics include areas not specifically covered in the regular curriculum and areas related to medical practice and the role of the physician. Course offerings vary from year to year, but typical subject areas are global health issues, U.S. health care systems, and community health outreach.

FOURTH SEMESTER

069:206 Medical Pathology II is a continuation of 069:205 Medical Pathology I.

050:183 Medical Ethics and Health Law introduces students to medical ethics and health law. In the medical ethics component, students learn to appreciate the inseparable relationship between medicine and ethics, and to recognize key ethical obligations and challenges common in medical practice. They also learn how to identify sources of ethical value commonly used in ethical reasoning, and how to apply a systematic approach to clinical ethical reasoning. In the health law component, students develop a working knowledge of the interplay among law, medicine, and ethics; gain familiarity with the substance of American law; develop the ability to identify relevant legal issues; and develop skills for dealing with legal issues.

050:165 Foundations of Clinical Practice IV is the final course in the foundation series. The fourth semester is devoted primarily to this major interdisciplinary course, which includes participation by a large proportion of the faculty and is vital in providing students with the tools for a lifetime of patient care.

Mornings are devoted to intensive review of the diagnostic and therapeutic aspects of organ-system-based clinical medicine. The reviews are presented by teams of specialty and subspecialty clinicians. Students spend afternoons acquiring and practicing the clinician's skills in history taking and physical examination and in learning specialized exams. Small group learning and clinical case conferences take place throughout.

Each student is evaluated individually during the semester. Evaluations include the student's approach to the patient, accuracy of history and physical examination, precision in

communicating data gathered, ability to synthesize available data into a realistic differential diagnosis, and ability to apply the process of problem-based learning to the understanding of patient-based problems. Cognitive knowledge of topics covered in the morning lecture and small group sessions is assessed through computer-based multiple-choice examinations. Students who need further work receive guidance and assistance.

All M.D. students are required to pass Step 1 of the United States Medical Licensing Examination before they may be promoted to the third year of the curriculum.

Third and Fourth Years: Clinical Training

The clinical courses take place during the last two years of the medical curriculum. In order to qualify for graduation with the M.D., students must complete satisfactorily a total of 81 weeks of courses during the two clinical years: 69 weeks of required courses and 12 weeks of electives. Course distribution is 49 weeks in the first clinical year and 32 weeks in the second.

Clinical Beginnings (050:170), a required week-long orientation to the core clerkships, takes place immediately before the start of the clinical courses. It introduces students to the clinical courses and includes discussions about professionalism, clinical notes and presentations, and career planning; technical skills laboratories that emphasize basic procedures important for clinical courses; a simulated patient exercise about communication of bad news; a simulated patient assessment of the core physical examination (students who fail to demonstrate competence at a predetermined level must participate in remediation); and student-developed seminars concerned with personal and professional activities in the clinical courses. The Student Clinician Ceremony completes the week's activities.

The required clerkships are as follows.

Eight core clerkships: internal medicine, obstetrics and gynecology, pediatrics, psychiatry, surgery, outpatient internal medicine, community-based primary care, and family practice preceptorship; each course includes a mix of inpatient and outpatient activities, introduces the student to a specific discipline or to the practice of medicine in the community, and presents the opportunity to develop and practice clinical skills.

Required subspecialty clerkships: anesthesia, dermatology, neurology, ophthalmology, orthopaedics, otolaryngology, radiology, and urology, and courses in laboratory medicine and electrocardiography.

Advanced clerkships: subinternship, in which the student assumes responsibility for managing patients in a variety of approved medical disciplines, supervised by a senior resident and a faculty physician; emergency room or intensive care rotation.

Three electives: electives chosen from clerkships listed in the course book distributed by the Carver College of Medicine.

FIRST CLINICAL YEAR COURSE REQUIREMENTS

All medical students must complete satisfactorily 49 weeks of courses, including Clinical Beginnings, 36 weeks of core clerkships, and 12 weeks of courses chosen from the required subspecialty clerkships.

SECOND CLINICAL YEAR COURSE REQUIREMENTS

All medical students must complete satisfactorily 32 weeks of clerkships chosen from those not completed in the first clinical year, including the required subspecialty clerkships, the advanced clerkships, and electives.

Although the primary venues for clinical training of medical students are the University of Iowa Hospitals and Clinics and the Veterans Affairs Iowa City Health Care System, the family practice preceptorship and the community-based primary care clerkship are off-campus rotations. Other courses may be assigned to off-campus sites, as well.

Admission to the M.D. Program

The Carver College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit centralized application processing service for applicants to U.S. medical schools. AMCAS applications are available for completion in May of the year preceding the beginning of the class for which application is being made. Prospective students are urged to apply as early as possible. The deadline for AMCAS processing is November 1.

Secondary applications are forwarded to applicants whose AMCAS applications pass a review conducted by the college. A \$60 fee must accompany the secondary application from all applicants.

Admitted applicants must have an official transcript from each college they have attended sent to the University's Office of Admissions.

Technical Standards for Admission and Retention

The Carver College of Medicine seeks students who will serve the needs of society best, and it strives to graduate skilled and effective physicians. To achieve these goals, it applies the following principles and technical standards to candidates for admission and to continuing students.

PRINCIPLES

Technical standards refer to criteria that go beyond academic requirements for admission and are essential to meeting the academic requirements of the M.D. program.

Applicants to the Carver College of Medicine and students continuing in the college, with or without disabilities, are expected to meet the same requirements.

Matriculation and continuation in the college assume a certain level of cognitive and technical skill. Medical students with disabilities are held to the same fundamental standards as their nondisabled peers. Although not all students should be expected to gain the same level of proficiency with all technical skills, some skills are so essential that mastery must be achieved, with the assistance of reasonable accommodations where necessary.

Reasonable accommodations are provided to assist in learning, performing, and satisfying the technical standards.

Every reasonable attempt is made to facilitate the progress of students, providing such efforts do not compromise collegiate standards or interfere with the rights of other students and patients.

TECHNICAL STANDARDS

Applicants for admission to the Carver College of Medicine and continuing students must possess the capability to complete the entire medical curriculum and be granted the degree. To this end, they must complete all courses in the curriculum successfully. In order to acquire the knowledge and skills to function in a broad variety of clinical situations and to provide a wide spectrum of patient care, M.D. students must have abilities and skills in five areas, including observation; communication; motor skills; intellectual, conceptual, integrative, and quantitative abilities; and behavioral and social attributes.

Technological compensation can be made for some disabilities in certain areas, but each student must meet the essential technical standards in such a way that he or she is able to perform in a reasonably independent manner. The use of a trained intermediary is not acceptable in many clinical situations, because it implies that the student's judgment must be mediated by someone else's power of selection and observation.

Observation: Students must have the functional ability to observe demonstrations and experiments in the basic sciences and must have sufficient use of the senses necessary to perform a physical examination.

Communication: Students must be able to relate reasonably to patients and establish sensitive, professional relationships with patients, colleagues, and staff. They are expected to communicate the results of the history and examination to the patient and to their colleagues with accuracy, clarity, and efficiency.

Motor: Students are expected to participate in basic diagnostic and therapeutic maneuvers and procedures. Those who cannot perform these activities independently should be able to understand and direct the methodology involved in such activities.

Intellectual, conceptual, integrative, and quantitative abilities: Students must be able to learn to analyze, synthesize, solve problems, and reach reasonable diagnostic and therapeutic judgments. Students are expected to be able to display good judgment in the assessment and treatment of patients. They must be able to learn to respond with prompt and appropriate action in emergency situations.

Behavioral and social attributes: Students are expected to be able to accept criticism and respond with appropriate modification of their behavior. Students also are expected to possess the perseverance, diligence, and consistency necessary to complete the M.D. curriculum and enter the independent practice of medicine in a reasonable period of time. They must demonstrate professional and ethical demeanor and behavior in all dealings with peers, faculty, staff, and patients.

Applicants who may not meet these standards are encouraged to contact the college's admissions office.

Admission Requirements

Applicants for admission to the Carver College of Medicine must have a baccalaureate degree; or they must be enrolled in a baccalaureate degree

program, have earned at least 94 s.h. of credit or the equivalent, and expect to receive their degree before enrolling in the Carver College of Medicine. They must have satisfied the following requirements, all taken with appropriate laboratories.

Physics: a complete introductory course (one year)

Mathematics: college algebra and trigonometry, or advanced college mathematics for applicants who completed college algebra and trigonometry in high school

Chemistry: at the minimum, a complete introductory course in organic chemistry (one year), ordinarily following a complete introductory course in modern general chemical principles

Biological sciences: a complete introductory course in principles of biology, or zoology and botany (one year), and an advanced biology course (one semester or quarter)

Fulfillment of these requirements does not guarantee admission to the Carver College of Medicine. The college's admissions committee selects applicants who appear to be best qualified to study and practice medicine.

Applicants must have a cumulative g.p.a. of at least 2.50 for all college work. Applicants should have taken the required science courses for a grade rather than electing pass/fail grading.

Preference is given to Iowa residents with high scholastic standing. Consideration also is given to outstanding nonresidents.

Applicants are required to take the Medical College Admission Test (MCAT) no earlier than five years before and no later than August of the year of application. MCAT registration is available on the AAMC web site (<http://www.aamc.org>).

Personal interviews are part of the admission process. Candidates invited for an interview are contacted by the admissions committee.

Applicants accepted on or before February 15 must submit an advance payment of \$50 by March 1. Applicants accepted after February 15 must submit the \$50 payment within two weeks after they receive notification of acceptance. The advance payment is credited toward tuition and fees.

All students who enter the Carver College of Medicine are required to comply with the pre-entrance and annual health screening program developed by the University's Student Health Service in cooperation with University of Iowa Hospitals and Clinics.

All registered Carver College of Medicine students are required to maintain health insurance (or an equivalent care plan) that satisfies minimum standards of coverage. Insurance coverage must be maintained continuously throughout each year of attendance at The University of Iowa.

Student Policies and Procedures

Student Promotion

The Carver College of Medicine has established promotion policies and procedures to ensure that each of its graduates has adequate skills, knowledge, judgment, ethical standards and personal integrity to assume the responsibilities of a medical doctor. The student promotions committee, made up of six faculty members and two students, performs these duties with the cooperation, advice, and judgment of course directors, faculty members, students, and administrators.

The committee recommends specific actions to be taken when a student's skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. Possible recommendations include immediate dismissal of the student from the college; suspension for a specified period of time; requiring the student to repeat all or any part of the curriculum on academic probation; and allowing the student to continue on academic probation with a full or partial course load. The committee's recommendations are forwarded for action to the senior associate dean of the Carver College of Medicine.

Medical students have the right to appeal a promotion decision. They must submit the appeal in writing to the Carver College of Medicine's senior associate dean within five days of notification of the decision. Appeals are considered by the Appeals Committee, made up of faculty representatives of the Medical Council and the Executive Committee, a medical student, a lay member, and the associate dean for student affairs (ex officio). Students may request an opportunity to appear before the Appeals Committee to make a statement and answer questions. The committee then makes its recommendation to the college's dean, who is the final authority.

Specific information about student promotion policies and procedures is available from the Medical Student Affairs Office and is online in

the Medical Student Handbook. See Office of Student Affairs and Curriculum/Student Handbook on the college's web site.

Leaves of Absence, Withdrawal, Reinstatement

The Carver College of Medicine has established policies regarding leaves of absence, dropping courses, withdrawal from the college, and reinstatement to the college. Information about each of these policies is available at the college's Office of Student Affairs and Curriculum and is published annually in the Medical Student Handbook.

Disputes and Complaints

Student complaints concerning actions of faculty members or departments are pursued first through mechanisms established in the Carver College of Medicine. These procedures allow the greatest flexibility for all concerned in resolving a conflict. They are intended for situations such as grading disputes, alleged academic dishonesty, alleged dishonesty during a clinical rotation, alleged unethical or unprofessional conduct, and perceived discrimination or harassment.

Complaints regarding sexual harassment are handled confidentially in accordance with University policy and procedures; see the University's Policy on Sexual Harassment.

For information about the established informal mechanisms, contact the Office of Student Affairs and Curriculum or see the Medical Student Handbook.

Financial Aid

The Carver College of Medicine's philosophy is that no student should be denied a medical education due to a lack of funds. Admissions decisions at the Carver College of Medicine are made without consideration of financial need. Therefore, the Carver College of Medicine financial aid staff actively seeks financial aid sources so every student interested in a medical education can finance that education.

Financial assistance is provided by the Carver College of Medicine primarily on the basis of demonstrated financial need. Although a limited number of collegiate or institutional grants are available for the most economically disadvantaged students, most aid is in the form of loans. Examples of federal loan programs are the Federal Direct Stafford/Ford Student Loan, the Federal Direct Unsubsidized Stafford/Ford

Student Loan, the Federal Perkins Loan, and the Primary Care Loan (PCL). Students also may qualify for private loans to supplement their financial aid package.

In addition, the college supports scholarship and loan programs through permanent endowments and/or contributions from alumni and friends of the Carver College of Medicine. These funds are administered by the college's financial aid office and are awarded as a part of a student's total financial aid package. Funds to support short-term emergency loans are available for students with immediate financial need.

A small number of Dean's Scholarships are awarded by the college's admissions office to highly qualified candidates on the basis of their academic excellence, leadership abilities, and their potential to enrich the college. Dean's Scholarships are included in the recipient's overall financial aid package.

To learn more about financial aid, contact the Carver College of Medicine Office of Student Affairs and Curriculum financial services department.

Graduate Programs

The Carver College of Medicine offers graduate programs leading to the M.S. in pathology and Master of Physician Assistant Studies (M.P.A.S.); the M.S. and Ph.D. in biochemistry, free radical and radiation biology, microbiology, pharmacology, and physiology and biophysics; the Ph.D. in anatomy and cell biology and physical rehabilitation science; and the Doctor of Physical Therapy (D.P.T.).

Many of the college's faculty members participate in the Graduate College's interdisciplinary programs in genetics, immunology, molecular biology, and neuroscience, and in its Biosciences Program.

Interdisciplinary Biosciences Program

The Graduate College and the Carver College of Medicine offer the interdisciplinary Biosciences Program, which gives graduate students the opportunity to become acquainted with basic molecular research in the Departments of Anatomy and Cell Biology, Biochemistry, Biological Sciences, Microbiology, Pharmacology, Physiology and Biophysics, and the Programs in Free Radical and Radiation Biology, Genetics, Immunology, Molecular Biology, and Neuroscience. The Biosciences Program offers

graduate students flexibility during their first year of study, before they select the department or program in which they will earn their Ph.D.

See Biosciences (Graduate College) for details.

Medical Scientist Training Program

The Medical Scientist Training Program (MSTP) is a joint M.D./Ph.D. program offered by the Carver College of Medicine and the Graduate College. The program prepares trainees for careers in academic medicine, with emphasis on basic and clinical research. It provides an effective means for integration of graduate education and doctoral research with the full complement of clinical studies necessary for the M.D. With few exceptions, requirements for the combined M.D./Ph.D. can be completed in seven to eight years of continuous study. See Medical Scientist Training Program for details.

Translational Biomedicine

The Carver College of Medicine and the Graduate College offer a program leading to an M.S. or Ph.D. in translational biomedicine. See Translational Biomedicine (Graduate College) for details.

Joint Degree Programs

Students who wish to pursue an M.D. in combination with a graduate degree must be admitted to both the M.D. program and the graduate program and must make arrangements with the graduate department and with the Carver College of Medicine associate dean for student affairs and curriculum. Examples of joint degree programs are the M.D./M.P.H. with the College of Public Health, M.D./M.B.A. with the Tippie College of Business, and the M.D./J.D. with the College of Law.

Faculty

Nearly all Carver College of Medicine faculty members are full-time. Their work in practice and research is integral to their teaching. Many have earned national and international honors.

Interdisciplinary Programs, Centers

The college's interdisciplinary programs and centers draw strength from college faculty

members and the facilities available to them, without regard to departmental units or to the distinction between graduate and postgraduate training. For more information, contact the associate dean for research and graduate programs.

The following centers are subdivisions of the Carver College of Medicine.

General Clinical Research Center

The Clinical Research Center is the focal point at The University of Iowa for interdisciplinary programs in clinical investigation. It provides a physical and intellectual environment in which clinical investigation can be conducted with maximum regard for patient welfare and safety. The center, which has been funded continuously for 43 years by the National Institutes of Health, is a discrete unit with research nurses and dietitians, biostatistical support, and a computer facility.

Mental Health Clinical Research Center

The major emphasis of the Mental Health Clinical Research Center is the study of schizophrenia. The center provides the facilities for research linking the clinical picture of the illness with its underlying neurobiology. The center's seven research units conduct the necessary integrative and interdisciplinary research to advance knowledge about the disease.

Iowa Cardiovascular Center

The Iowa Cardiovascular Center coordinates research and training programs related to cardiovascular diseases. It encompasses several federally and nonfederally funded programs: Program—Project Grant on Integrative Functions in Neurovascular Control, the Specialized Center of Research (SCOR) in Coronary and Vascular Diseases, SCOR in Occupational and Immunologic Lung Disease, Program—Project Grant on Cerebral Blood Vessels, SCOR in Hypertension, SCOR in Congenital Heart Disease, SCOR in Cystic Fibrosis, Cystic Fibrosis Foundation Research and Development Program, Program—Project Grant on Gene Therapy for Cystic Fibrosis Lung Disease, Cystic Fibrosis Foundation Gene Therapy Center, and Training Center for Clinical Management of Lipid Disorders. It also coordinates several training

programs and a coordinated program of other interdisciplinary research supported by a number of individual project grants.

The center occupies two floors of cardiovascular research laboratories and administrative offices in the Medical Research Center.

Holden Comprehensive Cancer Center

The Holden Comprehensive Cancer Center (HCCC) coordinates the efforts of University of Iowa faculty and staff in research, education, and demonstration programs related to all aspects of cancer. The HCCC is recognized by the National Cancer Institute as an NCI-designated cancer center and has "comprehensive" status, a designation that recognizes research scientists, physicians, and other health care professionals for their roles in treating and caring for patients with cancer.

Alzheimer's Disease Research Center

The Alzheimer's Disease Research Center studies Alzheimer's disease and related neurological conditions from the viewpoint of neuroanatomy, neuroimaging, neuropsychology, and neurochemistry. The center's purposes are to improve the diagnosis and treatment of these conditions, to disseminate information on new research to the public, and to contribute to a better understanding of the neural basis of cognition.

Center for Macular Degeneration

The Center for Macular Degeneration was organized to prevent the devastating consequences of macular degeneration in the majority of people at risk. For those already affected by the disease, the center works to develop sight-saving medical, pharmacological, and surgical treatments.

Facilities for Education, Patient Care

First- and second-year classes are taught in the Bowen Science Building, the Medical Education Building, the Medical Laboratories, and in classrooms and conference rooms of University of

Iowa Hospitals and Clinics. The Medical Education and Research Facility houses the preclinical medical curriculum.

The Hardin Library for the Health Sciences is centrally located on the health sciences campus.

Students acquire clinical experience in the 762-bed University of Iowa Hospitals and Clinics, in the 93-bed Veterans Affairs Iowa City Health Care System (including observation beds), and in affiliated hospitals and ambulatory care centers throughout Iowa.

Faculty members of the Carver College of Medicine and the College of Dentistry make up the 750-member clinical staff at University of Iowa Hospitals and Clinics, whose 20 clinical services are directed by the heads of the corresponding academic departments in the two colleges. These faculty members also provide instruction for the 480 resident physicians and dentists and the 186 fellows who make up the house staff of University of Iowa Hospitals and Clinics, where facilities are provided for teaching all major medical specialties, for residencies in all specialties, and for fellowships in a number of subspecialties.

University of Iowa Hospitals and Clinics serves as a tertiary care center for Iowa and portions of adjoining states. Many patients are referred to University of Iowa Hospitals and Clinics for care and treatment not readily available in their home communities.

Research Facilities

The Carver Biomedical Research Building (CBRB), which opened in fall 2005, greatly expands the college's research space. It has 135,000 square feet and five floors of laboratories, and its lower level is home to a state-of-the-art nuclear magnetic resonance facility. Connected to CBRB is the Medical Education and Research Facility, which opened in 2001 with 220,000 square feet of education and biomedical research laboratory space.

The Eckstein Medical Research Building, which opened in 1989, was designed to provide spaces, mechanical systems, and support services that offer flexibility and adaptability for current and future research. The facility enables interdisciplinary groups of faculty scientists, each of whom is researching a human biology problem at the advancing edge of science, to conduct research in close proximity to other select researchers.

Other buildings that house research labs include Medical Laboratories, Bowen Science Building, Medical Education Building, Medical Research Facility, Medical Research Center, and buildings on the University's Oakdale Campus.

A number of facilities that support the faculty's research and teaching endeavors are administered through the Carver College of Medicine dean's office. University of Iowa research facilities housed in the college include the Central Electron Microscopy Research and Learning Facility, the DNA Facility, the Flow Cytometry Facility, the Gene Targeting Core Facility, the Gene Transfer Vector Core Facility, the Nuclear Magnetic Resonance Facility, the High Resolution Mass Spectrometry Facility, the Keck Dynamic Image Analysis Facility, the Large-Scale Fermentation Facility, the Molecular Analysis Facility, the Tissue Culture/Hybridoma Core Facility, and the Transgenic Animal Facility.

The Office of Consultation and Research in Medical Education is made up of education specialists from a range of disciplines who serve the faculty, staff, and administration of all Carver College of Medicine programs. The office provides educational consultation, initiates and cooperates in educational research endeavors, and conducts faculty development activities.

Courses

Medicine Nondepartmental

- 050:001 Medical Elective** arr.
- 050:003 Clinical Clerkships** arr.
- 050:005 Medical Student Research Fellowships** 0 s.h.
- 050:006 Doris Duke Clinical Research Fellowship** 0 s.h.
Clinical research projects under University of Iowa faculty mentorship. Prerequisite: leave of absence from Carver College of Medicine.
- 050:147 End of Life Care for Adults and Families** 2-4 s.h.
End-of-life issues faced by patients and families; epidemiology of dying, care settings and systems, communication, pain and symptom management, well-being and quality of life; legal, ethical, and bereavement concerns. Prerequisite: consent of instructor. Same as 046:146, 096:147, 153:147.
- 050:162 Foundations of Clinical Practice I** 5 s.h.
- 050:163 Foundations of Clinical Practice II** 5 s.h.
- 050:164 Foundations of Clinical Practice III** 5 s.h.
Experience practicing and expanding clinical skills and self-directed learning skills in clinical medicine; understanding medical practice in a social context. Prerequisites: 050:162, 050:163, and second-year M.D. enrollment.
- 050:165 Foundations of Clinical Practice IV** arr.
Basic diagnostic considerations in each of medicine's clinical disciplines, as required of primary care providers. Prerequisites: 050:162, 050:163, 050:164, and second-year M.D. enrollment.

- 050:166 History of Medicine in Western Society** 2 s.h.
- 050:168 Teaching of Physical Exam Skills** 1-2 s.h.
Components of complete physical exam and educational techniques for teaching such skills; teaching of physical exam components to first-year students. Prerequisite: fourth-year M.D. enrollment.
- 050:169 Doctors in Film: Kildare to Sacks** 2 s.h.
Development of the American hero literary figure through portraits of physicians in popular film.
- 050:170 Clinical Beginnings** 1 s.h.
Orientation to third-year clerkships; technical skills, simulated patient activities, competence with the physical exam.
- 050:171 Women, Gender, and Medicine: Historical Perspective** 4 s.h.
Women in medicine from two historical perspectives; women as patients, healers. Prerequisite: fourth-year M.D. enrollment.
- 050:174 Foundations of Clinical Practice for Physician Assistants** 5 s.h.
Practice and expansion of clinical skills; development of broad understanding of the practice of medicine in social context; strengthening of self-directed learning skills in clinical medicine. Prerequisites: 117:101 and Physician Assistant Program enrollment.
- 050:175 Foundations of Clinical Practice IV for Physician Assistants** arr.
Basic diagnostic considerations in each of medicine's clinical disciplines, as required of primary care providers.
- 050:180 Community-Based Primary Care** arr.
Introduction; clinical activities, work with community agencies and resources, didactic and conferences. Prerequisite: M.D. enrollment.
- 050:183 Medical Ethics and Health Law** 2 s.h.
Ethical and legal aspects of health care delivery.
- 050:190 Introduction to Medical Education at Iowa** 0 s.h.
Introduction to first-year fall courses; advanced concepts in anatomy, biochemistry, cell biology, and clinical reasoning skills; for M.D. students.
- 050:195 Community Health Outreach I** 0-1 s.h.
Presentations and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.
- 050:196 Community Health Outreach II** 1-2 s.h.
Presentations, patient-based learning groups, readings, and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.
- 050:197 Community Health Outreach III** 1-2 s.h.
Presentations, patient-based learning groups, readings, and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.
- 050:198 Community Health Outreach IV** 2 s.h.
- 050:203 Clinical Dietetics** 1 s.h.
Nutritional aspects of health and disease, with emphasis on medical nutrition therapy; human nutrition in the clinical state as it relates to physiology and biochemistry.
- 050:211 MSTP Research** arr.
- 050:212 MSTP Clinical Connections** arr.
Experience with physician-scientist preceptor in medical interviewing, physical examination, patient presentation through direct patient interaction. Prerequisite: Medical Scientist Training Program graduate phase enrollment.
- 050:220 Patient-Oriented Research Didactic** 3 s.h.
Topics relevant to research design and data analysis, including principles of study design; selection, development, and testing of hypotheses; significant quantitative and qualitative research methods. Prerequisite: consent of instructor. Same as 173:151.
- 050:223 Seminar in Clinical Research** 1 s.h.
Presentation of ongoing research projects and methodology in patient-oriented clinical research. Repeatable. Prerequisites: 050:220 and Clinical Investigation Training Program enrollment, or consent of instructor.
- 050:224 Seminar in Translational Biomedicine** 1 s.h.
Student research presentations, journal club, invited speakers.
- 050:225 Translational Biomedical Research** arr.
Student research guided by mentor.
- 050:226 Quality Improvement in Health Care Systems** arr.
Preparation for leading continuous quality improvement programs in health care organizations; varied quality improvement techniques. Prerequisite: consent of instructor.
- 050:228 K30 Preceptored Research** arr.
Academic credit for the mentored research project required of trainees in the Graduate Training Program in Clinical Investigation. Prerequisite: consent of instructor.
- 050:240 Human Organ Systems** 8 s.h.
Microscopic structure and function of major and specialized human organ systems; approach integrating normal microscopic anatomy and human physiology. Prerequisite: M.D. enrollment.
- 050:270 Responsible Conduct in Research** 0 s.h.
Ethical issues; misconduct and fraud; proper handling of data; responsible authorship; conflict of interest; research on animals and human subjects. Prerequisite: consent of Carver College of Medicine.
- 050:280 Medicine, Narrative, and Poetics** arr.
Insights, freedom, joy, responsibilities, and challenges of a life in medicine; reading, discussion, individual creative writing.
- 050:281 Global Health Issues—International** 1 s.h.
Global health topics; theoretical structure for interpreting global health care issues; for medical students.
- 050:282 Global Cross-Cultural Clerkship** arr.
Cross-cultural medical program at an international site; focus on health care problems of a specific community; individual educational objectives set in advance.
- 050:283 Health Informatics I** 3 s.h.
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 021:275, 051:187, 056:186, 074:191, 096:283, 174:226.
- 050:284 Global Cross-Cultural Elective** arr.
Cross-cultural medical program with focus on health care problems of a domestic or international community; individually arranged.
- 050:285 Global Health Issues: Domestic Communities** 1 s.h.
Domestic health topics that illustrate health care needs of diverse domestic communities.
- 050:286 Introduction to U.S. Health Care System** 1 s.h.
Structure, function, and finance of U.S. health care system; access, cost, quality, finance mechanisms, reform process.

050:995 Individual Project: Medical History arr.

050:999 Special Study off Campus arr.
Arranged by student with department's approval.

Hospital Certificate Programs

The following courses are conducted by University of Iowa Hospitals and Clinics staff.

670:901 Radiologic Technology I 0 s.h.
Patient care and ethics, radiographic positioning, radiographic critique, medical terminology, radiologic physics, anatomy and physiology, radiographic technique, computer technology, radiation biology, radiographic processing, imaging equipment, quality assurance; supervised clinical education; two-year program; national board examination required at completion.

670:902 Radiologic Technology II 0 s.h.
Prerequisite: 670:901.

671:902 Orthoptics Program 0 s.h.
Clinical science of binocular vision, ocular motility, and related eye disorders; practical, theoretical training in the Department of Ophthalmology and Visual Sciences two-year program; written, oral and practical national board examinations required at completion. Prerequisite: bachelor's degree with specific class recommendations.

672:803 Radiation Therapy I 0, 12 s.h.
Theory and techniques of radiation therapy technology; emphasis on areas of oncology treatment planning, treatment set-up, dosimetry, use of megavoltage-radiation-producing equipment to administer treatments. Prerequisites: completion of radiologic technology program and eligibility for registration with a national certification program.

672:804 Radiation Therapy II 0, 12 s.h.
Theory and techniques of radiation therapy technology; emphasis on areas of oncology treatment planning, treatment set-up, dosimetry, use of megavoltage radiation-producing equipment to administer treatment; one-year program ending in eligibility for national certification examination in radiation therapy. Prerequisites: 672:803, graduation from an accredited radiography program, and eligibility for registration with a national certification program.

672:805 Radiation Therapy III 0, 6 s.h.
Prerequisite: 672:804.

673:803 Diagnostic Medical Sonography I 0, 9 s.h.

673:804 Diagnostic Medical Sonography II 0, 9 s.h.
Principles and methods in using ultrasound as an imaging modality; abdomen, obstetrics and gynecology, neurosonography, and vascular technology specialties; 18-month program; national certification required at completion. Prerequisites: 673:803 and completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, and algebra.

673:805 Diagnostic Medical Sonography III 0, 3 s.h.
Prerequisites: 673:804 and completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, medical technology, and algebra.

673:806 Diagnostic Medical Sonography IV 0, 9 s.h.
Principles and methods in using ultrasound as an imaging modality; specialties including abdomen, pediatrics, obstetrics, gynecology, interventional procedures, vascular imaging, neurosonography; 18-month program; national certification examination required at completion. Prerequisites: 673:805 and completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, medical technology, and algebra.

673:807 Diagnostic Medical Sonography V 0, 6 s.h.
Prerequisites: 673:806 and completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, medical technology, and algebra.

673:911 Diagnostic Cardiac Sonography 0 s.h.
Principles, methods in using ultrasound; specialties including adult and stress echocardiography; six-month program; national certification examination required at completion of program. Prerequisite: completion of an accredited medical sonography or vascular technology program.

673:912 Cardiac Sonography Clinical Course 0 s.h.
Using ultrasound as an imaging modality; specialties, including adult echocardiography, stress echocardiography; six-month program; national certification examination required at completion. Prerequisite: completion of an accredited medical sonography or vascular technology program.

674:806 Magnetic Resonance Imaging I 0, 8, 12 s.h.
Procedures and pathophysiology, physics, advanced sectional anatomy, instrumentation, supervised clinical education; nine-month program; national recognition examination recommended at completion. Prerequisite: completion of radiologic technology program.

674:807 Magnetic Resonance Imaging II 0, 8, 12 s.h.
Prerequisites: 674:806 and completion of radiologic technology program.

674:808 Magnetic Resonance Imaging III 0, 8 s.h.
Procedures, pathophysiology, physics, advanced sectional anatomy, instrumentation, supervised clinical education; nine-month program; national recognition examination recommended at completion of program. Prerequisites: 674:807 and completion of radiologic technology program.

675:808 Cardiovascular Interventional I 0, 8 s.h.
Imaging equipment, intervention, techniques, digital angiography, vascular anatomy and physiology, pharmacology, sterile techniques, cardiac monitoring; six-month program; national recognition examination recommended at completion. Prerequisite: completion of radiologic technology program.

675:809 Cardiovascular Interventional II 0, 7 s.h.
Prerequisites: 675:808 and completion of radiologic technology program.

676:810 Computed Tomography I 0, 8 s.h.
Sectional anatomy, procedures and pathology, physics and imaging, introduction to multidetector CT, physiologic and 3-D imaging, CT simulation; six-month program; national recognition examination at recommended completion of program. Prerequisite: completion of radiologic technology program.

676:813 Computed Tomography II 0, 7 s.h.
Prerequisites: 676:810 and completion of radiologic technology program.

677:101 Emergency Medical Technician—Paramedic I 0 s.h.
Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Prerequisite: certification as an emergency medical technician—basic.

677:102 Emergency Medical Technician—Paramedic II 0 s.h.
Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Prerequisite: 677:101.

**677:103 Emergency Medical
Technician—Paramedic III 0 s.h.**

Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Prerequisite: 677:102.

**678:816 Principles of Quality
Management/PACS I 0, 8 s.h.**

Administrative quality improvement techniques, equipment testing, and management of digital images. First of a two-semester sequence. Prerequisite: American Registry of Radiologic Technologists certification and acceptance to QM/PACS program.

678:817 Quality Management/PACS II 0, 7 s.h.

Quality control data analysis, mammography quality management, research methods; picture, archival, and communications systems administration, implementation, analysis. Second of a two-semester sequence. Prerequisite: 678:816. Recommended: national examination at completion.

679:915 Breast Imaging I 3 s.h.

Comprehensive treatment of Mammography Quality Standards Act (MQSA) initial training requirements for X-ray technologists. Prerequisite: ARRT certification.

Anatomy and Cell Biology

Interim head: John F. Engelhardt

Professors: Adel K. Affi, Ramesh C. Bhalla, Martin D. Cassell, Paul M. Heidger Jr., Jean Y. Jew, Masataka Kawai, Nicholas J. Pantazis, Alexander Sandra, Jeanne M. Snyder, Robert J. Tomanek, Terence H. Williams
Professors emeriti: Ronald Bergman, Frank J. Longo, Gary W. Van Hoesen

Associate professor: Jackie Bickenbach

Assistant professors: Botond B. Banfi, Robert A. Cornell, Michael R. Rebagliati, Charles A. Yeaman

Lecturer: Kathleen Andersen

Associates: Gregory H. Leno, Marc Pizzimenti

Graduate degrees: Ph.D. in Anatomy and Cell Biology

Web site: <http://www.anatomy.uiowa.edu>

The Department of Anatomy and Cell Biology performs three major functions. It teaches human anatomy to students preparing for careers in the health care professions; provides advanced courses, teaching experience, and research training to graduate students preparing for careers in academic research and related scientific fields; and conducts original research on the biological basis of cellular functions and human disease processes.

Preclinical Study

The department contributes to the preclinical education of health care professionals by providing major courses in gross anatomy, cell biology, histology, and neuroscience. The department participates in the Carver College of Medicine's Medical Scientist Training Program and the Graduate College's Biosciences, Molecular Biology, Immunology, Genetics, and Neuroscience Programs.

Doctor of Philosophy

Students in the Ph.D. program work toward the doctorate without an intermediate master's degree program. They complete courses focused in one of three major areas (molecular medicine, cell and developmental biology, or neurobiology) in addition to related background and elective courses. Students also teach in lecture and laboratory courses under faculty supervision. The program may be completed in four to five years of intensive, full-time residence.

During the first year, students rotate through two or more faculty research laboratories. They

choose a research area and become affiliated with a faculty member, who acts as their major advisor. By the end of the second year, students undertake the comprehensive examination, which assesses their ability to analyze, organize, and apply the information, concepts, and skills acquired in the first two years of the program. They define a research problem with their major advisor, and formulate a research prospectus.

Subsequent years are devoted primarily to research.

The final Ph.D. examination consists of a public oral defense of the dissertation. The dissertation is based on original research conducted with the guidance of the major advisor and at least four other faculty members on the thesis committee.

Admission

Applicants to the Ph.D. program in anatomy and cell biology should have undergraduate preparation that includes college mathematics through calculus, one year of organic chemistry, one year of general physics, and at least two upper-level courses in biological sciences. Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. In addition to taking the Graduate Record Examination (GRE) General Test, applicants are strongly encouraged to take the Graduate Record Examination Subject Test in Biology or their major undergraduate area.

Financial Support

Financial aid is awarded on a competitive basis to students admitted to the Ph.D. program. Applications for aid should be completed concurrently with the admissions application.

Facilities

The department occupies more than 35,000 square feet in the Bowen Science Building on the Health Sciences Campus. The building houses modern teaching facilities and well-equipped research laboratories. The most modern instrumentation is available, including facilities and equipment for digital microscopic imaging, confocal microscopy, molecular biological

techniques, tissue culture, and protein chemistry. Through collaborative programs with the Holden Comprehensive Cancer Center and Iowa Cardiovascular Center, faculty and students also have access to outstanding research facilities throughout the University of Iowa Health Sciences Campus.

Courses

- 060:101 Human Gross Anatomy for Dental Students** 6 s.h.
Regional dissection, lectures, demonstrations, with emphasis on head and neck; neuroanatomy. Offered spring semesters. Prerequisite: D.D.S. enrollment.
- 060:103 Medical Gross Human Anatomy** 6 s.h.
Regional dissection, lectures, demonstrations, tutorials, discussions; clinically relevant areas of anatomical radiology. Offered fall semesters. Prerequisite: M.D. enrollment.
- 060:108 Human Anatomy** 5 s.h.
Regional dissection, lectures, demonstrations, with emphasis on areas important to physical therapists. Offered fall semesters. Prerequisite: Physical Therapy Program enrollment or consent of instructor.
- 060:110 Principles of Human Anatomy** 3 s.h.
Gross and microscopic human anatomy; systemic approach to all body areas, with emphasis on clinical relevance. Offered fall and spring semesters. Prerequisites: 002:010 and 002:011, or equivalents; and pharmacy, pre-nursing, or associated medical sciences major.
- 060:111 Gross Human Anatomy for Physician Assistant Students** 6 s.h.
Regional dissection, lectures, demonstrations, tutorials; neuroanatomy, radiology. Offered summer sessions. Prerequisites: Physician Assistant Program or Graduate College enrollment, and consent of instructor.
- 060:112 General Histology for Dental Students** 4 s.h.
Microscopic study of cells, fundamental tissues, organ systems; emphasis on tooth related structures. Offered spring semesters. Prerequisite: D.D.S. enrollment or anatomy and cell biology graduate standing.
- 060:116 Medical Cell Biology** 2 s.h.
Structure and function of cells and their organelles at the molecular level; cell biology concepts applied to understanding and treatment of human disease; basic science lectures, clinical correlations. Offered fall semesters. Prerequisite: M.D. enrollment.
- 060:122 Independent Study in Anatomy and Cell Biology** arr.
Projects arranged with department faculty members. Prerequisite: consent of instructor.
- 060:153 Hard Cases: Science Policy and Values** 3 s.h.
Same as 033:153.
- 060:156 Scanning Electron Microscopy and X-Ray Microanalysis** arr.
Microscopy methods for research; all aspects of research, from sample preparation to imaging to data analysis; when to use a particular microscopy procedure; theory, operation, and application of scanning electron microscopy, scanning probe microscopy, laser scanning microscopy, X-ray microanalysis. Prerequisites: a physical science course and consent of instructor. Same as 012:156, 052:156.
- 060:203 Gross Human Anatomy for Graduate Students** 6 s.h.
Regional dissection, lectures, demonstrations, tutorials, discussions, seminars; clinically relevant areas of anatomical radiology, surface anatomy with clinical correlations. Prerequisites: anatomy and cell biology graduate standing and consent of instructor.
- 060:204 Survival Skills for a Research Career** 1 s.h.
Nonlaboratory skills necessary for pursuing a scientific research career, including scientific writing, presentation, manuscript review, curriculum vitae preparation, and so forth. Repeatable.
- 060:205 General Histology for Graduate Students** 1-4 s.h.
Structure and function of cells, tissues, and organs studied at light and electron microscopic levels. Offered spring semesters. Prerequisites: anatomy and cell biology graduate standing and consent of instructor. Corequisite: 050:240.
- 060:206 Graduate Research in Anatomy and Cell Biology** arr.
Individual laboratory research training in anatomical sciences.
- 060:216 Mechanisms of Cellular Organization** 3 s.h.
Same as 072:220, 142:220.
- 060:218 Microscopy for Biomedical Research** arr.
Microscopy methods for research; theory, optics, preparative techniques, image optimization, image analysis, interpretation; laboratory focus on use of instrumentation and technique application. Prerequisites: biological science courses and consent of instructor. Same as 002:218, 061:218.
- 060:220 Advanced Microscopy Biomedical Research** arr.
Technically advanced microscopy methods for research; individualized laboratory experience with opportunity to explore application of microscopy methods. Prerequisites: an introductory microscopy course and consent of instructor. Same as 002:220, 061:220.
- 060:224 Graduate Student Seminar** 0-1 s.h.
Current research, literature. Prerequisite: anatomy and cell biology graduate standing.
- 060:225 Mechanisms of Cell Growth and Development** 3 s.h.
Same as 072:225, 142:225.
- 060:227 Anatomic Study for Teaching** 2-3 s.h.
Experience completing a detailed dissection of a region of the human body; opportunity to create models depicting anatomical concepts. Prerequisite: enrollment in teaching certificate program.
- 060:228 Seminar in the Anatomical Sciences** 1 s.h.
Discussion of published articles relevant to issues in teaching anatomical science. Prerequisite: enrollment in teaching certificate program.
- 060:229 Applications in Teaching Biomedical Science** 1 s.h.
Participation in student-focused active learning experiences; may include lecture, discussion, video, reading. Prerequisite: enrollment in teaching certificate program.
- 060:230 Molecular Basis Vertebrate Development** 2 s.h.
Fundamentals of human embryology, concepts in developmental biology; current literature. Offered fall semesters of odd years. Prerequisite: graduate standing or consent of instructor.
- 060:232 Advanced Human Anatomy** arr.
Regions, systems relevant to specialty interests of student; dissection, discussion, reading, clinically relevant radiology. Offered spring semesters. Prerequisites: fourth-year M.D. enrollment or graduate standing, and consent of supervising faculty member.

060:234 Medical Neuroscience 4 s.h.

Basic principles of systems neuroscience with focus on structure and function of the human central nervous system; laboratory sessions cover neuroanatomical study of brain, spinal cord, and related structures; small group discussions of neurological patient cases. Offered spring semesters. Prerequisite: M.D. or Physical Therapy and Rehabilitation Science Program enrollment or consent of course director. Same as 132:234.

060:265 Neuroscience Seminar 0-1 s.h.

Conceptions of brain-behavior relationships in man; behavioral disturbances associated with cerebral abnormality; current applications of psychological test methods for inferring cerebral status. Prerequisite: consent of instructor. Same as 002:265, 031:265, 072:265, 132:265.

**060:270 Human Anatomy, Physiology,
Pathophysiology, and Assessment for
Advanced Practice Nursing** 3, 6 s.h.

Interrelationships between anatomic structure and physiological function in health and disease; clinical assessment of functional integrity of organ systems; implications of pathophysiology for anesthesia. Prerequisite: admission to Anesthesia Nursing Program or consent of instructor. Same as 096:270.

060:998 Anatomy and Cell Biology on Campus arr.

Opportunity to perform a mentored scientific research project in a department laboratory.

Anesthesiology

Head: Michael M. Todd

Professors: Andre P. Boezaart, Javier H. Campos, Won W. Choi, Franklin Dexter, Robert B. Forbes, Donna L. Hammond, William D. Hammonds, Bradley J. Hindman, J. Lance Lichter, John R. Moyers, Richard W. Rosenquist, Franklin L. Scamman, Edward S. Thompson, Michael M. Todd

Professors emeriti: Mohamed Ghoneim, Peter J.R. Jebson, Shiro Shimosato, Martin Sokoll

Associate professors: Erling A. Anderson, Max T. Baker, James N. Bates, Robert I. Block, Timothy J. Brennan, James Y. Choi, Deborah J. Dehring, Alex Fraser, Robert P. From, J. Steven Hata, Tara M. Hata, Niels F. Jensen, Mazen A. Maktabi, Monty J. Menhusen, David P. Papworth, Kent S. Pearson, Robert Raw, Alan F. Ross, Ruth E. Wachtel, Tyrone B. Whitter

Associate professor emeritus: James G. Carter
Assistant professors: Yasser M.S. El-Hattab, Basem Hamid, Jeanette A. Harrington, Merete Ibsen, Yasser M.G.A. Karim, Venkateswara R. Karuparth, Toshihiro Kitamoto, Avinash Kumar, Paul A. Leonard, Magboul M.A. Magboul, Jaroslaw S. Przybyl, Sebastian Schulz-Stubner, Jonathan Simmons, Shawn T. Simmons, Debra J. Szeluga, David E. Swanson, Chiedozie Udeh, Eric Wilkens, Ann Willemsen-Dunlap

Associate: Srinivasan Rajagopal

Web site: <http://www.anesth.uiowa.edu>

Medical Student Training

The Department of Anesthesiology introduces second-year medical students to anesthesia as a specialty; helps third-year students develop concepts and technical skills related to resuscitation, airway management, and care of the unconscious patient; and offers fourth-year students intensive study in the specialty. Diverse clinical experiences, seminars and teaching conferences, and ongoing research activities help postgraduate students and residents develop the knowledge and skills required of an anesthesia specialist.

Nurse Anesthetist Program

The department coordinates the Anesthesia Nursing Program, a collaboration between the Carver College of Medicine and the College of Nursing. The program, open to nurses who hold a bachelor's degree, prepares nurse anesthetists to serve rural hospitals in Iowa and nationwide. The curriculum provides intensive training in didactic and clinical anesthesia and includes diverse clinical experience as well as classroom instruction, seminars, and clinical case conferences.

Courses

116:006 Clinical Anesthesia 2 s.h.
Clinical instruction in perioperative and intraoperative care of the surgical patient; introduction to the clinical management of chronic pain; seminars, clinical case conferences, small group discussions.

116:010 Clinical Anesthesia Senior arr.
Instruction and practical experience in various forms of anesthesia for surgical procedures; basic techniques of general, spinal, epidural, peripheral nerve block anesthesia; endotracheal intubation, other airway maintenance skills; management of unconscious patients, cardiopulmonary resuscitation; pharmacology of general and regional anesthetics, their impact on respiratory and cardiovascular function; anesthesia seminars, morbidity and mortality conference.

116:011 Intensive Care arr.
Evaluation, treatment of seriously ill patients in intensive care; ventilator management, evaluation of pulmonary function, monitoring of cardiovascular status, fluid balance and acid base problems, advance monitoring techniques.

116:271 Chemical and Physical Principles of Anesthesia Practice 3 s.h.
Chemistry and physics, as applied to anesthesia. Prerequisite: admission to anesthesia nursing program or consent of instructor. Same as 096:271.

116:272 Pharmacology of Anesthesia Practice I 3 s.h.
Mechanism and action of drugs; focus on pharmacotherapeutic principles, including pharmacokinetics, pharmacodynamics, receptor binding, cell signaling; principles of uptake, distribution, elimination of anesthetic and adjunctive agents. Prerequisites: grade of 2.67 or higher in 116:271 or consent of instructor, and admission to anesthesia nursing program. Same as 096:272.

116:273 Pharmacology of Anesthesia Practice II 1 s.h.
Continuation of 116:272; vascular, hepatic, renal, GI, endocrine aspects; cellular mechanisms, electrolytes alterations. Prerequisites: grade of 2.67 or higher in 116:272 or consent of instructor, and anesthesia nursing program enrollment. Same as 096:273.

116:274 Basic Principles of Anesthesia Practice 3 s.h.
Overview of anesthesia as a nursing specialty; patient assessment, anesthetic planning and management, pertinent regulations; principles of general and regional anesthesia for surgical specialties. Prerequisite: grade of 2.67 or higher in 116:272 or consent of instructor. Corequisite: 116:273. Same as 096:274.

116:275 Advanced Principles of Anesthesia Practice I 2 s.h.
Special needs and intraoperative management of obstetric, pediatric, and neurological patients; emphasis on pathophysiology, monitoring, ancillary requirements. Prerequisites: grade of 2.67 or higher in 116:273 and 116:274, or consent of instructor. Same as 096:275.

116:276 Advanced Principles of Anesthesia Practice II 2 s.h.
Special needs and intraoperative management of patients in cardiac, vascular, thoracic, and other surgical specialties; focus on altered pathophysiology, anesthetic requirements; strategies for special surgical situations. Prerequisites: grade of 2.67 or higher in 116:273 and 116:274, or consent of instructor. Same as 096:276.

116:277 Advanced Principles of Anesthesia**Practice III** 1 s.h.

Acute and chronic pain management; anesthetic problems with concurrent multisystem disease, advanced age, altered physical and/or mental status. Prerequisites: grade of 2.67 or higher in 116:273 and 116:274, or consent of instructor. Same as 096:277.

116:278 Professional Aspects of Anesthesia Nursing**Practice** 2 s.h.

Issues in contemporary anesthesia nursing practice: historical development; ethical, legal, and political aspects; evaluation; quality management; responsibilities; career expectations and development; role of professional organization. Prerequisite: anesthesia nursing program enrollment. Same as 096:278.

116:279 Equipment and Technological Principles**of Anesthesia Practice** 1 s.h.

Anesthesia delivery systems, ancillary equipment, monitoring devices; correlation of applicable chemical and physical principles for use, safe operation, care, and cleaning of anesthesia-related equipment. Prerequisites: 116:271 and anesthesia nursing program enrollment. Same as 096:279.

116:287 Pharmacology of Anesthesia Practice III 1 s.h.

Drugs specific to various specialty areas: tocolytics, vasoactive and cardioactive agents, drugs that alter clotting, chronic pain therapy agents. Prerequisites: grade of 2.67 or higher in 116:273 or consent of instructor, and anesthesia nursing program enrollment. Same as 096:287.

116:290 Introductory Clinical Anesthesia 1 s.h.

Initial anesthesia preceptorship under faculty supervision; development of basic clinical skills for work as a nurse anesthetist. Prerequisites: basic science core courses and anesthesia nursing program enrollment. Same as 096:290.

116:291 Clinical Anesthesia I 1 s.h.

Supervised anesthesia clinical experience for general, orthopedic, gynecologic, pediatric, urologic, dental, EENT, ambulatory surgery, or invasive diagnostic procedures. Prerequisites: 116:290 and anesthesia nursing program enrollment. Same as 096:291.

116:292 Clinical Anesthesia II 1 s.h.

Clinical anesthesia experience under faculty supervision at University Hospitals and Clinics, in surgical subspecialty rotations not completed in 116:291. Prerequisites: 116:291 and anesthesia nursing program enrollment. Same as 096:292.

116:293 Advanced Clinical Anesthesia 1 s.h.

Clinical anesthesia experiences in neurologic surgery, cardiovascular/thoracic surgery; experience providing anesthesia for patients with complex pathophysiology in varied surgical settings. Prerequisites: g.p.a. of at least 2.67, anesthesia nursing concentration courses, and anesthesia nursing program enrollment. Same as 096:293.

116:294 Obstetrical Anesthesia 1 s.h.

Experience providing anesthesia for the parturient and initial neonatal care; two one-month rotations off campus. Prerequisites: anesthesia nursing courses and anesthesia nursing program enrollment. Same as 096:294.

116:295 Rural Anesthesia 1 s.h.

Anesthesia experience in community hospitals; three one-month rotations at UI-affiliated clinical sites in rural Iowa. Prerequisites: anesthesia nursing program enrollment and courses. Same as 096:295.

116:333 Intensive Care off Campus arr.

Evaluation and treatment of seriously ill patients in a non-UIHC intensive care unit; artificial ventilation, evaluation of pulmonary function, monitoring of cardiovascular status, fluid balance and acid base problems, advance monitoring techniques. Prerequisites: 4 s.h. of 116:010 and consent of program director.

116:998 Anesthesia on Campus

arr.

Well defined research project relating to anesthesia; arranged by student with departmental approval.

116:999 Anesthesia off Campus

arr.

Knowledge development in anesthesia work and monitor use; ability to identify respiratory, cardiovascular, and neurologic effects of anesthetic agents; skill in airway management; basic skills in general, spinal, epidural, and peripheral nerve block anesthesia.

Division of Associated Medical Sciences

Head: David H. Nielsen

Web site: <http://www.medicine.uiowa.edu/DAMS/index.htm>

The Division of Associated Medical Sciences includes five academic programs: the Clinical Laboratory Sciences, Nuclear Medicine Technology, Physical Therapy and Rehabilitation Science, Physician Assistant, and Radiation Sciences Programs. The division provides academic coordination for students in each program.

The Clinical Laboratory Sciences, Nuclear Medicine Technology, and Radiation Sciences Programs offer a Bachelor of Science in addition to a certificate of completion. Students in those programs usually enroll initially in the College of Liberal Arts and Sciences and are assigned a faculty advisor from the Division of Associated Medical Sciences.

The Physician Assistant Program and the Physical Therapy and Rehabilitation Science Program offer graduate degrees, which are awarded by the Graduate College: Master of Physician Assistant Studies (M.P.A.S.), Doctor of Physical Therapy (D.P.T.), Master of Arts (M.A.) in physical therapy, and Doctor of Philosophy (Ph.D.) in physical rehabilitation science.

Although each program in the division has its own admission requirements, all require a similar foundation in the biological, chemical, and mathematical sciences. Physics, physiology, computer science, biochemistry, general statistics, and psychology are required by some programs and are highly recommended for others. Students should plan their study programs carefully to avoid conflicts in specifically required courses. It is imperative that students consult with their program advisor to assure the proper sequencing of courses.

The general academic policies described here govern all five of the division's programs. For descriptions of each program, summaries of each profession, curriculum outlines, prerequisite and admission requirements, and lists of courses, see Clinical Laboratory Sciences, Nuclear Medicine Technology, Physical Therapy and Rehabilitation Science, Physician Assistant Program, and Radiation Sciences in the Catalog.

General Academic Policies

Advising

When students declare their intended major to be one of the programs in the Division of Associated Medical Sciences, they are assigned to that program for academic advising.

Admission

Students are admitted to the Carver College of Medicine at the time of formal admission to a Division of Associated Medical Sciences program. Admission policies and procedures vary from program to program. See the individual program descriptions in the Catalog or contact the programs for details about admission. Students may be admitted as degree or nondegree candidates (special students). Nondegree candidates are subject to Carver College of Medicine rules for academic probation and dismissal.

To be considered for admission to a Division of Associated Medical Sciences program, applicants must have the cumulative grade-point average (all college work attempted) specified by the program: clinical laboratory sciences, at least 2.50; nuclear medicine technology, at least 2.50; physical therapy, at least 3.00; physician assistant, at least 3.00; and radiation sciences, at least 2.50. Admission committees give special attention to grades in the sciences, particularly the prerequisite science courses required by the individual programs.

Health Insurance, Immunizations

All health professions students are required to provide proof of health insurance coverage when they register at The University of Iowa. Contact the University Benefits Office or see Insurance/Health/Graduate Student or Health Science Major on its web site (http://www.uiowa.edu/hr/benefits/healthinfo/index_grad.html) for details.

Students admitted to Division of Associated Medical Sciences programs must show proof that

they have had a recent physical examination, including routine laboratory procedures and immunizations. For more information, contact Student Health Service.

Graduation Requirements for the Bachelor of Science

General Requirements

A Bachelor of Science at The University of Iowa requires a minimum of 120 s.h. of credit. The number of semester hours required after admission to a specific program varies from program to program. Students should consult the program description and/or program director for more specific information.

The general requirements for graduation include quality as well as quantity of work completed. Candidates must earn a g.p.a. of at least 2.00 in all college work attempted, all work undertaken at The University of Iowa, and all graded work attempted after admission to the Carver College of Medicine. Students enrolled in a program that uses the pass/fail/honors grading system must pass all courses required to complete the program.

The residence requirement may be met by earning the final consecutive 30 s.h. in residence, or 45 of the last 60 s.h. in residence, or an overall total of 90 s.h. in residence.

Nonresident instruction includes course work and correspondence study at other colleges, universities, and institutions; and course work in other undergraduate colleges at The University of Iowa. Some undergraduate course work in other University of Iowa colleges may count toward residency requirements; contact the individual Division of Associated Medical Sciences programs for information.

College of Liberal Arts and Sciences General Education Program requirements vary from program to program. Students must check the requirements of the specific Division of Associated Medical Sciences program or degree objective. Specific requirements for the major are listed in each program's description.

Double Majors

Students may earn more than one major in the Carver College of Medicine by meeting the requirements for each major.

Two Baccalaureate Degrees

Students who want to earn two baccalaureate degrees, each from a different college, may do so under a combined degree program. They must have their combined course of study approved by the dean of the Carver College of Medicine and the dean of the other college to be eligible for a combined degree program.

Second Baccalaureate Degree

Students who already possess a baccalaureate degree and who want to earn an additional bachelor's degree must complete at least 30 s.h. consecutively in the Carver College of Medicine. Students who hold a B.A. or B.S. are considered to have completed the College of Liberal Arts and Sciences General Education Program except for the foreign language component. Holders of other degrees must meet college and program degree requirements. Students with a B.A. or B.S. must satisfy the residence requirement for a bachelor's degree at Iowa. Candidates for a second bachelor's degree must apply for the degree through the University's Office of Admissions.

Combined Baccalaureate Degree Program

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum program in the Carver College of Medicine and the College of Liberal Arts and Sciences. Although students begin their academic program in the College of Liberal Arts and Sciences, they must be eligible for admission to Carver College of Medicine baccalaureate programs in Clinical Laboratory Sciences, Nuclear Medicine Technology, or Radiation Sciences.

Students who select this program must meet baccalaureate degree requirements specified by both colleges. Candidates in the combined program usually are able to meet the baccalaureate degree requirements of both colleges in about five academic years. The exact length of time necessary to complete the program is determined by the major areas of study selected in each college. Students who enter the combined degree program are assigned two faculty advisors, one in the major department of the Carver College of Medicine and the other in the major department of the College of Liberal Arts and Sciences.

Candidates in the combined degree program must satisfy all requirements for both degrees. They must complete an overall total of 154 s.h.,

including at least 30 s.h. of courses offered by the Carver College of Medicine and at least 30 s.h. of courses offered by the College of Liberal Arts and Sciences.

Students interested in the combined degree program should see the director of the baccalaureate program of their choice in the Carver College of Medicine.

Minors

Students graduating from the Carver College of Medicine may earn a minor or minors in any degree-granting department or program in the college outside of their major department or in another college of the University by meeting that department's requirements for the minor. In general, a minimum of 15 s.h. must be taken in the minor.

Application for Degree

Students who want to be considered for graduation must file an Application for Degree with the Office of the Registrar before the deadline for the session in which the degree is to be conferred. Students who want to have a minor listed on their transcript must indicate this on the degree application form so that completion of the requirements for the minor can be verified.

Duplication

Duplication occurs when students take the same course more than once or when they take a course that duplicates the content of a course they already have completed satisfactorily. Regression occurs when students take a course that is less advanced or at a lower level than one in the same subject that they already have completed satisfactorily. Duplication and regression are assessed by the registrar at the time of graduation analysis. Semester hours earned by duplication or regression do not count toward the number of semester hours required for graduation.

Graduation Honors

Approximately 10 percent of the division's graduating students may be recognized for their scholastic achievement upon recommendation by the program and with the dean's approval. Minimum criteria have been established for the following designations: distinction, high distinction, and highest distinction.

Registration and Grading

Information about tuition and fees, registration, and deadlines is available from the Office of the Registrar. Students who add or drop a course after registration or who register late are assessed a fee. Courses dropped after the deadline results in a W (withdrawal) on the transcript. Students are not allowed to register for full-semester courses after the second week of the semester or the first week of the summer session. Students must register for off-cycle courses before the first day of the course. The maximum permitted registration is 20 s.h. in a regular semester and 10 s.h. in the summer session. Students must obtain permission from the head of the division to register for more than the maximum semester hours allowed.

Changes in Registration

Courses may be added with the signatures of the advisor and the course instructor at any time during the first one-fifth of the course. They may be dropped at any time during the first two-thirds of the course. Approval is required from the head of the Division of Associated Medical Sciences for all other changes in registration and is granted only in extraordinary circumstances. Students are assigned a mark of W (withdrawn) for any course dropped after the first one-fifth of the course.

Students who have registered for courses offered for variable or arranged credit may change the number of semester hours with the signatures of the instructor, the advisor, and the head of the division at any time before the end of the first two-thirds of the course.

Other changes in registration (such as to audit for zero credit) may be made only during the first one-fifth of the course.

It is the student's responsibility to see that the change of registration form is approved by the necessary individuals and delivered to the Registration Center. Changes in registration become effective on the date the completed form is submitted to the Registration Center.

Withdrawal of Registration

Students may withdraw registration without academic penalty at any time before the end of the first four-fifths of the course, but no credit is given for the course. Later withdrawal results in automatic assignment of an F. Students who withdraw are not reinstated after the deadline for that session.

Grading Procedures

Grading procedures vary from program to program. Students should consult individual program policy statements for information.

Auditing Courses

Students may register to audit a course with approval of the appropriate program director and course instructor. In addition to obtaining these signatures, students must register for zero credit in the course to be audited. The mark of R (registered) is assigned if the student's attendance and performance are satisfactory; if they are unsatisfactory, the mark of W (withdrawn) is assigned. Courses completed with a mark of R do not meet any college requirement and carry no credit toward graduation. Auditing may not be used as a second-grade-only option.

Second-Grade-Only Option

Repeating courses for the second-grade-only option is allowed in extraordinary circumstances. To repeat a course for the second-grade-only option, students must obtain the signatures of the course instructor, the program director, and the dean on a special form obtained from the program office. The properly signed form must be presented to the Office of the Registrar before the end of the first one-fifth of the course. Both grades remain on the permanent record, but only the second one is used to calculate grade-point average and hours earned.

Incompletes

A grade of I (incomplete) may be reported if the reasons for inability to finish the course satisfactorily are acceptable to the program director and the course instructor. There also must be evidence that the course work will be finished within a reasonable length of time, usually by the end of the next academic session. Incompletes not removed by the deadline for submission of final grades for the next session result in the assignment of a grade of F. Changing the grade when an incomplete has been converted to an F requires the signature of the dean on a change of grade form.

Credit by Examination

The procedure for the acceptance of and the granting of credit by examination varies from program to program. Consult the program director for information.

Reports to Students

Instructors contact any student whose work falls below the minimum acceptable level once the problem is recognized. Grades are reported on the student's transcript, following University protocol. No formal midterm reports are given.

Courses Offered by Other University of Iowa Colleges

Division of Associated Medical Sciences students who enroll in courses offered by other University of Iowa colleges are governed by those colleges' rules in matters regarding the courses. See <http://www.uiowa.edu/~provost/deos/crossenroll.doc> for details.

Recognition for Academic Achievement

The University of Iowa and the Carver College of Medicine recognize academic achievement every fall and spring semester.

Dean's List

Undergraduate students who have a grade-point average of 3.50 or higher on 12 s.h. or more of graded work during a given semester (excluding summer sessions) and who have no semester hours of I (incomplete) or O (no grade reported) during the same semester are recognized by inclusion on the Dean's List for that semester.

President's List

Undergraduate students who have a grade-point average of 4.00 on 12 s.h. or more of graded work for two consecutive semesters (excluding summer sessions) and who have no semester hours of I (incomplete) or O (no grade reported) during the same semesters are recognized by inclusion on the President's List.

Academic Progress, Probation, Dismissal

Students are expected to maintain satisfactory academic and professional standards and to demonstrate reasonable progress toward the degree and certificate. Students who fail to maintain satisfactory academic progress or professional standards of behavior as determined by their program may be placed on probation or dismissed from the program. Probation serves as a warning that the student will not graduate

unless his or her academic performance and/or professional behavior improves.

Students on probation are restored to good standing by the program director upon evidence that the problem has been corrected. Such action is usually taken at the end of a semester or session. Entering students may be admitted on probation if they fail to meet the minimum stated standards for admission.

Continued unsatisfactory scholarship or unprofessional behavior may result in dismissal from a program. Students dismissed from a program must reapply for admission through the regular, established program admissions process, following review by the Division of Associated Medical Sciences executive committee, at least four months before the requested date of readmission.

Students placed on probation or dismissed from a program are notified in writing of these actions by the program director; copies are placed in their files.

Students are expected to attend classes regularly. Students who miss classes or examinations because of illness are expected to present evidence that they have been ill. Any other absences must be approved in advance by the course instructor.

Any offense against good order committed by a student in a classroom, clinical setting, or laboratory may be dealt with by the instructor or referred to the program director. The instructor reports in writing any disciplinary action taken against a student to the program director. Repeated or exceptional instances are reported to the dean.

Academic Misconduct

Plagiarism and Cheating

All cases of plagiarism and cheating in the Carver College of Medicine are reported to the dean with a statement of relevant facts. The program director and the instructor may submit recommendations for appropriate disciplinary action.

The individual instructor may reduce the student's grade, including assignment of the grade of F in the course. A report of this action is sent to the student, the program director, and the dean.

The dean, or a faculty committee appointed by the dean, may impose the following or other

penalties, as the offense warrants: disciplinary probation, requirement of additional hours for the degree, suspension from the program for a period of time, or recommendation of expulsion from the program.

Appeals Procedure

Students who want to appeal a decision should appeal in writing to the dean within two weeks after the date of receipt of the decision in writing.

Financial Aid

Students in Division of Associated Medical Sciences undergraduate programs are eligible to apply for undergraduate financial aid. Scholarships, grants, loans, and part-time job placement are administered by the University's Office of Student Financial Aid and are awarded on the basis of demonstrated need. Part-time work in related areas is sometimes available.

Biochemistry

Head: John E. Donelson

Professors: John E. Donelson, Alice B. Fulton, Pamela Geyer, Rama Mallampalli, Bryce V. Plapp, David H. Price, Peter Rubenstein, Madeline A. Shea, Arthur A. Spector, Daniel L. Weeks, Marc S. Wold

Professors emeriti: Arthur Arnone, Thomas W. Conway, Rex Montgomery, Earle Stellwagen, Charles A. Swenson

Adjunct professors: Theresa Gioannini, Nancy C. Stellwagen, Joseph Walder

Associate professors: Ramaswamy Subramanian, Lori Wallrath

Adjunct associate professor: Kenneth P. Murphy

Assistant professors: Kris DeMali, Adrian Elcock, Ernesto Fuentes, Shahram Khademi, M. Todd Washington

Undergraduate degrees: B.A., B.S. in Biochemistry

Graduate degrees: M.S., Ph.D. in Biochemistry

Web site: <http://www.biochem.uiowa.edu/>

Biochemistry is the study of the basic chemical processes that occur in all living systems. One of the most active sciences, it provides a foundation for other biosciences.

Biochemists generally work in laboratories and/or classrooms. Those with a bachelor's degree are often employed as research assistants in industry, government, education, and health service, or in secondary school teaching, for which licensure is required.

Biochemists with advanced degrees—usually a doctorate—pursue teaching, research, and/or administrative careers in universities, medical schools, hospitals, private research agencies, government laboratories, biotechnology companies, and in food, drug, cosmetics, chemical, petroleum, and allied industries.

Undergraduate Programs

The College of Liberal Arts and Sciences administers undergraduate programs and grants undergraduate degrees in biochemistry. The Department of Biochemistry offers programs of study leading to the Bachelor of Science and the Bachelor of Arts. Requirements are outlined below.

Students choose advanced science electives to supplement biochemical studies or to satisfy requirements of a minor or a double major. In

order to count science electives numbered below 100 toward the degree, students must have their advisor's approval.

Transfer credit for biochemistry courses requires the approval of an undergraduate advisor in biochemistry.

Bachelor of Science

The B.S. program in biochemistry prepares students to work in positions that require a mastery of general biochemistry. It is also excellent preparation for graduate study in biochemistry and related sciences or for study toward a professional degree in the health sciences.

The B.S. in biochemistry requires 73 s.h. in the major in addition to completion of the College of Liberal Arts and Sciences General Education Program. Courses required for the B.S. are as follows.

All of these:	
002:010-002:011 Principles of Biology I-II	8 s.h.
004:011-004:012 Principles of Chemistry I-II	8 s.h.
22M:025-22M:026 Calculus I-II	8 s.h.
029:081-029:082 Introductory Physics I-II	8 s.h.
099:001 Orientation and Introduction to the Field of Biochemistry	0 s.h.
099:101 Technical Communication in Biochemistry	1 s.h.
099:120 Biochemistry and Molecular Biology I	3 s.h.
099:130 Biochemistry and Molecular Biology II	3 s.h.
099:140 Experimental Biochemistry	4 s.h.
*099:155 Research, Independent Study (required of all B.S. students and all honors students)	6 s.h.
Advanced science electives, chosen in consultation with advisor	9 s.h.
One of these sequences:	
004:121-004:122 Organic Chemistry I-II	6 s.h.
004:123-004:124 Organic Chemistry for Majors I-II (preferred)	6 s.h.
Two of these:	
004:131 Physical Chemistry I	3 s.h.
004:132 Physical Chemistry II	3 s.h.

099:241 Biophysical Chemistry I 3 s.h.
 099:242 Biophysical Chemistry II 3 s.h.

One of these:

004:141 Organic Chemistry Laboratory 3 s.h.
 004:142 Organic Chemistry Laboratory
 for Majors (preferred) 3 s.h.

*Students may register for 099:155 only if they have earned an average grade of B or better in 099:120, 099:130, and 099:140 and a grade of B-minus or better in each of 099:120, 099:130, and 099:140; or have consent of advisor and instructor. Students may register for 099:115 any time.

Students are encouraged to begin research by taking 099:115 Undergraduate Independent Study (may be taken for a total of 6 s.h.). There are no prerequisites. Students may arrange independently to take this course, or they may request assistance from an undergraduate advisor.

Bachelor of Arts

The B.A. in biochemistry requires 58 s.h. in the major in addition to completion of the College of Liberal Arts and Sciences General Education Program. The required courses are as follows.

All of these:

002:010-002:011 Principles of
 Biology I-II 8 s.h.
 004:011-004:012 Principles of
 Chemistry I-II 8 s.h.
 22M:025-22M:026 Calculus I-II 8 s.h.
 029:011-029:012 College Physics 8 s.h.
 099:001 Orientation and Introduction to
 the Field of Biochemistry 0 s.h.
 099:101 Technical Communication in
 Biochemistry 1 s.h.
 099:120 Biochemistry and Molecular
 Biology I 3 s.h.
 099:130 Biochemistry and Molecular
 Biology II 3 s.h.
 099:140 Experimental Biochemistry
 Advanced science electives, chosen in
 consultation with advisor 6 s.h.

One of these sequences:

004:121-004:122 Organic Chemistry I-II 6 s.h.
 004:123-004:124 Organic Chemistry for
 Majors I-II (preferred) 6 s.h.

One of these:

004:131 Physical Chemistry I 3 s.h.
 004:132 Physical Chemistry II 3 s.h.
 099:241 Biophysical Chemistry I 3 s.h.
 099:242 Biophysical Chemistry II 3 s.h.

In addition, B.A. students intending to go on to advanced degrees in the biological or health

sciences are advised to include 4 s.h. or more of 099:115 Undergraduate Independent Study or 099:155 Research, Independent Study (senior research) in their programs.

Teacher Licensure

Biochemistry majors, especially those in the B.A. program, may qualify for teacher licensure by taking additional courses in teacher education. Consult the College of Education for details.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Science

Before the third semester begins: 004:011 and 004:012, 22M:025, 099:001, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:010 and 002:011; 004:121, 004:122, and 004:141; 22M:026; and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 029:081 and 029:082, 099:120, 099:130, and 099:140, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 004:131 or 004:132 or 099:241 or 099:242, a science elective, and at least 3 s.h. of 099:155

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Arts

Before the third semester begins: 004:011 and 004:012; math through 22M:026 or higher; 099:001; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:010 and 002:011, 004:121 and 004:122, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 029:011 and 029:012, 099:120, 099:130, and 099:140, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 004:131 or 004:132 or 099:241 or 099:242, and a science elective

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Qualified students may earn an honors degree in biochemistry. They must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students in biochemistry must complete 099:155 Research, Independent Study. They must present their research results in a report written in the form of a journal article and in an oral report presented at a special open departmental seminar.

Combined Programs

Students, especially those in the B.A. program, may include courses from other disciplines, such as business, pre-law, psychology, or journalism. This prepares them for one of the many vocations on which biochemistry has an impact.

Graduate Program

The Carver College of Medicine and the Graduate College coordinate the graduate program in biochemistry and other biosciences; graduate degrees are granted through the Graduate College. See Carver College of Medicine and Graduate College in the Catalog for general information about study in medicine and graduate study at the University.

The Department of Biochemistry offers a program of study leading to the M.S. and Ph.D. The Master of Science in biochemistry requires a minimum of 30 s.h. of graduate credit. The Doctor of Philosophy requires a minimum of 72 s.h. of graduate credit.

Students admitted to the graduate program in biochemistry usually pursue the Ph.D. Qualified students may pursue a combined program

leading to the M.D./Ph.D. (Medical Scientist Training Program).

The focus of the graduate program is on the individual student. Students choose from three curricula to satisfy requirements for the degree: standard, biophysical emphasis, or molecular emphasis.

In the first year, students engage in formal course work and tutorial laboratory experiences that serve as the basis for selecting a topic for thesis research. They spend half their time in courses and the other half working in four different faculty laboratories (099:261 Research Techniques), when they learn research techniques in the context of ongoing research.

All biochemistry graduate students take the following courses.

099:282 Seminar	0-1 s.h.
156:201 Principles in Molecular and Cell Biology	4 s.h.

Graduate students in the standard curriculum also must take the following.

099:241-099:242 Biophysical Chemistry I-II	6 s.h.
142:215 Molecular Biology of Gene Expression	3 s.h.
Electives	6 s.h.

Graduate students in the biophysical emphasis also must take the following.

099:241-099:242 Biophysical Chemistry I-II	6 s.h.
Electives	9 s.h.

Graduate students in the molecular emphasis also must take the following.

099:241 Biophysical Chemistry I	3 s.h.
or	
099:242 Biophysical Chemistry II	3 s.h.
142:215 Molecular Biology of Gene Expression	3 s.h.
Electives	9 s.h.

Once students are promoted to a second year of study, they choose research laboratories for Ph.D. thesis research and begin their thesis projects. They take courses that supplement their interests and preparation, including the following required courses.

099:237 Topics in Molecular and Cell Biology	2 s.h.
099:238 Topics in Biophysical Chemistry	1-2 s.h.
099:282 Seminar	0-1 s.h.
650:270 Responsible Conduct in Research	1 s.h.

Research Biochemistry (099:292) and elective science courses numbered 100 or above in other departments satisfy the remaining course requirements.

Students take the comprehensive examination before the end of June in their second year, after which they are admitted formally to degree candidacy and begin to concentrate on thesis research. The program culminates in successful defense of completed thesis work before an examining committee.

In addition to meeting these requirements and those of the Graduate College, students are expected, as part of their training, to assist in teaching biochemistry for two or three semesters.

Throughout the program, students are associated with faculty-directed research groups and receive close personal attention from the biochemistry faculty members who serve as research advisors.

Admission

The graduate program in biochemistry is flexible enough to accommodate students with bachelor's degrees in any of the biological, biochemical, or physical sciences. Appropriate preparation includes one-year, college-level courses in organic and physical chemistry, biology, physics, and mathematics through calculus. Students are expected to have had one or more introductory courses in biochemistry.

Applicants must have an undergraduate g.p.a. of at least 3.00 and must submit acceptable verbal, quantitative, and analytical scores on the Graduate Record Examination (GRE) General Test. Applicants are encouraged to submit their score on the GRE Subject Test in Chemistry; Biology; or Biochemistry, Cell, and Molecular Biology.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

Students admitted to the Ph.D. program in biochemistry routinely receive a stipend and tuition support.

Research

The department's current research interests include protein structure and function, protein

folding, DNA bending, complex carbohydrate structure and function, regulation of gene expression, mechanisms of transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, and membrane determinants of cell shape and motility. Visit the Department of Biochemistry web site for details.

Facilities

Many of the Department of Biochemistry's research and teaching facilities are located on a single floor in the Bowen Science Building, where the Departments of Anatomy and Cell Biology, Microbiology, Pharmacology, and Physiology and Biophysics also are located. Several of the department's research groups are located in the adjacent Medical Education and Research Facility.

The University of Iowa maintains a number of central research support facilities and equipment that promote campuswide interactions between research groups. These include the facilities for electron microscopy, fermentation, image analysis, high field NMR, high resolution mass spectrometry, and academic computing (through Information Technology Services). Carver College of Medicine research facilities are available to biochemistry researchers for nuclear magnetic resonance, flow cytometry, DNA synthesis, tissue culture hybridoma, gene transfer, X-ray analysis, and transgenic and gene targeting.

Individual faculty research laboratories are well-equipped for modern research, and there are many common-use laboratories, including instrument rooms, a reading room, cold rooms, tissue culture areas, preparation rooms, and a stockroom. Research is supported by staff in instrument shops, animal quarters, photography and illustration service, and by office staff, stockroom supervisors, and a purchasing agent.

Together, the department and the central support facilities provide virtually all of the equipment required for modern biochemical research. Examples of such equipment include analytical and preparative ultracentrifuges; fluorescence, optical rotatory dispersion, high-field NMR, ultraviolet-visible, and rapid kinetic instruments; amino acid analyzers and protein sequencers, gas chromatographs, preparative high performance liquid chromatographs, liquid scintillation counters, electrophoresis equipment, instrumentation for protein X-ray crystallography and microcalorimetry, and automated DNA sequencers.

The department maintains a reading room stocked with primary books and journals used by biochemists. The Hardin Library for the Health Sciences is a large, complete library located on the Health Sciences Campus. Excellent resources also are provided by branches of the University of Iowa Libraries and by computer access to bibliographic retrieval services.

Courses

- 099:001 Orientation and Introduction to the Field of Biochemistry** 0 s.h.
Biochemistry and its application to other areas of basic sciences; biochemical studies, research, careers.
- 099:101 Technical Communication in Biochemistry** 1 s.h.
Practical aspects of writing formal scientific papers and making oral presentations on technical topics. Prerequisites: 099:120 or 099:130 or 099:140 or consent of instructor; and junior or senior standing.
- 099:110 Biochemistry** 3 s.h.
Basic concepts in modern biochemistry and molecular biology; understanding of life processes in molecular terms. Prerequisites: one year each of college-level biology and chemistry. Recommended: one semester of organic chemistry.
- 099:115 Undergraduate Independent Study** arr.
Experience in an active biochemistry research lab, learning and performing experiments relevant to the current projects in that lab; exploration of scientific literature on topic of interest or research experience in preparation for meeting the requirements for 099:155; arranged in advance by student and faculty member. Prerequisite: first-year, sophomore, or junior standing.
- 099:120 Biochemistry and Molecular Biology I** 3 s.h.
Physical and chemical foundations of biochemistry, structure of biological molecules, catalysis, transport, and oxidative reactions in biology; first course of two-semester sequence that concludes with 099:130. Prerequisites: two semesters of general chemistry and one of organic chemistry. Recommended: 002:010, 002:011, and an additional organic chemistry course.
- 099:130 Biochemistry and Molecular Biology II** 3 s.h.
Metabolism of lipids and nitrogen-containing compounds; regulation and integration of metabolism; information transfer in prokaryotes and eucaryotes; recombinant DNA techniques; chemistry and enzymology of replication, transcription, translation, cell transformation, and regulation of gene expression. Prerequisite: 099:120.
- 099:140 Experimental Biochemistry** 4 s.h.
Quantitative and qualitative experiments on identification, fractionation, and characterization of constituents of biochemical systems; use of modern instruments and techniques for spectrophotometry, chromatography, electrophoresis, centrifugation, radioisotope studies; emphasis on experimental design and interpretation. Prerequisites: 004:016 or 004:020, and 099:120.
- 099:155 Research, Independent Study** 2-6 s.h.
Independent study and research in areas of interest to the student; arranged in advance by student and biochemistry faculty member. Prerequisites: B- average in 099:120, 099:130, and 099:140; and biochemistry major.
- 099:161 Biochemistry for Dental Students** 4 s.h.
Concepts of biochemistry and their application to understanding of clinical problems. Prerequisites: 004:121 or consent of instructor, and D.D.S. enrollment or consent of instructor. Recommended: 004:122.
- 099:162 Biochemistry for Pharmacy Students** 4 s.h.
Concepts of biochemistry and their application to understanding of clinical problems. Prerequisites: 004:121 and Pharm.D. enrollment, or consent of instructor. Recommended: 004:122.
- 099:163 Medical Biochemistry** 4 s.h.
Concepts of biochemistry; their application to understanding clinical problems. Prerequisite: M.D. enrollment.
- 099:164 Biochemistry for Physician Assistant Students** 3 s.h.
Aspects of general biochemistry necessary for understanding the biochemical basis of human disease; analysis of appropriate clinical cases. Prerequisite: 099:110 or equivalent biochemistry survey.
- 099:226 Enzyme Kinetics and Bioorganic Mechanisms** 1-2 s.h.
Principles and applications of steady-state and transient enzyme kinetics; mechanisms of catalysis of biochemical reactions. Prerequisite: 099:120 or consent of instructor.
- 099:237 Topics in Molecular and Cell Biology** 1-2 s.h.
Current topics in transcriptional regulation, chromatin structure and function, cell signaling pathways, regulation of development, molecular mechanisms of disease. Repeatable. Prerequisite: 156:201 or consent of instructor.
- 099:238 Topics in Biophysical Chemistry** 1-2 s.h.
Current topics in structure and function of membranes or proteins; DNA-protein interactions; computational biochemistry; applications of NMR, X-ray diffraction, calorimetry, or spectroscopy. Repeatable. Prerequisite: 099:241 or 099:242 or consent of instructor.
- 099:241 Biophysical Chemistry I** 3 s.h.
Experimental and theoretical techniques used to study structure and function of biological macromolecules; UV/vis absorbance, circular dichroism, and fluorescence spectroscopies; X-ray crystallography of proteins, ultracentrifugation; application of thermodynamics to understand protein folding and protein-ligand binding. Prerequisites: one year of biochemistry and consent of instructor. Recommended: physical chemistry course.
- 099:242 Biophysical Chemistry II** 3 s.h.
Equilibrium and kinetic measurements of proteins obtained using absorbance, fluorescence and dichroic spectrometry, electrophoresis, mass spectrometry, ultracentrifugation, and chromatography; enzyme kinetics and mechanisms, macromolecular interactions and dynamics.
- 099:261 Research Techniques** 1-5 s.h.
Laboratory rotation for first-year graduate students in biochemistry.
- 099:275 Perspectives in Biocatalysis** 1-3 s.h.
Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Repeatable. Same as 004:275, 046:275, 052:275, 053:275, 061:275.
- 099:282 Seminar** 0-1 s.h.
How to evaluate reports of scientific investigations critically; techniques for presenting scientific information.
- 099:283 Thesis Seminar** 1 s.h.
Preparation and oral presentation of thesis proposal. Prerequisite: second-year graduate standing in biochemistry or consent of instructor.
- 099:292 Research Biochemistry** arr.
Thesis research.

Cardiothoracic Surgery

Head: Mark D. Iannettoni

Professors: Douglas Behrendt, Mark D. Iannettoni, Wayne E. Richenbacher

Assistant professors: Harold M. Burkhart, Jeffrey E. Everett, William R. Lynch

Web site: <http://www.uihealthcare.com/depts/med/cardiothoracicsurgery/index.html>

The University of Iowa cardiothoracic surgery program is the third oldest program of its kind in the United States. Since its establishment in 1948 as the Division of Cardiothoracic Surgery, the program has advanced from providing operative interventions for patients with diseases of the chest to performing a broad range of the most current and innovative surgical procedures.

The Department of Cardiothoracic Surgery's facilities are located at University of Iowa Hospitals and Clinics. Each year cardiothoracic surgeons at the hospitals perform more than 500 adult and pediatric heart surgeries, including coronary bypasses, transplants, and placement of mechanical cardiac assist devices; minimally invasive procedures such as mitral valve replacement and epicardial lead placement; and more than 600 general thoracic surgeries with emphasis on esophageal and lung diseases. Preparations are under way for providing coronary artery bypass grafting using robotics.

Medical Student Training

The department trains fourth-year M.D. students in two courses, 193:232 Subinternship in Cardiothoracic Surgery and 193:233 Research in Cardiothoracic Surgery.

Residency

Iowa's cardiothoracic surgery residency program was established in 1948 and is fully accredited by the Accreditation Council for Graduate Medical Education. It is the only cardiothoracic surgery training program in Iowa. Two residents are accepted into the two-year program each year.

Postbaccalaureate Training

The department plays a primary instructional role in University of Iowa Hospitals and Clinics' 20-month postbaccalaureate Perfusion

Technology Program; see the department's perfusion technology courses (193:161 through 193:171) under "Courses" later in this section. For more information about the Perfusion Technology Program, contact the Department of Cardiothoracic Surgery or visit its web site.

Research

University of Iowa cardiothoracic surgeons are leaders in clinical research, particularly in oncologic surgery, diseases of the esophagus, artificial organs, pediatric cardiac surgery, and transplantation. Research also is under way in the sequence of mutations and in localization of genes predisposed to cancer.

Facilities

The Department of Cardiothoracic Surgery has specialty laboratories in gastric motility, analytical chemistry, transplantation, tissue culture, surgical bacteriology, shock, and cardiac bypass. These facilities permit study of experimental procedures such as heart valve replacement in large animals and heterotopic heart transplantation in mice and rats.

The laboratories also are used for supervised teaching exercises in surgical technique for medical students and junior residents, and for refinement of technique for senior residents and faculty members.

Courses

193:161 Instrumentation in Perfusion Technology 3 s.h.
Electrical circuitry, filters, pressure transducers, thermistors, cardiac output computers, fluid dynamics, intra-aortic balloon pumps, blood gas analyzers. Prerequisite: Perfusion Technology Program enrollment.

193:162 Pathophysiology of Perfusion Technology 5 s.h.
Hemostasis, acid base physiology, gas transfer, heart anatomy, heart embryology, congenital cardiac defects. Prerequisite: Perfusion Technology Program enrollment.

193:163 Clinical Experience I 2 s.h.
Perfusion in operating room: patient workup, observation, and reporting on extracorporeal setup, surgical procedure. Prerequisite: Perfusion Technology Program enrollment.

193:164 Clinical Experience II 3 s.h.
Continuation of 193:163; setup of the extracorporeal circuit, ancillary duties of perfusionist. Prerequisites: 22S:101, 069:133, 193:161, 193:162, and 193:163.

193:165 Clinical Experience III 12 s.h.

Continuation of 193:164; management of cardiopulmonary bypass system. Prerequisites: 071:130, 193:164, 193:170, and 193:171.

193:166 Clinical Experience IV 12 s.h.

Continuation of 193:165; emphasis on supply maintenance, perfusion department management. Prerequisite: 193:165.

193:167 Perfusion Seminar 1 s.h.

Ethics in perfusion. Prerequisite: Perfusion Technology Program enrollment.

193:168 Research in Perfusion 1 s.h.

From topic selection to manuscript. Prerequisite: Perfusion Technology Program enrollment.

193:169 Clinical Experience V 12 s.h.

Continuation of 193:166. Prerequisite: 193:166.

193:170 Principle and Practice of Perfusion Technology 6 s.h.

Hypothermia, hemodilution, left heart bypass, dialysis, ultrafiltration, membrane and bubbler oxygenation. Prerequisites: 22S:101, 069:133, 193:161, 193:162, and 193:163.

193:171 Devices in Perfusion Technology 3 s.h.

Components of extracorporeal circuit; in vitro laboratory evaluation of components. Prerequisites: 22S:101, 069:133, 193:161, 193:162, and 193:163.

193:232 Subinternship in Cardiothoracic Surgery arr.

Participation in diagnosis, preoperative, operative, and postoperative care of thoracic and cardiac patients.

193:233 Research in Cardiothoracic Surgery arr.

Participation in diagnosis, preoperative, operative, and postoperative care of thoracic and cardiac patients.

Clinical Laboratory Sciences

Director: Ruthanne R. Hyduke

Clinical professor: Alan D. Junkins

Clinical associate professor: Mark A. Bowman

Lecturer: Pamela Roberts

Undergraduate degree: B.S. in Clinical Laboratory Sciences

Web site: <http://www.medicine.uiowa.edu/clsp>

The Clinical Laboratory Sciences Program is one of five academic units in the Division of Associated Medical Sciences. For information on the division's general academic policies, see Associated Medical Sciences in the Catalog.

Clinical laboratory scientists and medical technologists perform the laboratory tests that provide physicians with information vital for accurate diagnosis and proper treatment of disease. They are in demand in hospital, private, and government laboratories; clinics; physicians' offices; and industrial, pharmaceutical, biological, and environmental research laboratories. Clinical laboratory scientists and medical technologists are highly skilled health team members who use a battery of sophisticated procedures and instruments in their work and who possess specialized knowledge and skills acquired through completion of a formal program of academic and clinical study.

The Clinical Laboratory Sciences program is undergoing revision. For the most current information about the program, contact the Division of Associated Medical Sciences or the University of Iowa Office of Admissions.

Dermatology

Interim head: Craig H. Syrop

Professors: Kathi C. Madison, Thomas L. Ray, Mary S. Stone, Duane C. Whitaker

Professors emeriti: Richard M. Caplan, John S. Strauss

Clinical professor: Roger I. Ceilley

Clinical professor emeritus: Dan Bovenmyer

Visiting professor: Warren Piette

Associate professor: Christopher J. Arpey

Clinical associate professors: Mark Boddicker, Robert F. Godwin, Susan Wall

Assistant professors: Laura Myers, Marta Van Beek

Clinical assistant professors: Timothy G.

Abrahamson, Mark G. Cleveland, David Davis, Randall

R. Maharry, Gary Quinby, Kimberly K. Schulz

Web site: <http://tray.dermatology.uiowa.edu>

Courses

062:001 Clinical Dermatology	2 s.h.
Basic dermatology; lectures, independent study, clinical experience. Prerequisite: third-year M.D. enrollment.	
062:002 Dermatology Elective	arr.
Advanced clinical experience, dermatologic surgery, special assignments. Prerequisite: fourth-year M.D. enrollment.	
062:004 Research in Dermatology	arr.
General principles of medical research; clinical or laboratory projects; individual study.	
062:999 Dermatology off Campus	arr.
Arranged by student with departmental approval.	

The Department of Dermatology instructs M.D. students and trains dermatology residents in the care of patients with skin diseases. It also provides researchers with an opportunity to develop their skills in dermatology.

Medical Student Training

The Carver College of Medicine is one of the few medical colleges in the country with a required dermatology rotation for students. Each third-year M.D. student spends two weeks in the clinic and attends about 10 one-hour lectures. Students see a good cross-section of patients, including those receiving primary or tertiary care at University of Iowa Hospitals and Clinics and a large number of patients referred from Student Health Service. Additional patients are seen at the nearby Veterans Affairs Iowa City Health Care System.

Varied electives are open to fourth-year M.D. students, including further clinical experience, dermatologic research, and special studies.

Dietetic Internship

Director: Laurie Kroymann

Web site: <http://www.uihc.uiowa.edu/fns/>

University of Iowa Hospitals and Clinics offers a Dietetic Internship Program that is fully accredited by the American Dietetic Association's Commission on Accreditation for Dietetics Education. It qualifies graduates to take the exam for qualification as a Registered Dietitian (RD). Clinical dietitians and food service operation managers of the Department of Food and Nutrition Services at University of Iowa Hospitals and Clinics provide the teaching for the program. Graduate courses in the program are administered by the Carver College of Medicine and the College of Public Health. See "Associated Courses" below.

Students generally complete the program with 9 s.h. of graduate credit, which may be applied toward an advanced degree. Approximately half of the program's graduates go on to complete advanced degree programs, typically a master's degree in health promotion, public health, or business.

University of Iowa Hospitals and Clinics awards a certificate to the program's graduates.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They also must complete a didactic program in dietetics that has approval of the ADA Commission on Accreditation for Dietetics Education.

Students enter the program in the fall semester. The postmark deadline for applications is February 15.

Associated Courses

For course descriptions, see "Nondepartmental Courses" in the Carver College of Medicine section of the Catalog and "Courses" in the Epidemiology section (College of Public Health).

050:203 Clinical Dietetics	1 s.h.
173:230 Principles of Dietary Assessment	1 s.h.
173:235 Nutritional Epidemiology	2 s.h.
173:236 Nutrition Intervention in Clinical Trials Research	2 s.h.
173:237 Nutrition Intervention in Research Lab	3 s.h.

Emergency Medicine

Director: Eric Dickson

Clinical professor: Mark Graber

Associate professors (clinical): Eric Dickson, Andrew Nugent

Assistant professors (clinical): Agustin Aguilar, Carlyn Christensen-Szalanski, Dana Collaguazo, Hans House, Harlo Hove, Jason Hughes, Charles Jennissen, Catherine Jones, Eric Nilles, Bobby Peters, Christopher Russi, Mike Takcas

Web site: <http://www.uihealthcare.com/emergencymedicine>

The Program in Emergency Medicine prepares new physicians to recognize and treat a variety of urgent and emergent conditions. The program fosters basic sciences and clinical research relevant to emergency medicine and is dedicated to the education and training of Emergency Medical Services (EMS) personnel through the Emergency Medical Services Learning Resources Center (EMSLRC).

Medical Student Training

Elective rotations for M.D. students are available at University of Iowa Hospitals and Clinics and at several other sites throughout Iowa, including St. Luke's Hospital, Cedar Rapids; Great River Medical Center, Burlington; Covenant Medical Center, Waterloo; Broadlawn Medical Center, Des Moines; and Mercy Medical Center, Sioux City. Students also may arrange an off-service elective independently with established residency programs throughout the United States.

The program offers an annual introductory month to emergency medicine, advanced life support, as well as Wilderness Medicine, a rotation that includes a trip to the Death Valley and Mount Whitney areas of California.

Residency Program

The emergency medicine faculty directs the Iowa Emergency Medicine Residency, Iowa's only emergency medicine residency. The residency is a three-year program that prepares residents for careers in diverse areas of emergency medicine, from rural practice to academics. The program emphasizes critical care training and rotations in a wide variety of specialties. Part of the clinical component is spent at St. Luke's Hospital, Cedar Rapids.

Resources

The Emergency Treatment Center, located on the first floor of Roy Carver Pavilion, is a Level I Adult and Pediatric Trauma Center. It serves as a referral center for communities across Iowa.

Courses

- 184:220 Emergency Medicine: St. Luke's, Cedar Rapids** 4 s.h.
Preceptorship with full-time emergency department physicians. Prerequisite: completion of M.D. third year.
- 184:221 Emergency Medicine UIHC** arr.
Preceptorship with residents and faculty; emphasis on principles of acute medicine. Prerequisite: completion of M.D. third year.
- 184:222 Emergency Medicine off Campus** arr.
Preceptorship with residents and faculty; emphasis on principles of acute medicine. Prerequisites: completion of M.D. third year and consent of instructor.
- 184:223 Rural Emergency Medicine at Burlington, Iowa** 4 s.h.
In-depth clinical experience in a busy rural hospital emergency department under supervision of residency-trained emergency physicians; lectures, skill labs, projects. Prerequisite: completion of M.D. third year.
- 184:224 Introduction to Advanced Life Support Skills** 4 s.h.
Experience managing acute threats to life, including trauma, respiratory failure, poisoning, sepsis, stupor/coma, and acute MI, using ACLS and PALS courses and clinical manikin work with EMS staff. Prerequisite: completion of M.D. third year.
- 184:225 Wilderness Medicine** 4 s.h.
Didactic and scenario training in physiology, diagnosis, and emergency treatment of heat- and cold-related illnesses, high altitude disorders, wilderness trauma, envenomations, and immersion injuries; travel to Death Valley and Mount Whitney, California. Prerequisite: completion of M.D. third year.
- 184:402 Emergency Medicine Des Moines** 4 s.h.
Participation in acute emergency care, management of acute illnesses, follow-up care when possible; Broadlawn Hospital, Des Moines. Prerequisites: completion of M.D. third year and consent of department.
- 184:425 Emergency Medicine Waterloo** 4 s.h.
Participation in acute emergency care, management of acute illnesses, follow-up care when possible; Covenant Medical Center, Waterloo. Prerequisite: completion of M.D. third year.
- 184:430 Emergency Medicine Sioux City** 4 s.h.
Experience with a routine cross section of emergency problems in a regional trauma center and with functions of area resource hospitals (St. Luke's Medical Center, Mercy Medical Center); option to accompany ambulance crews. Prerequisites: completion of M.D. third year and basic life support certification.
- 184:998 Emergency Medicine on Campus** arr.
Clinical research experience with a mentor in the Emergency Treatment Center and the Department of Emergency Medicine; principles of design, methodology, basic statistics.

Family Medicine

Head: Paul James

Professors: George R. Bergus, Arthur Hartz, Paul James, Gerald J. Jogerst

Professors emeriti: Reuben B. Widmer, Glenys O. Williams

Professor (clinical): Richard Dobyns

Adjunct clinical professor: John E. Sutherland

Associate professors: John W. Ely, Clarence Kreiter, Barcey T. Levy, Marcy Rosenbaum, Victoria Sharp

Associate professors (clinical): David Bedell, Daniel Fick, Robert Garrett, David Keams, Steven Wolfe

Adjunct clinical associate professors: Gordon Baustian, Robert Friedman, Scott Henderson, Michael Jung, Gerald Loos, Lawrence Matthews, Gerald McGowan, Jay Mixdorf, Kurt Rosenkrans, Craig Whittenberg

Assistant professors: Elizabeth Clark, Cheryl Erwin

Assistant professors (clinical): Alison Abreu, Jill Endres, Adelaide Gurwell, Michael Jurgens, Susan Langbehn, Matthew Lanternier, Michael Maharry, Britt Marcussen, Kelly Skelly, Anne Sullivan, Jason Wilbur

Adjunct assistant professor: Larry Shostrom

Adjunct clinical assistant professors: Jeffery Allyn, Andrew Andresen, John Ankeny, William Artherholt, William J. Bailey, Laurence Baker, James Bell, Robert L. Bender, Timothy Blair, Jason Booth, David Breitkreuz, Dean A. Bunting, Jerald W. Bybee, Robert Callahan, John Carroll, Kenneth Cearlock, Christopher Champion, W. David Clark, James Coddington, Patricia Connell, James Cummings, Timothy Daniels, Stanton Danielson, Dana Danley, Cory Dietz, Daryl Doorenbos, Roy Doorenbos, William Durbin, Laine Dvorak, John Ebensberger, Eric Evans, Lee Fagre, Matthew Fox, Corrine Ganske, Tara Geis, Kirk R. Gieswein, Susan Goodner, Paul Gordon, David H. Hanson, Ronnie Hawkins, Greg Hayes, Richard Hodge, Jeffrey Hoffmann, Mark Hogenson, Marvin Huff, Samuel Hunt, Charles Huss, Michael Jennings, Leah Johnson, Richard Jongewaard, George T. Kappos, Colleen Keating, John Klein, Kurt Klise, David Kresnicka, John Lanaghan, Delwyn Lassen, Robert A. Lee, Lori Lindstrom, Andrew Lobuznov, Kevin Locke, Patricia Magle, Mark Mahoney, Megan Mahoney-Vitha, Matthew Maloney, Jami Maxson, Paul McCaughey, James McConville, Robert J. Merrick, Ann Metzger, Kenton Moss, Merle E. Muller, John Murphy, Tony Myers, Donald A.F. Nelson, Richard Perry, William R. Pettit, Francis Piskey, Richard Posthuma, Kevin Rahner, Robert Railey, Larry W. Richard, Alan Robb, David M. Rogan, John Roof, David Ruen, Subhash Sahai, Daniel Schminke, Thomas Schroeder, Charles Semler Jr., Glenace Shank, Robert Shires, Ronald Shirk, Steven Shook, Andrea Silvers, Stephen Sladek, Steven Sohn, Carol Tershak, Donald Tesdall, David L. Thomas, J-Gregory Thomas, Blair Thornhill, Lloyd Thurston, Douglas Timboe, Daniel T. Vanden Bosch, Bruce Van Houweling, Rose Warhank, Jerrold White, James C. Widmer, Marc L. Wilkinson, Douglas Workman, Jackie L. Yaeger, James Young, Charles J. Zelnick

Adjunct instructor: Veronica Wieland

Associates: Oladipo Kukoy, Wendy Shen

Adjunct associates: Larry D. Beaty, Harriet Echternacht, Nicholas S. Galioto, Rayna Jobe, Dawn S. Lauridsen, Jason Powers

Web site: <http://www.uihealthcare.com/familymedicine>

The Department of Family Medicine trains primary care physicians. The department offers course work that is included throughout the four-year M.D. program. Twenty-five elective senior rotations give students opportunities for exposure to various Iowa communities through work in affiliated hospitals or connected facilities, in the department's model office on the University campus, and in preceptorships with selected family physicians throughout the state. There also is opportunity for independent study during the fourth year.

Residency Program

The Department of Family Medicine directs a three-year residency program whose graduates are eligible for certification by the American Board of Family Medicine. The residency program trains physicians to provide continuous and comprehensive medical care to patients and their families. Residents are educated in all areas of family medicine—adult medicine, maternal and child health, behavioral science, surgical specialties, and community medicine. Training emphasizes the value of wellness and preventive medicine as well as curative medicine.

The program is organized as a progressive educational experience. It consists of formal teaching and clinical experiences on assigned rotations, structured conferences, and patient care in the Family Care Center. As residents develop clinical skills, medical judgment, and competence, their patient responsibilities increase. Some patients at the Family Care Center are assigned to residents, who provide medical care under faculty supervision. Each resident is responsible for his or her patients for the duration of the residency program.

Residents also learn the principles of practice management, including organizational and administrative decision making, patient record and bookkeeping procedures, and chart auditing methodologies.

Residents are expected to take responsibility for their learning environment, to avail themselves of the department's diverse resources, and to collaborate with the faculty in order to have the best possible learning experience.

Rural Track Residency

The Family Practice Rural Track Residency Program is a collaboration of the Department of Family Medicine and the Pella Regional Health Center of Pella, Iowa. The program offers trainees the opportunity to acquire skills, knowledge, and values appropriate for family physicians practicing in rural communities. Residents spend the first year of the program in Iowa City and the second and third years in Pella. The program's graduates are eligible for certification by the American Board of Family Medicine.

Family Practice-Psychiatry Residency

The Department of Family Medicine and the Department of Psychiatry cosponsor the combined Family Practice-Psychiatry Residency Program. The program's residents acquire broad-based training in both disciplines, including focused training in geriatrics and geriatric psychiatry, substance and alcohol abuse, diagnosis and treatment of depression, delirium, eating disorders, panic disorders, and neurotic and somatizing behavior. Graduates are eligible for certification by the American Board of Family Medicine and the American Board of Psychiatry.

Facilities

The Department of Family Medicine is located on the University of Iowa Health Sciences Campus. Faculty offices are close to the Family Care Center, where patients are seen by appointment. The department also has community-based clinics in southeast Iowa City and North Liberty, Iowa, and a rural satellite office located in Lone Tree, Iowa.

Courses

- 115:201 Principles of Family Medicine** 2 s.h.
- 115:202 Spirituality and Health** 1 s.h.
Current research literature on spirituality and health; religious practices that apply to health care and practical applications for use in clinical settings.
- 115:203 Medical Education Community Orientation** 0 s.h.
Experience in a local health care delivery system away from the University setting, between first and second year of M.D. program.

115:300 Preceptorship in Family Medicine arr.
One-on-one experience with a practicing physician in his or her office; exposure to illnesses, conditions often seen in primary care; realistic background for evaluation of family medicine as a career alternative.

115:401 Family Medicine Clerkship, Broadlawns Hospital, Des Moines Family Health Center 4 s.h.
Clinical experience in inpatient and outpatient care. Prerequisite: consent of department.

115:403 Lone Tree Family Medicine Clerkship 4 s.h.
Experience providing patient care in a rural setting; continuity of care for patients of all ages. Prerequisite: fourth-year M.D. enrollment.

115:404 Advanced Preceptorship in Family Medicine 4 s.h.
Experience in community practice of family medicine. Prerequisites: consent of individual preceptor and family practice advisor.

115:405 Subinternship in Family Medicine, University of Iowa arr.
Inpatient aspects of key components of family medicine; experience on the family medicine inpatient service.

115:406 Subinternship in Family Medicine, Iowa Lutheran 4 s.h.
Patient-oriented interactive experience in an inpatient family practice environment. Prerequisite: fourth-year M.D. enrollment.

115:407 Family Medicine, Iowa Lutheran arr.
Prerequisite: fourth-year M.D. enrollment.

115:408 U of I Family Medicine Clerkship 4 s.h.
Work with family practice residents, staff in day-to-day delivery of primary medical care in Family Practice Center; experience in the Family Stress Clinic observing family-centered counseling; nursing home visits, work with departmental social worker and sports medicine specialist.

115:409 Family Medicine, Mason City 4 s.h.
Work with family physicians on staff at Mercy or other affiliated community hospitals; management of all patients admitted by these physicians, participation in care rendered by involved consultants; primary care experience in family practice office. Prerequisite: consent of department.

115:410 Independent Studies arr.
Work with departmental researcher on investigation in family medicine, community medicine, health care delivery, health maintenance, similar areas. Prerequisite: consent of department.

115:411 Rural Preceptorship in Family Medicine 4 s.h.

115:412 CNS Management and Rehabilitation, Covenant Medical Center, Waterloo 4 s.h.

115:415 Subinternship in Family Medicine—Cedar Rapids 4 s.h.
Experience as a junior resident in all areas of inpatient family medicine, including maternity care, child and adolescent health, adult medicine.

115:416 Clerkship in Family Medicine—Cedar Rapids 4 s.h.
Experience as a junior resident in all areas of family medicine, including maternity care, child and adolescent health, adult medicine.

115:417 Continuity of Care—Family Medicine 4 s.h.
Longitudinal continuity of care experience for fourth-year M.D. students in an outpatient family medicine setting.

115:419 Family Medicine Clerkship, Davenport 4 s.h.
Assignment to problems commonly seen in family practice office;

supervision by residents and faculty for history and physical evaluation and diagnostic workups and treatment of each specific problem; exposure to acutely ill patients in services of medicine, surgery, obstetrics, pediatrics. Prerequisite: consent of department.

115:420 Family Medicine Clerkship, Sioux City 4 s.h.

Methods common in family practice medicine; participation in care of patients seen by family practice physicians, residents. Prerequisite: consent of department.

115:421 Family Medicine Clerkship, Red Oak 4 s.h.

Application of family medicine concepts at the Family Medical Center, site of the Model Regional Primary Care Program.

115:423 Sub-Internship in Family Medicine, Waterloo 4 s.h.

Experience working as a member of family practice inpatient team at Allen Memorial Hospital and Covenant Medical Center, following patients from admission through discharge.

115:424 Family Medicine Clerkship, Waterloo 4 s.h.

Rotation at the Northeast Iowa Family Practice Center; work with patients from outpatient care through hospitalization; basic concepts of family practice, team concept in medical care.

115:426 Geriatrics Elective arr.

Experience in monitoring and evaluating health and functional status of patients age 65 and older in the UI Geriatric Assessment Clinic and community settings. Same as 078:800.

115:429 Subinternship in Family Practice, Sioux City 4 s.h.

Experience as a junior resident in all areas of family medicine. Prerequisite: fourth-year M.D. enrollment.

115:999 Family Medicine off Campus arr.

Clerkships; may include community hospitals.

Free Radical and Radiation Biology

Director: Larry W. Oberley

Professors: John Buatti, Garry R. Buettner, Frederick E. Domann Jr., John F. Engelhardt, Kevin Kregel, Larry W. Oberley, Douglas R. Spitz,

Professors emeriti: Frank Hsieh-Fu Cheng, James W. Osborne

Associate professors: Joseph Cullen, Sonya J. Franklin, Michael Knudson, Francis J. Miller

Adjunct associate professors: Fiorenza Ianzini, Michael L. McCormick

Assistant professors: Kyle E. Brown, Kenneth Dornfeld, Prabhat Goswami

Graduate degrees: M.S., Ph.D. in Free Radical and Radiation Biology

Web site: <http://www.uihealthcare.com/depts/med/radiationoncology/frfb/index.html>

The Free Radical and Radiation Biology Program provides in-depth training and research experience in the physical, chemical, and biological effects of radiation. It also focuses on free radical biology. Free radicals, which are generated in great number by radiation, play a major role in the interaction of radiation with biological systems. Free radicals are of great interest to basic researchers and clinicians because of their role in a variety of diseases and pathological states, including cancer. The program stresses the importance of all of these areas to scientific research, clinical medicine, and the general public's health.

Undergraduate Study

Three courses, 077:103 Radiation Biology, and 077:107 and 077:108 Special Topics: Advanced Undergraduates, are open to University of Iowa undergraduates. Students who want an overview of the biological effects of radiation, including the role of free radicals, will find 077:103 especially appropriate. All three courses are appropriate for students who plan to enter medicine, nuclear medicine technology, environmental health, or related programs.

Graduate Programs

The Carver College of Medicine administers graduate programs in free radical and radiation biology; graduate degrees are granted through the Graduate College. See Carver College of

Medicine and Graduate College in the Catalog for general information about study in medicine and graduate study at the University.

The Master of Science requires a minimum of 30 s.h. of graduate credit; the Doctor of Philosophy requires a minimum of 72 s.h. of graduate credit.

The M.S. and Ph.D. programs in free radical and radiation biology are open to graduate students with a background in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering.

After completing the introductory course 077:103 Radiation Biology, students typically concentrate on a particular aspect of the field. Some students elect to focus on radiation biology, while others choose to emphasize free radical biology.

In addition to formal lectures and some structured laboratory exercises, plans of study for free radical and radiation biology students involve small-group conferences, discussions, and seminars. Students are encouraged to spend at least one semester as a teaching assistant, for which no registration is required and no academic credit is given.

Postgraduate Programs

Postdoctoral training is available by arrangement with the program's director and individual faculty members. Contact the Free Radical and Radiation Biology Program.

Financial Support

Graduate students are supported as graduate assistants from funds available through research grants and contracts or from departmental funds. Individual postdoctoral awards also may be available; the candidate and his or her faculty sponsor apply for them jointly.

Facilities

The Free Radical and Radiation Biology Program has a 300 kVp orthovoltage X-ray generator and other radiation sources, including a kilo-Curie

Cs-137 irradiator. Students and staff also have access to other radiation sources, such as the Co-60 gamma source and linear accelerators in the Department of Radiation Oncology.

The program has a number of radiation detectors and counters, including liquid scintillation counters. It also has ultraviolet/visible spectrophotometers; various types of equipment for densitometry, chromatography, and electrophoresis; molecular biology equipment, including thermal cyclers; an automatic cell counter and particle sizer; tissue culture facilities; Typhoon Phosphoimager; HPLC; Electron Spin Resonance Spectrometers; and nitric oxide analyzers.

077:545 Topics in Free Radical Biology and Medicine 1 s.h.

New literature in area of free radicals. Offered fall semesters. Prerequisite: consent of instructor.

077:546 Topics in Free Radical Biology and Medicine 1 s.h.

Offered spring semesters.

077:547 Topics in Radiation and Cancer Biology 1 s.h.

Emerging concepts in the biological effects of radiation and cancer biology; current topics in journal club format. Offered fall semesters. Prerequisite: consent of instructor.

077:548 Topics in Radiation and Cancer Biology 1 s.h.

Offered spring semesters.

Courses

077:103 Radiation Biology 4 s.h.

Characteristics and biological effects of ionizing radiations. Offered fall semesters. Prerequisite: consent of instructor.

077:107 Special Topics: Advanced Undergraduates arr.

Readings and/or laboratory experience. Offered fall semesters. Prerequisite: consent of instructor.

077:108 Special Topics: Advanced Undergraduates arr.

Readings and/or laboratory experience. Offered spring semesters. Prerequisite: consent of instructor.

077:207 Seminar: Free Radical and Radiation Biology 1 s.h.

Offered fall semesters.

077:208 Seminar: Free Radical and Radiation Biology 1 s.h.

Offered spring semesters.

077:211 Medical Physics 4 s.h.

Characteristics of X-ray machines, nuclear accelerators, teletherapy devices; properties of X-rays and gamma rays, their interaction with matter; radiation exposure, depth dose measurements; radiation therapy. Offered spring semesters of even years. Prerequisite: 8 s.h. of physics or consent of instructor. Same as 029:240.

077:222 Free Radicals in Biology and Medicine 4 s.h.

Chemistry of free radicals, antioxidants; antioxidant enzymes—their structure, function, regulation; targets of free radicals—lipids, proteins, DNA; free radicals in health and disease. Offered spring semesters of odd years. Prerequisite: 004:121 or 099:120.

077:288 Molecular and Cellular Biology of Cancer 3 s.h.

Fundamental aspects of oncology at the cellular and molecular levels; mechanisms of cancer initiation and progression, oncogene action, DNA damage and repair, carcinogenesis by radiation, chemicals, viruses; tumor immunology, anticancer therapies. Offered spring semesters of odd years. Prerequisites: strong basic science background and consent of instructor. Same as 069:288.

077:305 Research: Free Radical and Radiation Biology arr.

077:306 Research: Free Radical and Radiation Biology arr.

077:307 Research: Special Topics arr.

077:308 Research: Special Topics arr.

Internal Medicine

Head: Paul B. Rothman

Professors: Francois M. Abboud, Mark E. Anderson, Robert F. Ashman, Zuhair K. Ballas, Gail A. Bishop, Donald D. Brown, Kathleen C. Buckwalter, Mark W. Chapleau, Alan J. Christensen, Gerald H. Clamon, John S. Cowdery, Beverly L. Davidson, Peter Densen, David E. Elliott, John F. Engelhardt, Frank M. Faraci, Robert B. Felder, Elizabeth H. Field, F. Jeffrey Field, Laurence J. Fuortes, Fredric E. Gerr, Roger D. Gingrich, Joel A. Gordon, William G. Haynes, Donald D. Heistad, Charles M. Helms, Lorean A. Herwaldt, Raymond J. Hohl, Gary W. Hunninghake, Lawrence G. Hunsicker, Frederick C. Johlín Jr., Lawrence P. Karniski, Richard E. Kerber, Michael G. Kienzle, Louis V. Kirchhoff, Joel N. Kline, Ulla C. Kopp, David J. Kusner, Douglas R. LaBrecque, Steven R. Lentz, Victoria S. Lim, Donald E. Macfarlane, Rama K. Mallampalli, Allyn L. Mark, James B. Martins, Stephen E. McGowan, Geoffrey McLennan, James A. Merchant, William M. Nauseef, Thomas M. O'Dorisio, Brian Olshansky, Satish S. C. Rao, Gary B. Rosenthal, James D. Rossen, Peter A. Rubenstein, Janet A. Schlechte, Gregory A. Schmidt, Konrad S. Schulze, D. Michael Shasby, Curt D. Sigmund, William I. Sivitz, Peter M. Snyder, Arthur A. Spector, Nancy L. Sprince, Jack T. Stapleton, John B. Stokes III, Robert W. Summers, Christie P. Thomas, Robert B. Wallace, George J. Weiner, Neal L. Weintraub, Jerrold P. Weiss, Robert M. Weiss, Michael J. Welsh, Mary E. Wilson, Fred D. Wolinsky, Mark A. Yorek, Joseph L. Zabrner, Nicholas Zavazava, Craig S. Zwerling

Professors emeriti: Robert S. Bar, George N. Bedell, C. Patrick Burns, James Christensen, James A. Clifton, Richard L. DeGowin, Gerald F. DiBona, Richard Eckhardt, John W. Eckstein, Michael J. Flanigan, William B. Galbraith, Nancy E. Goeken, Kenneth A. Hubel, John E. Kasik, Hal B. Richerson, Harold P. Schedl, Phillip C. Schmid Jr., Helmut G. Schrott, Paul M. Seeborn, Ian M. Smith, M. Paul Strottmann, John M. Weiler, Donald C. Zavala

Professors (clinical): Herbert A. Berger, John F. Fieselsmann, Ellen E.I. Gordon, Patrick G. Hartley, Douglas B. Hornick, Udaya M. Kabadi, George V. Lawry II, Richard F. LeBlond, Margarida Magalhaes Silverman, Barbara A. Muller, William B. Silverman, Scott A. Vogelgesang, Michael D. Voigt, Jeffrey S. Wilson, Mark C. Wilson

Clinical professors: Nathan Josephson, Thomas J. McIntosh

Associate professors: Lee-Ann H. Allen, Christopher J. Benson, Daniel J. Berg, J. Andrew Bertolatus, Joseph S. Dillon, Bradley S. Dixon, Kristi J. Ferguson, Lois J. Geist, Thomas J. Gross, Lauris C. Kaldjian, David A. Katz, Kathryn G. Lamping, William J. Lawton, Gloria Lee, Brian K. Link, Dwight C. Look, Jeffery L. Meier, Francis J. Miller Jr., Craig T. Morita, Warren N. Schmidt, Linda G. Sneltselaar, Patricia L. Winokur

Associate professor emerita: Jeanne M. Smith

Associate professors (clinical): Lisa M. Antes, Gwen Z. Beck, Theresa M. Brennan, Thomas L. Carlisle, Thomas H. Carter, Henri A. Cuddihy, Daniel J. Diekema,

Gregory Doelle, Mary Beth Fasano, John S. Ferguson, James R. Flanagan, Christopher J. Goerdte, Rebecca L. Hegeman, Dinesh H. Jagasia, Roberto S. Kaili, Lisa M. Kaufman, Paul D. Lindower, Jess Mandel, Frances J. Meyer, Rachel A. Miller, Paul L. Mulhausen, Nicole L. Nisly, Margo L. Schilling, Hala H. Shamsuddin, Haraldine A. Stafford, Alexandra Thomas, Karl W. Thomas, Rebecca S. Tuetken, Terry L. Wahls, R. Todd Wibilin, Chad L. Williams, Scott R. Wilson

Clinical associate professors: Russell Adams, John H. Brinkman, Robert H. Caplan, M. Craig Champion, Prem K.G. Chandran, Steven R. Craig, Susan L. Espeland, Russell D. Glynn, Randall R. Hanson, Gregory A. Hicklin, Karl Larsen, Thomas R. Nicknisch, Craig A. Shadur, Richard B. Trimble, Lisa A. Veach, Javad Yans, William J. Yost

Clinical associate professor emeritus: Oscar C. Beasley

Assistant professors: Kyle E. Brown, A. Brent Carter, John D. Colgan, Peter M. Cram, Lakshmi Durairaj, Dawn M. Flaherty, Valerie F. Hoffman, Jacob W. Jldo, Peter J. Kaboli, Petar Lenert, Anton P. McCaffrey, Kamal Rahmouni, James E. Wooldridge

Assistant professors (clinical): Ademola K. Abiose, Anjan Bhattacharyya, Ann Broderick, Todd L. Burstain, Barry M. Cabuay, James L. Carroll, John S. Chase, Brian P. Daniel, Elaine M. Demetroulis, Kevin C. Doerschug, J. Scott Ferguson, Henning Gerke, Phillip A. Horwitz, William L. Iverson, Melinda J. Johnson, Mark W. Karwal, Vicki J. Kijewski, David G. Mulder, Jose Ness, Ika Peleg, John W. Rachow, Christina M. Reimer, Susan L. Roman, Douglas L. Somers, Joseph F. Szot, Daniel A. Vaena, Shawna J. Westermann

Adjunct assistant professor: Margaret LeMay

Clinical assistant professors: Russell Adams, Saramma J. Alexander, Shehaya Ali, Daniel P. Allen, Brad J. Archer, Farhana Asad, Lynda A. Baker, John T. Baller, David A. Basel, Hriden N. Basu, Walter W. Bate, Saraswathy S. Battar, Byron T. Beasley, Mark M. Belz, John P. Bennett, Edward M. Bottei, Leslie M. Brettell, Michael S. Brooks, Thomas M. Brown Jr., Mark Burdett, Charles R. Caughlan, Craig B. Clark, Angela Collins, Sanjiv Dahal, Guy De La Rosa, James L. Donahue, Nile S. Dusdieker, John J. Ellis, Steven Eyanson, James E. Feeley, Michael T. Flood, Brent F. Gerleman, Magdi G.H. Ghali, John H. Ghrist, Jon D. Gibson, James L. Gilliland, Adam J. Glazier Jr., Angie R. Goodson, David F. Gordon, Katrina A. Guest, Philip A. Habak, Joel E. Hade, Nidal H. Harb, Timothy J. Hart, Frank Haugland, Lisa M. Hazelton, Nancy Kane-Johnson, James A. Kwirant, Charles C. Larson, Robert H. Leisy, David K. Lemon, Charles Link, Randy N. Maigaard, Michael S. McCleary, Joe Moonjely, Roscoe Morton, Pamela L. Nerheim, David J. Nordstrom, Muhammad A. Pathan, Donald E. Paynter, James G. Piroo, Mark W. Purtle, Deanna L. Questad, Mary A. Radia, Ronald Reider, Eileen M. Robb, Jay A. Rosenberger, Nicholas W. Shammass, Michael J. Slavin, Melinda A. Smith, Joseph D. Thoreson, Dirk VerSteeg, Douglas Vickstrom, Robert F. Weis, Edward R. Winga

Visiting assistant professors: Catherine Pesek Bird, Elias Hazzzi, Marta M. Little

Clinical instructors: Phillip A. Bear, Alan L. Braun, Cam F. Campbell, Christopher M. Covert, Wilson L. Davis Jr., R. Joe Ewing, Ethel F. Faust, Michael J. Finan, Jonathan L. Fudge, James E. Glasser, Thomas B. Hakes, Janie C. Hendriks, Shelly A. Jones, Allan P. Latcham, Jack M. Lockart, James P. Lovell, Lawrence J. Rettenmaier, Mark P. Runde, Rebecca S. Sidney, James G. Wilde, Diana Wright, Thomas L. Zurbruggen

Associates: Alix Ashare, Jason H. Barker, Kavitha Bhat-Schelbert, Jaspreet K. Chahal, Farshad Elmi, Kevin A. Glenn, Masaki Kashiwada, Ann M. Machlab, Toru Nyunoya, Philip M. Polgreen, Murali Ramaswamy, Jane A. Rowat, Lisa J. Simmons, Jeanenne M. Suneja, Cyrus P. Tamboli

Web site: <http://www.int-med.uiowa.edu/>

Internal medicine is concerned with the diagnosis, prevention, and treatment of diseases of adults. The Department of Internal Medicine's educational, patient care, and research activities cover all facets of the discipline, including general internal medicine and primary care as well as the specialized areas of allergy and immunology, cardiology, clinical pharmacology, endocrinology and metabolism, gastroenterology and hepatology, hematology, oncology, blood and marrow transplant, infectious diseases, nephrology, pulmonary, critical care, occupational medicine, and rheumatology.

Medical Student Training

The Department of Internal Medicine is committed to the complete spectrum of medical education, from didactic and clinical education of M.D. students to resident and fellowship training. The department's faculty bears a major share of teaching first- and second-year M.D. students. In the first year, faculty members participate in 060:116 Medical Cell Biology, 050:240 Human Organ Systems, and 148:251 Principles of Medical Immunology. In the second year, they participate in 071:105 Pharmacology for Health Sciences: Medical and 061:103 Principles of Infectious Diseases. They are key participants in 050:162, 050:163, 050:164, and 050:165 Foundations of Clinical Practice I-IV.

In the third year, the department's faculty members teach students for six focus weeks in 078:101 Inpatient Internal Medicine and for four weeks in 078:102 Outpatient Internal Medicine at University of Iowa Hospitals and Clinics, the Veterans Affairs Iowa City Health Care System, or hospitals of the Des Moines Area Medical Education Consortium. M.D. students actively participate as members of an inpatient ward team in 078:101 and in the evaluation and

management of patients at outpatient internal medicine clinics in 078:102.

In the fourth year, M.D. students may select a clinical experience to fit their own career goals from courses offered in general medicine, subspecialties, intensive care, and a subinternship program.

Residencies and Postgraduate Work

The department offers a three-year residency training program in internal medicine. In addition, most of the department's specialty divisions offer two- and three-year clinical and research fellowships, in which fellows develop special knowledge and skills relevant to their specialties. Fellows who hold doctoral degrees may be accepted to programs whose major focus is laboratory research.

Facilities

Teaching takes place in the medical services and laboratories of University of Iowa Hospitals and Clinics, the Veterans Affairs Iowa City Health Care System, and the Veterans Affairs Central Iowa Health Care System and Iowa Methodist Medical Center in Des Moines.

Courses

078:101 Inpatient Internal Medicine arr.
Development of knowledge, diagnostic and management skills vital to care of hospitalized patients; clinical responsibilities, educational conferences, independent study.

078:102 Outpatient Internal Medicine 3-4 s.h.
Development of knowledge, diagnostic and management skills in the outpatient clinical setting; clinical activities, discussion of problems, independent study.

078:199 Learning about Living from the Dying 1 s.h.
Completion of training as Hospice volunteer; attendance at monthly sessions with Hospice medical director; experience as community Hospice volunteer.

078:202 Subinternship in Internal Medicine 4 s.h.
Student responsibility for evaluating, treating, and following patients admitted to inpatient general medicine services. Prerequisite: fourth-year medical student standing.

078:204 Community-Based General Internal Medicine 4 s.h.
Primary care internal medicine in a community setting. Prerequisite: fourth-year medical student standing.

078:205 Continuity of Care in Outpatient Internal Medicine 4 s.h.
Experience with longitudinal continuity of care for patients in the outpatient setting; clinical and didactic exposure to broad spectrum of general internal medicine problems. Prerequisite: fourth-year M.D. enrollment.

- 078:210 Alternative and Complementary Medicine** arr.
Same as 046:105, 096:182.
- 078:217 Integrated Topics in Infectious Diseases** 4 s.h.
Questions in host-parasite interactions; monthly case study followed by journals club discussions. Prerequisite: consent of instructor.
- 078:218 Critical Care Rotation, IMMC, ICU, DM** 4 s.h.
Subinternship on medical critical care team, with daily rounds, teaching. Prerequisite: fourth-year M.D. enrollment.
- 078:219 Subinternship in Internal Medicine at VAMC, Des Moines** arr.
Rotation at the Des Moines Veterans Affairs Medical Center; subinternship on general internal medicine ward. Prerequisite: fourth-year M.D. enrollment.
- 078:220 Subinternship in General Internal Medicine and ICU, Des Moines** arr.
Four-week rotation at Des Moines Medical Education Consortium; experience as a subintern in general internal medicine and the ICU. Prerequisite: fourth-year M.D. enrollment.
- 078:221 Public Health Medicine** arr.
Participation in ongoing projects related to public health issues of acute disease; training and career opportunities in public health practice.
- 078:225 General Medicine Consult Service, IMMC** arr.
Principles of consultative medicine provided by general internists to non-internal medicine patients; how to assess perioperative risk for patients evaluated before surgery.
- 078:250 Clinical Allergy Immunology** arr.
Pathogenesis, diagnosis, and management of asthma and allergic and immunologic diseases; conducting and interpreting relevant specialized clinical and laboratory tests; emphasis on outpatients; formal and informal teaching sessions.
- 078:290 Research in Allergy Immunology** arr.
Faculty-directed investigations for students interested in complement, peptides, molecular biology studies, molecular biology of C1 inhibitor and properdin, primary immunodeficiency diseases, tumor immunology, immune parameter of alcohol-related diseases, transplantation immunology.
- 078:300 Clinical Cardiology** arr.
Development of breadth, depth in diagnostic and therapeutic problems encountered in clinical cardiology; participation in evaluation and decisions regarding patients seen sometimes in the cardiovascular clinic, inpatient cardiology wards, and electrophysiology service.
- 078:304 Electrocardiography** arr.
Scalar electrocardiography with option of viewing exercise studies including treadmill testing; initial interpretation of current tracings and daily staff conferences.
- 078:325 Clinical Cardiology Coronary Care Experience, Iowa Methodist, Des Moines** arr.
- 078:333 Internal Medicine ICU off Campus** arr.
Experience as subintern in the ICU/MICU; daily rounds and teaching with medical critical care staff.
- 078:400 Clinical Endocrinology** arr.
New patient evaluation, inpatient referral; returning patients in diabetes, endocrine clinics; complete patient evaluations, charts; participation in clinical conferences.
- 078:440 Endocrine Research** arr.
Participation in all organized educational division activities, suitable clinical activities; work in research laboratory of senior staff member, participation in ongoing project. Prerequisite: consent of instructor.
- 078:450 Clinical Gastroenterology** arr.
Work in consultation service at University Hospitals and Clinics or Veterans Affairs Medical Center; assistance in diagnostic procedures for patients examined as part of consultation service; participation in patient follow-up through weekly return clinic.
- 078:490 Research in Gastroenterology** arr.
Prerequisite: consent of instructor.
- 078:501 Oncology** arr.
Diagnostic skills in clinical medical oncology; methods, value of clinical staging of solid tumors and lymphomas; principles, practice of rational chemotherapy; outpatient follow-up, management of patients with lymphomas, solid tumors.
- 078:502 Clinical Hematology** arr.
Diagnostic skills; practical approaches to anemia, blood coagulation, leukemia lymphomas; bone marrow preparations; principles, practice of rational therapy for hematological disorders.
- 078:503 Palliative Care** 4 s.h.
- 078:550 Clinical Infectious Disease** arr.
Diagnosis, treatment, follow-up, study of patients with infectious diseases, under staff guidance; techniques of diagnostic microbiology; participation in conferences, teaching activities.
- 078:590 Research in Infectious Disease** arr.
Projects in molecular pathogenesis of infectious diseases and/or cell biology of host defense mechanisms; additional projects in application of hospital epidemiology techniques to clinical aspects of infectious diseases.
- 078:600 Pulmonary Disease** arr.
Breadth, depth in diagnostic, therapeutic problems encountered in clinical pulmonary disease; evaluation of outpatients, inpatients under staff supervision; interpretation of special studies carried out in pulmonary function laboratory, fiberoptic bronchoscopy and brush biopsy of lung; exposure to diagnosis, management of acute respiratory failure in intensive care units at University of Iowa Hospitals and Clinics, Veterans Affairs Iowa City Health Care System.
- 078:601 Research in Pulmonary Disease** arr.
Faculty-directed investigations; clinical pulmonary physiology, biopsy procedures in lung disease, pulmonary pathology, metabolic behavior of mycobacterium tuberculosis, clinical pharmacology. Prerequisite: consent of instructor.
- 078:602 Medical Intensive Care Unit** arr.
- 078:625 Pulmonary Medicine and Critical Care, Gundersen Clinic** 4 s.h.
- 078:650 Nephrology** arr.
Evaluation of patients from University of Iowa Hospitals and Clinics inpatient service, Veterans Affairs Iowa City Health Care System, clinics; emphasis on early kidney disease, all varieties of hypertension.
- 078:653 Adult and Pediatric Nephrology and Hypertension** arr.
Same as 070:653.
- 078:662 Medical and Pediatric Endocrinology** arr.
Same as 070:662.
- 078:690 Research in Renal, Hypertension, and Electrolyte Disorders** arr.
Laboratory investigation on renal physiology; participation in ongoing research involving large and small animals, using classical clearance methodology for studying aspects of sodium metabolism, influence of drugs. Prerequisite: fourth-year M.D. enrollment.

078:700 Clinical Rheumatology arr.

Clinical features of rheumatic diseases, their differential diagnosis, principles of management; patients from arthritis clinic, inpatient consultation service of University of Iowa Hospitals and Clinics, Veterans Affairs Iowa City Health Care System.

078:800 Geriatrics Elective arr.

Health monitoring, evaluation of patients 75 and older on University of Iowa Hospitals and Clinics internal medicine service; emphasis on diseases that occur most commonly or exclusively in elderly. Same as 115:426.

078:835 Subinternship in Medical Psychiatry 4 s.h.**078:902 Subinternship General Medicine:
Gundersen Clinic, La Crosse, Wisconsin arr.****078:998 Internal Medicine on Campus arr.****078:999 Internal Medicine off Campus arr.**
Prerequisite: consent of department.

Medical Scientist Training Program

Codirectors: Pamela Geyer (Biochemistry), Michael Welsh (Internal Medicine)

Web site: <http://www.medicine.uiowa.edu/mstp>

The Iowa Medical Scientist Training Program (MSTP) offers a joint M.D./Ph.D. program that prepares trainees for careers in academic medicine, with emphasis on basic and clinical research. The program provides an effective means for integration of graduate education and doctoral research with the full complement of clinical studies necessary for the medical degree.

Joint M.D./Ph.D.

The Doctor of Philosophy requires a minimum of 72 s.h. of graduate credit. Requirements for the joint M.D./Ph.D. normally are completed in seven to eight years of continuous study.

The joint M.D./Ph.D. is designed to integrate the scientific approach and clinical medicine. In the first two years of the program, trainees enroll in the basic science and introductory clinical portions of the Carver College of Medicine Doctor of Medicine curriculum. This provides a broad exposure to the language and organizing concepts that form the foundation for a career as a physician scientist. Trainees begin the research component of the graduate phase of the program through summer laboratory rotations, research presentations by MSTP faculty and students, and a student-sponsored seminar series. They also participate in MSTP grand rounds, a forum for patient-based discussions that emphasizes how science and medicine intersect.

The first-year curriculum addresses normal structure and function of human organ systems and emphasizes relationships among different disciplines. During the first semester, trainees take courses in biochemistry, gross anatomy, cell biology, and medical genetics. The second semester presents an integrated systemic core, which incorporates physiology, histology, and embryology and focuses on the development, structure, and function of human organ systems. Discipline-specific basic science instruction continues through the second semester with medical neuroscience and immunology courses.

The second-year curriculum emphasizes abnormal structure and function of human organ

systems. Trainees take courses in pathology, microbiology, and pharmacology.

Throughout the first two years of study, students receive instruction in the foundations of clinical practice, including patient experience in medical history taking and physical examination. At the end of the second year, all trainees take Step One of the U.S. Medical Licensing Exam and then complete the basic core clinical clerkship in internal medicine. They gain broad exposure to the spectrum of human disease and experience with direct patient care before they enter the graduate phase of training.

At the beginning of the third year, trainees enroll in a graduate department or interdisciplinary graduate program.

The focus of the graduate years of study is engagement in academic and research experiences that promote the trainees' development into independent investigators. Clinical contact is maintained during this phase of training through participation in seminar programs, MSTP grand rounds, and 050:212 MSTP Clinical Connections, a course that provides the opportunity for mentored clinical experiences.

Upon completing the Ph.D. dissertation, trainees return to the Carver College of Medicine curriculum to complete the clinical clerkship requirements appropriate to their career goals. During this phase, trainees bring a sophistication in the scientific approach to problem solving that they apply to human disease. They renew and develop clinical skills acquired in their early training and reinforce their understanding of the scientific basis of disease through continued participation in MSTP grand rounds. Upon completion of the clinical curriculum, trainees are awarded the M.D. and Ph.D.

Most graduates of the program elect to enter residency programs in clinical medicine and embark on careers as medical school faculty members in clinical disciplines with opportunities for basic and applied research. Other graduates accept academic appointments in basic science departments and spend a major part of their professional activity in biomedical research and teaching.

Admission

Applicants must meet requirements for admission to the M.D. program in the Carver College of Medicine and the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants should have completed requirements for a bachelor's degree at an accredited academic institution. In addition to outstanding academic credentials, including strength in biological, physical, and mathematical sciences, they must demonstrate aptitude for and commitment to scientific research, usually through productive research experience as undergraduates. Admission normally is made for entry to the first year of the program, but applicants already enrolled in the Carver College of Medicine may request admission with advanced standing.

Application

The Carver College of Medicine participates in the American Medical College Application Service (AMCAS). Program applicants should select M.D./Ph.D. Program-Type on their AMCAS application and instruct AMCAS to forward their credentials to the Carver College of Medicine (IA131). Applications should be submitted as early as possible to allow careful review by the admissions committees of the Medical Scientist Training Program and the Carver College of Medicine.

All candidates must take the Medical College Admission Test (MCAT), preferably in the spring and no later than the summer of the calendar year in which they submit their application. The Graduate Record Exam (GRE) is not required for admission.

Application to the Graduate College is not required before acceptance to the MSTP. Trainees admitted to the program receive assistance with Graduate College enrollment.

Financial Support

Trainees receive stipend and tuition support from a National Institutes of Health MSTP training grant to The University of Iowa, supplemented by other institutional and individual awards. Students in the graduate phase of training receive support from their graduate departments and interdisciplinary programs. The program office also helps selected trainees apply for competitive national awards for outstanding academic and research achievement.

Courses

050:211 MSTP Research arr.
 Research experience. Prerequisite: Medical Scientist Training Program enrollment.

050:212 MSTP Clinical Connections arr.
 Experience with physician-scientist preceptor in medical interviewing, physical examination, and patient presentation through direct patient interaction. Prerequisite: participation in Medical Scientist Training Program graduate phase.

Microbiology

Head: Michael A. Apicella

Professors: Michael A. Apicella, Robert F. Ashman (Internal Medicine), Gail A. Bishop (Internal Medicine), John E. Butler, Steven Clegg, Charles D. Cox, Michael G. Feiss, John T. Harty, William Johnson, David M. Lubaroff (Urology), William Nauseef (Internal Medicine), Stanley Perlman (Pediatrics), Timothy L. Ratliff (Urology), Paul Rothman (Internal Medicine), George V. Stauffer, Mark F. Stinski, C. Martin Stoltzfus, Jerrold P. Weiss (Internal Medicine), Mary E. Wilson (Internal Medicine)

Professors emeriti: John Cazin Jr., David T. Gibson, Louis G. Hoffmann, Erich W. Six, Donald P. Stahly

Associate professors: Lee-Ann Allen (Internal Medicine), Morris O. Dailey (Pathology), Bradley D. Jones, Al J. Klingelhut, Wendy J. Maury, Linda L. McCarter, Matthew R. Parsek, Richard J. Roller, David S. Weiss, Timothy L. Yahr

Associate professor emeritus: Jose E. Rodriguez

Adjunct associate professor: Mary J. Gilchrist

Assistant professors: Alex Horswill, Jon Houtman, Brian K. Martin, Steven M. Varga

Adjunct assistant professor: Marcia L. Cordts

Adjunct lecturer: Linda M. Knudtson

Undergraduate degree: B.S. in Microbiology

Undergraduate nondegree program: Minor in Microbiology

Graduate degrees: M.S., Ph.D. in Microbiology

Web site: <http://www.medicine.uiowa.edu/microbiology>

Study in the Department of Microbiology is dedicated to the branch of biological sciences that deals with the smallest living things: bacteria, archaea, fungi, algae, protozoa, and viruses. It is coupled with immunology, the study of the response of higher organisms to foreign substances.

Microbiology and immunology are at the forefront of the modern biological revolution. Microbes are often the experimental subjects of choice for examining basic genetic and biological phenomena because of their small size, rapid growth rate, and relative simplicity. A significant portion of contemporary biochemical research employs microbiological and immunological methods.

Current research is making theoretical and practical advances concerning microbial species and viruses that infect animals, including man, plants, and other microbes; the use of comparative genomics, gene expression profiling, and recombinant DNA methods to analyze basic biological processes and generate valuable

products; the nature and occurrence of microbial life in extreme or unusual environments; microbial synthesis and modification of antibiotics and other natural products; the role of microbes in stabilization of the biosphere by recycling and detoxifying waste products; the genetics and regulation of metabolic processes; and the genetics and regulation of the immune response, including characterization of mechanisms used by bacteria to signal one another and characterization of interactions between different types of immune cells and their targets.

Microbiology is an excellent major for undergraduate students who want a good general education with emphasis on an important and interesting branch of biological sciences. Graduates find employment opportunities in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies). Those who pursue advanced degrees have more advanced career opportunities in these same areas as well as in college and university teaching.

Undergraduate Program

The College of Liberal Arts and Sciences administers undergraduate programs and grants undergraduate degrees in microbiology. The department offers a Bachelor of Science in microbiology and a minor in microbiology.

Bachelor of Science

The Bachelor of Science in microbiology requires a minimum of 64 s.h. in the major. Students must complete at least 21 s.h. in microbiology course work, including at least 12 s.h. taken at The University of Iowa. All University of Iowa microbiology courses must be chosen from those numbered 061:147 and above, except 061:164. No more than 2 s.h. of 061:161 (061:171 for honors students) and no more than 2 s.h. of 061:163 may be counted toward the required 21 s.h. of microbiology courses. Students may count 061:218, but not 061:220, toward the requirement.

Students may take microbiology courses more advanced than 061:157 General Microbiology only if they receive a grade of C or higher in 061:157 and have the instructor's consent for the courses. Mathematics and science courses required by the department for the B.S. may not be taken pass/nonpass.

Microbiology Seminar (061:163) should be taken for credit only once during the senior year. Students are encouraged to take the course for 0 s.h. during other semesters after they have taken 061:157.

All students must complete the College of Liberal Arts and Sciences General Education Program.

Students must take the following in addition to required microbiology courses.

002:010-002:011 Principles of Biology I-II	8 s.h.
004:011-004:012 Principles of Chemistry I-II	8 s.h.
004:121-004:122 Organic Chemistry I-II	6 s.h.
004:141 Organic Chemistry Laboratory	3 s.h.
029:011-029:012 College Physics	8 s.h.
099:120 Biochemistry and Molecular Biology I	3 s.h.
099:130 Biochemistry and Molecular Biology II	3 s.h.
One of these:	
22M:016 Calculus for the Biological Sciences	4 s.h.
22M:025 Calculus I	4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus	4 s.h.

In addition, the following courses may be recommended for some students.

08N:080 Nonfiction Writing	3 s.h.
*171:161 Introduction to Biostatistics	3 s.h.

*Some medical schools require a biostatistics course for admission.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the third semester begins: 002:010; 004:011, and 004:012; an approved calculus class; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 002:011; 004:121, 004:122, and 004:141; 061:157; and at least one-half of the semester hours required for graduation

Before the seventh semester begins: five more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: another 10-12 s.h. of course work

During the eighth semester: enrollment in all remaining course work in the major, all remaining required General Education courses, and a sufficient number of semester hours to graduate

Honors

Microbiology majors who are members of the University Honors Program may enroll in the honors program in microbiology. Membership in the University Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33. Microbiology honors students must also maintain a g.p.a. of at least 3.33 in microbiology courses. The program requires 25 s.h. of course work in microbiology, including 6 s.h. in 061:171 Honors Undergraduate Research in Microbiology, which constitutes an introduction to experimental research. At the end of the research, students present written and oral reports. Students who successfully complete these requirements receive the B.S. with honors.

Minor

An undergraduate minor in microbiology requires at least 15 s.h. of credit in microbiology courses with a g.p.a. of at least 2.00. Students must take at least 12 of the 15 s.h. at The University of Iowa. All courses must be chosen from those numbered 061:147 and above, except 061:164.

No more than 2 s.h. of 061:161 or 061:171 and 2 s.h. of 061:163 may be counted toward the 15 s.h. requirement. Students may count 061:218, but not 061:220, toward the minor.

Graduate Programs

The Carver College of Medicine administers graduate programs in microbiology; graduate degrees are granted through the Graduate College. See Carver College of Medicine and

Graduate College in the Catalog for general information about study in medicine and graduate study at the University.

The department offers a Master of Science in microbiology and a Doctor of Philosophy in microbiology. Generally, students admitted to the graduate program pursue the Ph.D.

The objectives of the graduate programs in microbiology are to help students become highly qualified in microbiology research and teaching.

The program offers study in six subdisciplines: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, animal virology, and bioinformatics. Several areas involve interdisciplinary training both within and outside the department, so students receive broad experience during their course of study. Students also may pursue interdisciplinary Ph.D. programs in genetics, immunology, and molecular biology.

During their first year, students rotate in three laboratories of their choice and are advised by the Graduate Student Advisory Committee. At the end of the first year, they choose a research supervisor who chairs their advisory committee. The committee provides intellectual and research guidance for the student's training.

The Department of Microbiology cooperates with other University of Iowa departments to give students ample access to diverse course offerings, seminars, and research programs. For example, microbiology students may participate in courses and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, biocatalysis/biotechnology, and electron microscopy.

All students admitted to advanced degree programs are expected to assist in departmental teaching.

Master of Science

The Master of Science in microbiology requires a minimum of 30 s.h. of graduate credit. M.S. students are required to earn a minimum of 12 s.h. in microbiology courses chosen from three of the department's six subdisciplines. They may substitute a course already taken (at The University of Iowa or elsewhere) for a course requirement, with the M.S. advisory committee's approval. Additional course requirements depend on students' interests and the advice of the examining committee. Students must write a thesis based on their own research and defend it satisfactorily in an oral examination. No more than 9 s.h. of credit for thesis research may be

counted toward the 30 s.h. required for the Master of Science.

Doctor of Philosophy

The Doctor of Philosophy in microbiology requires a minimum of 72 s.h. of graduate credit. Ph.D. students are required to earn a minimum of 15 s.h. of credit in graduate-level microbiology courses. Students may substitute a course already taken (at The University of Iowa or elsewhere) for a course requirement, with the Ph.D. advisory committee's approval. They also must pass a comprehensive examination before their sixth semester in the program and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They should have a cumulative g.p.a. of at least 3.00 and must have completed courses in biological sciences, chemistry (inorganic and organic), mathematics including calculus, and physics. Those admitted with deficiencies must complete the relevant course work during their first year of graduate study. Admission is determined through a review and formal vote by the faculty. Preference is given to students applying for the Ph.D. program.

Facilities

The department shares the Bowen Science Building with the Departments of Anatomy and Cell Biology, Biochemistry, Pharmacology, and Physiology and Biophysics. Laboratory space and modern equipment are available for teaching and research.

Courses

061:005 Microbes and Our World 2 s.h.
Bacteria, viruses, and parasites and their role in shaping human health, industry, current affairs, history.

061:103 Principles of Infectious Diseases 5 s.h.
Principles and methods essential to study of microorganisms, their isolation and identification; microorganisms in infectious diseases; current immunology concepts. Prerequisite: M.D. enrollment.

061:104 Principles Infectious Diseases—Physician Assistant 4 s.h.
Principles and methods essential to study of microorganisms, their isolation and identification; microorganisms in infectious diseases; current immunology concepts. Prerequisite: Physician Assistant Program enrollment.

- 061:112 Pharmacy Microbiology** 3 s.h.
Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: pre-pharmacy standing.
- 061:113 Dental Microbiology** 3 s.h.
Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: D.D.S. enrollment.
- 061:147 Survey of Immunology** 4 s.h.
Major features of the evolutionary, ontogenic, and comparative development of innate and adaptive immune systems and their functions at the cellular and molecular levels. Prerequisite: strong background in biology, including physiology. Pre- or corequisite: biochemistry.
- 061:157 General Microbiology** 5 s.h.
Principles of microbial diversity, microbial genetics, physiology and metabolism, pathogenic microbiology, virology, immunology, industrial and environmental microbiology; laboratory emphasis on basic techniques. Prerequisites: 002:010 and 002:011. Corequisite: 004:121.
- 061:159 Pathogenic Bacteriology** 5 s.h.
Pathogenic bacteria, with emphasis on mechanisms of pathogenicity, laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria. Prerequisites: grade of C or higher in 061:157 and consent of instructor.
- 061:160 Microbial Physiology** 3 s.h.
Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:180. Prerequisite: grade of C or higher in 061:157.
- 061:161 Undergraduate Research in Microbiology** arr.
Experimental research under faculty supervision. Prerequisites: grade of C or higher in 061:157 and consent of instructor.
- 061:163 Seminar: Microbiology** 2 s.h.
Current topics in microbiology, immunology. Prerequisite: grade of C or higher in 061:157.
- 061:164 Health Sciences Microbiology** 4 s.h.
Overview of bacteria, viruses, and eukaryotic microorganisms that cause human disease; microbial structure, growth control and reproduction; immunology in the context of host defense mechanisms. Prerequisite: pre-pharmacy or pre-nursing student standing or consent of instructor. Pre- or corequisite: 002:002 or 002:010 or 002:021.
- 061:168 Introduction to Animal Viruses** 3, 5 s.h.
Basic physical, chemical, biological properties of animal viruses, their association with human disease; optional laboratory with emphasis on methods in basic, clinical, and molecular virology. Prerequisites: grade of C or higher in 061:157 and consent of instructor.
- 061:170 Microbial Genetics** 3 s.h.
Genetics of bacteria, bacteriophages; laboratory supplement in 061:175. Prerequisite: grade of C or higher in 061:157 or consent of instructor.
- 061:171 Honors Undergraduate Research in Microbiology** arr.
Experimental research under faculty supervision. Prerequisites: junior or senior standing and g.p.a. of at least 3.33.
- 061:175 Microbial Genetics Laboratory** 3 s.h.
Basic principles of genetic analysis of bacteria and bacteriophage. Prerequisite: consent of instructor. Pre- or corequisite: 061:170.
- 061:180 Microbial Physiology Laboratory** 2 s.h.
Isolation and growth of bacteria, bacterial function products, nutrient transport, metabolic pathways, enzymes. Prerequisite: consent of instructor. Corequisite: 061:160.
- 061:188 Microbial Biotechnology** 3 s.h.
Industrially relevant microbiology; molecular biology, fermentation, cell culture, downstream processing; overview of industrial organisms; processes to make enzymes, bulk chemicals, antibiotics; safety, economic, regulatory aspects. Prerequisite: grade of C or higher in 061:157.
- 061:190 Web-Based Nursing Microbiology** 4 s.h.
Nursing microbiology, principles of immunology; web-based instruction. Prerequisite: pre-nursing standing or consent of instructor. Pre- or corequisite: 002:002 or 002:010 or 002:021.
- 061:201 Graduate Immunology I** 3 s.h.
Prerequisites: courses in college biology, genetics, general chemistry, and introductory immunology. Recommended: biochemistry course. Same as 148:201.
- 061:202 Graduate Immunology II** 3 s.h.
Intercellular adhesion in the immune system, regulation of inflammation and lymphocyte traffic, immunological tolerance, autoimmune diseases, immune responses to viruses and parasites; problem-oriented experimental approaches, relevant journal articles. Same as 148:202.
- 061:207 Advanced Topics in Immunology** 3 s.h.
Literature; skill in scientific presentation. Prerequisites: 061:201 and 061:202, or 148:201 and 148:202, or equivalents; and consent of instructor. Same as 148:221.
- 061:210 Advance Prokaryotic Molecular Biology** 3 s.h.
Mechanism and regulation of DNA, RNA, and protein synthesis in bacteria. Prerequisites: 002:128, and 099:130 or equivalent. Same as 142:210.
- 061:217 Integrated Topics in Infectious Diseases** 1 s.h.
Clinical cases used to raise questions in host-parasite interactions; case/scientific exposés followed by related journal club discussions at next class session. Prerequisite: consent of instructor. Same as 148:217.
- 061:218 Microscopy for Biomedical Research** arr.
Methods of tissue preparation for transmission, scanning electron microscopy; fixation, embedding, ultra-thin sectioning and staining; theory, use, maintenance of electron microscopes; associated photographic techniques; advanced techniques such as immuno EM, freeze-fracture. Prerequisites: biological science course and consent of instructor. Same as 002:218, 060:218.
- 061:220 Advanced Microscopy Biomedical Research** arr.
Individually designed projects, library searches, seminar and workshop participation. Prerequisites: introductory EM course and consent of instructor. Same as 002:220, 060:220.
- 061:226 Advanced Topics in Microbial Development** 2 s.h.
Lectures and journal club discussions on molecular and cellular mechanisms of bacterial and viral adaptation and survival in animate and inanimate environments. Prerequisite: consent of instructor. Pre- or corequisites: 142:220, 061:160 or 061:260, and 061:170 or 061:270.
- 061:259 Graduate Pathogenic Bacteriology** 5 s.h.
Pathogenic bacteria, with emphasis on mechanisms of pathogenicity, laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria; research literature. Prerequisite: consent of instructor.
- 061:260 Graduate Microbial Physiology** 3 s.h.
Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:280.
- 061:261 Graduate Research in Microbiology** arr.
Prerequisites: microbiology graduate standing and consent of instructor.

061:263 Graduate Student Research Seminar 1 s.h.

Presentation of thesis work in progress. Prerequisite: microbiology graduate standing or consent of instructor.

061:264 Directed Study in Microbiology arr.

Prerequisites: microbiology graduate standing and consent of instructor.

061:265 Topics in Virology Literature 1 s.h.

Papers of current interest in primary virology literature. Prerequisite: consent of instructor.

061:267 Graduate Introduction to Animal Viruses 3, 5 s.h.

Basic physical, chemical, biological properties of animal viruses, their association with human diseases; optional laboratory with emphasis on methods in basic, clinical, and molecular virology; discussion topics in the primary literature. Prerequisite: consent of instructor.

061:268 Biology and Pathogenesis of Viruses 2 s.h.

Molecular biology of animal DNA and RNA viruses, interaction of these viruses with eucaryotic cells; mechanisms of viral latency, persistence, cellular transformation, oncogenesis; virology literature. Prerequisites: 061:168 or 061:267 or equivalent, and biological sciences major.

061:270 Graduate Microbial Genetics 3 s.h.

Genetics of bacteria, bacteriophages; supplementary laboratory work in 061:271.

061:271 Graduate Microbial Genetics Laboratory 3 s.h.

Basic principles of genetic analysis in bacteria. Prerequisite: consent of instructor. Pre- or corequisite: 061:270.

061:275 Perspectives in Biocatalysis 1-3 s.h.

Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Same as 004:275, 046:275, 052:275, 053:275, 099:275.

061:279 Bacterial Diversity 4 s.h.

Isolation, cultivation of bacteria from various habitats; physiological genetic characteristics of bacterial groups. Prerequisites: grade of C or higher in 061:157; 061:160 or 061:170 or equivalent; and consent of instructor.

061:280 Graduate Microbial Physiology Laboratory 2 s.h.

Isolation and growth of bacteria, bacterial function products, nutrient transport, metabolic pathways, enzymes. Prerequisite: consent of instructor.

061:288 Graduate Microbial Biotechnology 3 s.h.

Industrially relevant microbiology; molecular biology, fermentation, cell culture, downstream processing; overview of industrial organisms; processes to make enzymes, bulk chemicals, antibiotics; safety, economic, regulatory aspects. Prerequisite: microbiology major or consent of instructor.

061:299 Mechanisms of Parasitism Journal Club 1 s.h.

Same as 142:299.

Molecular Physiology and Biophysics

Head: Kevin P. Campbell

Executive associate head: W. Scott Moye-Rowley

Professors: François M. Abboud (Internal Medicine), Mark Anderson (Internal Medicine), Nikolai Artemyev, Michael Artman (Pediatrics), Kevin P. Campbell, Mark Chapleau (Internal Medicine), Beverly Davidson (Internal Medicine), Robert E. Fellows, Meredith Hay, Wayne Johnson, David Kusner (Internal Medicine), W. Scott Moye-Rowley, Paul Rothman (Internal Medicine), Andrew Russo, Thomas J. Schmidt, Deborah Segaloff, Curt Sigmund (Internal Medicine), Peter Snyder (Internal Medicine), Michael J. Welsh (Internal Medicine)

Professors emeriti: Gerald DiBona (Internal Medicine), G. Edgar Folk Jr., Charles C. Wunder

Visiting professors: Darryl Granner, Francisco Mora

Associate professors: Sarah England, Michael Henry, Robert Piper, Erwin F. Shibata, Mark Starnes

Assistant professors: Michael Anderson, Benet Pardini (Pediatrics)

Graduate degrees: M.S., Ph.D. in Physiology and Biophysics

Web site: <http://www.physiology.uiowa.edu>

The Department of Molecular Physiology and Biophysics offers graduate study leading to the Master of Science and Doctor of Philosophy and participates in interdisciplinary graduate programs, including the Medical Scientist Training Program, a combined M.D./Ph.D. program offered by the Graduate College and the Carver College of Medicine. It also provides instruction in molecular physiology and biophysics for M.D., D.D.S., pre-pharmacy, and other health professional students, and it conducts a co-op exchange, a vigorous training program that gives undergraduate students the opportunity to develop as independent researchers in preparation for graduate studies.

The department's principal research areas include cell biology, genetics, endocrinology, neuroscience, and membrane physiology and biophysics; the unifying theme is the understanding of signal transduction mechanisms involved in regulating function at the cellular and molecular levels.

Graduate Program

Graduate study in physiology and biophysics provides students with fundamental knowledge of life processes at molecular, cellular, and integrative levels of biological function. It also imparts knowledge of modern research skills applicable to contemporary problems.

The program is designed for students whose degree objective is the Doctor of Philosophy. Students who are unable to complete the Ph.D. are granted the Master of Science if they satisfy all M.S. requirements and apply for the degree.

Students enter the graduate program through the Biosciences Program (Graduate College) or directly through the Department of Molecular Physiology and Biophysics. Those who enter directly are advised by the department's director of graduate studies, who guides them in planning required course work and introduces them to research activities of the department's faculty members.

Master of Science

The Master of Science in physiology and biophysics requires a minimum of 30 s.h. beyond the bachelor's degree and is offered with and without thesis. Thesis students complete laboratory research and write a thesis that fulfills the requirements of the Graduate College (see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog). Nonthesis students complete a library research report, and a written examination on the research report area and the graduate program in physiology.

Doctor of Philosophy

The Doctor of Philosophy in physiology and biophysics requires a minimum of 72 s.h. beyond the bachelor's degree. The core curriculum includes graduate-level courses in cell biology, molecular biology, human physiology, and neurophysiology. Advanced electives, offered by molecular physiology and biophysics and other departments, cover a wide range of topics, including receptors and signal transduction, and developmental neurophysiology.

After successful completion of required course work and the comprehensive examination, students devote full time to thesis research, which culminates in preparation of a doctoral dissertation and its defense in a final oral exam.

All degree candidates have experience as classroom instructors, under faculty supervision, as part of their training.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They must have a bachelor's degree from an accredited institution, with an undergraduate major in one of the biological, chemical, physical, mathematical, or engineering sciences and one or more years of course work in biology, physics, biochemistry, and calculus. They also must have a cumulative science g.p.a. of at least 3.00 and a combined verbal and quantitative score above 1200 on the Graduate Record Examination (GRE) General Test.

Financial Support

All full-time students receive financial aid in the form of tuition and stipend support from the Department of Molecular Physiology and Biophysics. Support is renewed annually based on satisfactory progress in meeting degree requirements.

Research

Faculty research interests in the Department of Molecular Physiology and Biophysics encompass molecular and cellular endocrinology, cellular and developmental neurophysiology, and membrane structure and function. Within these, there are multiple areas of interest, including hormone receptors, reproductive endocrinology, signal transduction, regulation of gene expression, synaptic transmission, neuronal differentiation, membrane ion channels, regulation of excitability, and cardiovascular electrophysiology and regulation. Experimental models currently being investigated include rodents, yeast, *Drosophila*, and cultured cell lines from a variety of species.

Facilities

Two floors of the Bowen Science Building are devoted to research and teaching in the Department of Molecular Physiology and Biophysics. Department faculty members also occupy laboratory facilities in the Eckstein Medical Research Building and the Carver Biomedical Research Building. In addition to specialized equipment in faculty research laboratories, the department provides equipment for fluorescence microscopy, isotope analysis, cell culture, and molecular biology. It also has access to the University network and the multimedia

education facilities. Additional resources are available at the Hardin Library for the Health Sciences.

Courses

- 072:152 Human Physiology for Dental Students** 4 s.h.
Principles of human physiology, organ systems, cell function. Offered fall semesters. Prerequisites: grade of C- or higher in 002:010, 004:121, and 004:122; D.D.S. enrollment; and consent of course director.
- 072:153 Graduate Physiology** 4-5 s.h.
Principles of human physiology, organ systems, cell function. Offered fall semesters. Prerequisites: grades of C- or higher in 002:010, 004:121, and 004:122; graduate standing; and consent of course director.
- 072:164 Human Physiology for Physician Assistant Students** 4 s.h.
Principles of human physiology, organ systems, cell function. Offered summer sessions. Prerequisites: grade of C- or higher in 002:010, 004:121, and 004:122; Physician Assistant Program enrollment; and consent of course director.
- 072:199 Research, Independent Study** arr.
Prerequisites: consent of instructor; closed to physiology and biophysics graduate students.
- 072:209 Receptors and Signal Transduction** 3 s.h.
Major receptor families: G-protein coupled receptors, ligand-regulated transmembrane enzymes, ligand-regulated ion channels, the steroid receptor superfamily; emphasis on description and interpretation of specific experiments, experimental strategies that underlie current research. Prerequisites: 072:150 or 099:130 or equivalent, and consent of course director. Same as 071:209, 132:209.
- 072:220 Mechanisms of Cellular Organization** 3 s.h.
Same as 060:216, 142:220.
- 072:225 Mechanisms of Cell Growth and Development** 3 s.h.
Same as 060:225, 142:225.
- 072:240 Physiology Workshop** 1 s.h.
Presentations by faculty, postdoctoral fellows, graduate students, and scientists. Repeatable. Prerequisite: graduate standing.
- 072:245 Developmental Neurobiology** 3 s.h.
Major developmental systems, their application in neurobiology; neurogenesis, synapse formation, axonal guidance, the cellular/molecular aspects of neural differentiation; literature-based approach. Prerequisite: consent of course director. Same as 002:246, 132:246.
- 072:248 Topics on Neuromuscular Disease** 2 s.h.
Key topics in diagnosis, pathogenesis, and treatment of neuromuscular disease; recent neuromuscular disease patients at University Hospitals and Clinics or muscle biopsies sent to neuropathology for analysis at University of Iowa Health Sciences Center; current publications, neuropathology clinical conference. Offered spring and fall semesters. Prerequisites: graduate or medical resident standing, and consent of course director.
- 072:250 Topics in Molecular Physiology** 1 s.h.
Current issues in molecular physiology; seminar. Prerequisite: 156:201.
- 072:265 Neuroscience Seminar** 0-1 s.h.
Research literature on neurosciences, behavior. Prerequisite: consent of course director. Same as 002:265, 031:265, 060:265, 132:265.

072:270 Responsible Conduct of Research 1 s.h.

Ethical issues, including misconduct and fraud, proper handling of data, responsible authorship, conflict of interest, research on animals and human subjects. Prerequisite: consent of instructor.

072:302 Research Physiology and Biophysics arr.

Prerequisite: physiology and biophysics graduate standing.

072:342 Biosciences Seminar 1 s.h.

Focus on a journal article relevant to weekly biosciences seminar. Repeatable. Prerequisite: consent of instructor. Same as 002:270, 156:265.

072:402 Thesis arr.

Prerequisite: physiology and biophysics Ph.D. candidacy.

Neurology

Head: Robert L. Rodnitzky

Professors: Harold P. Adams Jr., Adel Affi (Pediatrics/Anatomy and Cell Biology), Kevin Campbell (Physiology and Biophysics), Patricia Davis, Jun Kimura, Jane Paulsen (Psychiatry), Matthew Rizzo, Robert Rodnitzky, William Talman, Daniel Tranel (Psychology), Michael Wall (Ophthalmology and Visual Sciences), Thoru Yamada

Professors emeriti: William E. Bell (Pediatrics), Arthur L. Benton (Psychology), Ramon Lim

Adjunct professors: Ralph Adolphs (Neurosurgery), Antonio Damasio, Hanna Damasio

Associate professors: Steven Anderson, Daniel Bonthius (Pediatrics), Beverly Davidson (Internal Medicine), M. Eric Dyken, Thomas Grabowski, Mark Granner, Matthew Howard (Neurosurgery), Robert D. Jones, Praful Kelkar, Andrew Lee (Ophthalmology and Visual Sciences/Surgery), Katherine D. Mathews (Pediatrics), Henry Paulson, E. Torage Shivapour, Jon Tippin, James B. Worrell

Adjunct associate professor: Antoine Bechara

Assistant professors: Ed Aul, Natalie Denburg, Deema Fattal, Lynn Geweke, Pedro Gonzalez, Wes Houston, Shekar Raman, Erik St. Louis, Ergun Uc, Malcolm Yeh, Asgar Zaheer

Postdoctoral associates, fellows: Kevin Faber, Heidi Smith, Shana Vifian-Ray, Chad Yucus

Web site: <http://www.uihealthcare.com/depts/med/neurology/>

Neurology is the branch of medical science concerned with diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle.

The Department of Neurology's hallmark is its history of carefully integrating patient care and the education of medical, postdoctoral, and graduate students.

The department provides clinical and clinical research training to third- and fourth-year M.D. students. An active, three-year approved residency program qualifying physician trainees for board certification in neurology is a major aspect of the department's activity; experience in clinical electrophysiology, pediatric neurology, psychiatry, and neuropathology is part of this training. The department also offers research opportunities in various fields of neuroscience, including neuropsychology, neuroimaging, and neuroanatomy, to Ph.D. students in neuroscience and psychology.

The faculty's investigative interests center on cognitive neuroscience, degenerative diseases,

cerebrovascular disease, neurogenetics, neuromuscular diseases, electrophysiological correlates of central and peripheral nervous system disease, growth factors in the nervous system, control and regulation of autonomic functions, neuro-ophthalmology, movement disorders, epilepsy, and pain management.

Courses

064:011 Clinical Neurology 2, 4 s.h.
Experience in clinical neurology through ward work and case-based conferences linked to required reading; focus on neurologic examination, diagnosis of neurologic problems; four-week clerkship.

064:238 Introductory Neuropsychological Assessment arr.
Standard behavioral assessment procedures; administration of neuropsychological tests under staff supervision; preparation of integrated reports on collected data; involvement in research project.

064:239 Advanced Neuropsychological Assessment arr.
Continuation of 064:238.

064:240 Topics in Cognitive Neuroscience 3 s.h.
Key topics in the neural basis of human cognition; research literature. Recommended: graduate courses in basic neuroscience, cognitive psychology. Same as 132:240.

064:302 Advanced Inpatient Neurology 4 s.h.

064:303 Advanced Outpatient Neurology 4 s.h.

064:310 Cerebrovascular Disease arr.
Experience in evaluation, management of patients with cerebrovascular diseases; conferences, clinical rounds.

064:998 Neurology on Campus arr.

064:999 Neurology off Campus arr.

Neurosurgery

Head: Matthew A. Howard III

Professors: Patrick W. Hitchon, Matthew A. Howard III, Arnold H. Menezes, Vincent C. Traynelis, John C. VanGilder

Associate professor: Timothy C. Ryken

Assistant professors: Jeremy Greenlee, Hiroto Kawasaki

Web site: <http://www.uihealthcare.com/depts/med/neurosurgery>

The Department of Neurosurgery provides an experience oriented toward patient care and basic research concerning diseases and physiology of the nervous system. Students develop awareness of neurosurgery's role in treating head and spine trauma, vascular disorders, brain and spinal cord tumors, pain and peripheral nerve abnormalities, degenerative spine pathology, and surgical treatment of epilepsy and movement disorders.

Clinical courses are designed around patient-centered discussions interwoven with operating room experiences. Lectures and conferences are scheduled on specific topics.

The department provides fourth-year M.D. students with access to special expertise in selected topics of investigation regarding the central nervous system and to a clinical course through special arrangements with the faculty.

Faculty

Neurology faculty strengths are centered in physiology of spinal cord trauma, epilepsy, auditory brain function and pain, primary brain tumor genetics, central nervous system tissue culture, spinal column biomechanics, and movement disorders. The department has expertise in clinical management across the spectrum of central nervous system diseases.

Facilities

Multiple, fully equipped laboratory space is available to support scientific research of the central nervous system. Faculty and technical assistance is available in all laboratories.

Courses

Neurosurgery courses are open only to M.D. and qualified associated health sciences students.

183:227 Subinternship in Neurosurgery 4 s.h.
Advanced clinical clerkship in neurological surgery; emphasis on diagnosis and operative management of surgical neurological disease.

183:228 Research in Neurological Surgery arr.
Laboratory investigation of spinal cord injury, spinal column biomechanics and instrumentation, electrophysiology of pain, epilepsy and hearing, molecular genetics and physiology of brain tumors.

183:999 Neurosurgery off Campus arr.
Arranged by student with department approval.

Nuclear Medicine Technology

Director: Anthony W. Knight

Medical director: Michael M. Graham

Technical director: John A. Bricker

Professors: Michael M. Graham, Mark T. Madsen

Professor emeritus: Frank H. Cheng

Associate professors: David L. Bushnell, Richard Hichwa, Malik E. Juweid, Daniel Kahn, G. Leonard Watkins

Associate professor emeritus: Karim Reza

Clinical associate professor: James A. Ponto (Pharmacy)

Adjunct lecturer: Anthony W. Knight

Associate: Yusef Menda

Undergraduate degree: B.S. in Nuclear Medicine Technology

Web site: <http://www.radiology.uiowa.edu/RadTech/NucMedTechProgram/NMTECH1.htm>

The Nuclear Medicine Technology Program is one of five academic units in the Division of Associated Medical Sciences. It is sponsored by the Carver College of Medicine, the College of Liberal Arts and Sciences, and University of Iowa Hospitals and Clinics. For information on the division's general academic policies, see Associated Medical Sciences in the Catalog.

Nuclear medicine technology is a medical specialty that uses radioactive tracers for diagnostic, therapeutic, and research purposes.

Nuclear medicine technologists generally are employed in hospitals and clinics. They work hand-in-hand with nuclear medicine physicians, health physicists, radiopharmacists, and radiochemists as an integral part of a highly trained specialty team.

At the heart of nuclear medicine technology is the use of sophisticated detectors and computers to trace the movement and localization of radioactive tracers in the human body. Other basic job responsibilities may include radiation safety; quality control; radiopharmaceutical preparation and administration; and general patient care.

The Nuclear Medicine Technology Program at The University of Iowa is fully accredited by the Joint Review Committee on Educational Programs in Nuclear Medical Technology (JRCNMT). Fulfillment of the requirements established by the JRCNMT Accreditation Board involves three years of preclinical work in the College of Liberal Arts and Sciences and the Carver College of Medicine, and a minimum of

12 months of professional clinical experience, available at University of Iowa Hospitals and Clinics and the Veterans Affairs Iowa City Health Care System.

Upon satisfactory completion of the four-year program, students receive a Bachelor of Science from the Carver College of Medicine and a certificate of training. Graduates are eligible for national certification as nuclear medicine technologists.

Bachelor of Science

The Bachelor of Science requires 124 s.h., including 30 s.h. in radiology course work (prefix 074). Required courses in the first and sophomore years emphasize the physical and biological sciences, which provide a basic background for further development in the junior year.

Applicants are strongly advised to pursue a course of study that is applicable to a baccalaureate degree, most commonly in biology, chemistry, biochemistry, or microbiology. In this way, students who are not admitted to the Nuclear Medicine Technology Program can complete a degree in their chosen area.

The following are recommended courses.

FIRST YEAR

004:011-004:012 Principles of Chemistry I-II 8 s.h.

SOPHOMORE YEAR

002:010-002:011 Principles of Biology I-II 8 s.h.

One of these:

22C:001 Computer Literacy 3 s.h.

22C:005 Introduction to Computer Science 3 s.h.

22C:016 Computer Science I 4 s.h.

JUNIOR YEAR

027:053 Human Anatomy 3 s.h.
or

060:110 Principles of Human Anatomy 3 s.h.

029:011-029:012 College Physics 8 s.h.

One of these:

22S:101 Biostatistics 3 s.h.

22S:102 Introduction to Statistical Methods 3 s.h.

171:161 Introduction to Biostatistics 3 s.h.

Advanced courses in chemistry, biology, or physics based on alternative major, possible minors, interest, and career goals

a minimum of 20 s.h. in three science areas, including a complete introductory course with laboratory in chemistry, physics, and biology; and

a minimum of 3 s.h. in mathematics, including at least elementary functions.

Fulfillment of these basic admission requirements does not guarantee acceptance into the Nuclear Medicine Technology Program.

A new class begins every August. Application deadline is February 1. Personal interviews are scheduled in February, and the class is selected by March 15. Class size is limited to 10 students. Prospective students are encouraged to consult the Nuclear Medicine Technology Program office to plan an appropriate preprofessional program.

SENIOR YEAR

The curriculum of the clinical year is organized in accordance with the JRCNMT Essentials of an Accredited Educational Program in Nuclear Medicine Technology. Courses are taught in the following areas: radiopharmacy, radiobiology, radiation safety, patient care, medical terminology, anatomic and physiologic bases of nuclear medicine procedures, physics and instrumentation, administration and management, medical and professional ethics, mathematics and statistics of nuclear medicine, and computer applications in nuclear medicine. Clinical rotations focus on nuclear and positron emission tomography (PET) imaging, clinical radiopharmacy, computer applications, and quantification of radioactivity in vivo and in vitro.

The clinical year consists of these courses.

074:101 Principles of Nuclear Medicine I 6 s.h.

074:102 Introductory Clinical Nuclear Medicine 6 s.h.

074:103 Principles of Nuclear Medicine II 3 s.h.

074:104 Intermediate Clinical Nuclear Medicine 9 s.h.

074:105 Advanced Clinical Nuclear Medicine 6 s.h.

For course descriptions, see Radiology in the Catalog.

Admission

Prerequisites for admission to the Nuclear Medicine Technology Program include the following:

a minimum of 94 s.h. of college credit, with a cumulative g.p.a. of at least 2.50;

completion of the College of Liberal Arts and Sciences General Education Program components in rhetoric, foreign language, interpretation of literature, humanities, historical perspectives, quantitative or formal reasoning, social sciences (sociology and psychology are recommended), and distributed general education;

Obstetrics and Gynecology

Head: Jennifer R. Niebyl

Professors: Jo Ann Benda (Pathology), Susan R. Johnson, Jennifer R. Niebyl, Elaine Smith (Epidemiology), Craig H. Syrop, Bradley Van Voorhis, Roger A. Williamson, Jerome Yankowitz

Professors (clinical): Koen DeGeest, Jane Engeldinger, Sanford M. Markham

Adjunct clinical professor: Robert M. Kretzschmar

Associate professors: Anuja Dokras, Stephen K. Hunter, Asha Rijhsinghani

Associate professors (clinical): Noelle C. Bowdler, Marygrace Elson

Adjunct clinical associate professors: Grant Paulsen, Charles W. Schauberg, Rebecca Shaw, Gerald Shirk

Assistant professors: Catherine Bradley, Baoli Yang

Assistant professors (clinical): David P. Bender, William Davis, Colleen Kennedy, Gregory Skopec, Jill Vibhakar, Kelly Ward

Associates: Janet I. Andrews, Michael Goodheart

Web site: <http://www.uihealthcare.com/depts/med/obgyn/>

Medical Student Training

Courses in the Department of Obstetrics and Gynecology are designed to give M.D. students a comprehensive survey of reproductive medicine. This is done through a series of didactic lectures, inpatient and outpatient assignments, ward rounds, teaching seminars, and special elective courses.

The third-year clerkship (066:004 Clinical Obstetrics and Gynecology) gives students the core knowledge, skills, and attitudes needed to provide primary health care to female patients.

The department offers fourth-year medical students a variety of electives that provide advanced training in the special areas of obstetrics and gynecology. In addition to clerkships at University of Iowa Hospitals and Clinics, these electives include a rotation at the Gundersen Clinic in La Crosse, Wisconsin, and other arranged off-campus courses.

Residency

The department offers a four-year residency. Upon completion, graduates are eligible for the written and oral examinations leading to certification by the American Board of Obstetrics and Gynecology.

Residents are assigned to the various divisions and clinical services of the department and care

for both hospital inpatients and outpatients. Training is provided in normal and abnormal obstetrics, gynecologic surgery, office gynecology, ultrasound, reproductive endocrinology, gynecologic oncology, urogynecology, family planning, and endoscopic procedures.

Courses

066:004 Clinical Obstetrics and Gynecology arr.
Proficiency in evaluation and management of core women's health care relating to the reproductive tract; special history taking, physical examination, laboratory and imaging assessment of obstetric and/or gynecological patients, application of current concepts to well women's health care and to management of diseases and pathologies; outpatient and inpatient obstetrics and gynecology; family planning, screening and early detection of cancer and other diseases.

066:006 High Risk Antepartum Obstetrics Subinternship arr.
Experience in evaluating new patients in a high-risk obstetric clinic; continuing antepartum care; doing work-up, ordering diagnostic studies, and following course of complicated patients admitted to obstetric ward; assisting in diagnostic, therapeutic procedures such as fetal heart rate testing, amniocentesis, ultrasonography, intrauterine fetal transfusion.

066:010 Gynecologic Oncology Subinternship arr.
Experience on a gynecologic oncology service, including operating room, inpatient and outpatient care; team management approach to gynecologic cancer patient, treatment and follow-up of invasive gynecologic malignancies, etiology and risk factors for gynecologic neoplasias, pre- and postoperative evaluation and treatment of surgical management of gynecologic neoplasias; research project encouraged.

066:013 Reproductive Endocrinology Subinternship arr.
Experience evaluating new and returning patients in the Reproductive Endocrinology and Infertility Clinic; participation in preoperative, operative, and inpatient postoperative care; advanced gynecologic ultrasonography, in vitro fertilization services.

066:016 Advanced Obstetric-Gynecologic Clerkship: La Crosse, Wisconsin arr.
Experience in a large professional obstetrics and gynecology practice group in a community setting; exposure to clinical obstetrics and gynecology.

066:998 Ob/Gyn on Campus arr.

066:999 Ob/Gyn off Campus arr.

Ophthalmology and Visual Sciences

Head: Keith D. Carter

Professors: Wallace L.M. Alward, H. Culver Boldt, Keith D. Carter, Thomas L. Casavant (Electrical and Computer Engineering), James C. Folk, Gregory S. Hageman, Randy H. Kardon, Ronald V. Keech, Andrew G. Lee, Jeffrey A. Nerad, Steven R. Russell, Edwin M. Stone, John E. Sutphin, Michael Wall, Thomas A. Weingeist

Professors emeriti: Sohan S. Hayreh, G. Frank Judisch, Hansjoerg E. Kolder, Karl C. Ossoinig, Edward S. Perkins, William E. Scott, H. Stanley Thompson

Associate professors: Hilary A. Beaver, Karen M. Gehrs, Kenneth M. Goins, A. Tim Johnson, Patricia A. Kirby, Young H. Kwon, Thomas A. Oetting, Richard J. Olson, Mark E. Wilkinson

Assistant professors: Michael M. Abrámoff, Terry A. Braun, Emily C. Greenlee, Brian R. Kirschling, Robert F. Mullins, Todd E. Scheetz, Christine W. Sindt, Nasreen A. Syed

Web site: <http://webeye.ophth.uiowa.edu>

Ophthalmology is a medical and surgical specialty concerned with the diagnosis and treatment of diseases of the eye and its adnexa. The Department of Ophthalmology and Visual Sciences combines postgraduate training with research and patient care in all aspects of the visual sciences. Subspecialties represented in the department include cataract surgery, comprehensive ophthalmology, cornea and external diseases, contact lens and refraction services, genetics and molecular biology, glaucoma, laser refractive surgery, neuro-ophthalmology, oculoplastics, ocular echography, ocular pathology, ocular vascular diseases, optometric services, pediatric ophthalmology and adult strabismus, vitreoretinal disorders, and vision rehabilitation.

Education and Training

The department offers clinical and research training to M.D. students and limited graduate studies for Ph.D. students in Anatomy and Cell Biology, Molecular Biology, and Genetics. A three-year residency program with clinical experience in the ophthalmic subspecialties is offered to physician trainees. Graduates qualify for the written and oral examinations leading to certification by the American Board of

Ophthalmology. Postgraduate fellowships of one to two years are available for qualified ophthalmologists in most subspecialty areas.

Facilities

The department maintains research laboratories for cell biology, biochemistry, morphology, tumor diagnosis, pathology, electrophysiology, pupillography, molecular biology, and vascular disease. Clinical facilities in ophthalmology are available at University of Iowa Hospitals and Clinics in the Pomerantz Family Pavilion and at Veterans Affairs Iowa City Health Care System and the Veterans Affairs Central Iowa Health Care System in Des Moines. The department also manages an eye clinic at the Broadlawns Medical Center in Des Moines as well as outreach programs in other communities. The department houses the University of Iowa Carver Family Center for Macular Degeneration.

The department sponsors clinical conferences open to community ophthalmologists in Iowa and surrounding states where physicians can earn continuing medical education credits. The department also sponsors an annual alumni meeting with participation by nationally and internationally recognized ophthalmologists and vision scientists.

Courses

- 067:100 Elective in Ocular Pathology** 4 s.h.
Pathophysiology of eye disease; emphasis on use of Socratic method, self-study.
- 067:101 Elective in External Eye Disease** 4 s.h.
Common diseases of eyelid, conjunctiva, cornea.
- 067:102 Elective in Neuro-Ophthalmology** arr.
Visual, ocular motor dysfunction due to neurologic disease; patient work-up, readings, neuro-ophthalmology rounds.
- 067:109 Molecular Ophthalmology** arr.
Use of recombinant DNA, tissue culture, protein electrophoresis in study of inherited eye diseases. Prerequisite: consent of instructor.
- 067:111 Clinical Ophthalmology** 2 s.h.
All aspects of clinical ophthalmology; patient rounds, lectures, case presentations; clinical duties with staff, residents, faculty in UIHC and VAMC ophthalmology clinics.
- 067:998 Ophthalmology on Campus** arr.
- 067:999 Ophthalmology off Campus** arr.

Orthopaedics and Rehabilitation

Head: Joseph A. Buckwalter

Professors: Brian D. Adams, John P. Albright, Annunziato Amendola, Thomas D. Brown, Joseph A. Buckwalter, John J. Callaghan, John Canady, Charles R. Clark, Frederick R. Dietz, George Y. El-Khoury, J. Lawrence Marsh, Jerry A. Maynard, James V. Nepola, Richard K. Shields, Curtis M. Steyers, Stuart L. Weinstein

Professors emeriti: Reginald R. Cooper, Ignacio V. Ponseti

Clinical professors: Andre P. Boezaart, Richard C. Johnston, Timothy A. Thomsen

Associate professors: Ernest M. Found, Todd O. McKinley

Clinical associate professors: Joseph J. Chen, Barry DeYoung, Hala Shamsuddin

Adjunct clinical associate professors: Devon D. Goetz, David S. Tearse

Assistant professors: Nicole M. Grosland, Jose A. Morcuende, Michael R. O'Rourke, Joseph D. Smucker, Glenn Williams, Brian R. Wolf

Clinical assistant professors: John E. Femino, Ericka A. Lawler, Sergio A. Mendoza, Neil Segal

Adjunct clinical assistant professor: Mark C. Mysnyk

Web site: <http://www.uihealthcare.com/depts/med/orthopaedicsurgery/index.html>

The Department of Orthopaedics and Rehabilitation offers two types of postgraduate training. The first is a five-year integrated clinical program, in which interns and residents participate simultaneously in inpatient and outpatient care, surgery, and sciences related to the neuromusculoskeletal system. The second is a six-year program for those interested in full-time academic orthopaedic careers.

Clinical Program

Trainees enter this program directly from medical school through the National Internship Matching Plan.

During the first year, trainees gain experience not only in clinical orthopaedics but also in medicine, pediatrics, neurology, surgical specialties, intensive care, anesthesiology, and other services.

During the following years, residents gain experience in trauma, musculoskeletal oncology, children's orthopaedics, adult orthopaedics, neuromuscular disorders, rehabilitation,

prosthetics and orthotics, rheumatology, and basic science related to orthopaedics. They take specialized courses in anatomy, bone histology, biochemistry, physiology, and pathology.

A weekly seminar covers biomechanics, kinesiology, and selected clinical subjects.

Academic Programs

In addition to the training described for the clinical program, this program includes an additional one or two years of research in a field that interests the resident and is related to the musculoskeletal system. The research may be done in one of the orthopaedic laboratories or in a basic science department.

At the undergraduate level, the Department of Orthopaedics and Rehabilitation participates in the Bachelor of Science in athletic training, which is offered by the Department of Exercise Science (College of Liberal Arts and Sciences). Members of the orthopaedics and rehabilitation sports medicine faculty teach 076:187 Practicum in Athletic Training IV, a two-semester advanced clinical sequence (8 s.h.). Students who complete the program are eligible to apply for national certification in athletic training and pursue employment opportunities as health care professionals for sports medicine clinics and hospitals, as well as in academic settings.

Laboratories

The orthopaedics laboratories deal with problems in these major subject areas.

Biochemistry: the biochemistry of proteoglycans, collagens, and matrix proteins, both normal and altered in musculoskeletal disorders

Biomechanics: problems of the upper extremity; biomechanics of the spine, hip, and gait; total joint replacements (in conjunction with the College of Engineering)

Cell and molecular biology: studies of normal bone, cartilage, tendon, muscle, and tissues altered by experiment and disease

Facilities

The department is housed in the John Pappajohn Pavilion of University of Iowa Hospitals and Clinics and has an active service in the Veterans Affairs Iowa City Health Care System.

Facilities include 48 orthopaedic beds, five outpatient clinics, inpatient and outpatient operating rooms, a specialty library, a specialty radiology unit, and physical therapy and rehabilitation facilities.

Specialty clinics deal with disorders such as scoliosis, club feet, congenital dislocated hip, neuromuscular disease, metabolic disease, amputation, neoplasm, trauma, and neck, back, hip, foot, knee, and hand problems.

Physicians in the outpatient clinic see approximately 175 patients per day. Approximately 5,000 major operations are performed each year under the auspices of the department.

The department provides consulting service to the Center for Disabilities and Development, Child Health Specialty Clinics, and two state programs that serve people with mental retardation.

Courses

- | | |
|--|---------------|
| 076:002 Clinical Orthopaedics | arr. |
| 076:187 Practicum in Athletic Training IV | 4 s.h. |
| Clinical experience arranged through the athletic training program and the Department of Orthopaedic Surgery for athletic training majors; development of global proficiency in clinical skills. Prerequisites: athletic training major and grade of C or higher in 027:183 and 027:186. | |
| 076:201 Advanced Clinical Orthopaedics | arr. |
| Prerequisite: fourth-year M.D. enrollment. | |
| 076:202 Musculoskeletal Trauma | arr. |
| Prerequisite: fourth-year M.D. enrollment. | |
| 076:205 Physical Medicine and Rehabilitation | 4 s.h. |
| 076:998 Orthopaedics on Campus | arr. |
| Prerequisite: fourth-year M.D. enrollment. | |
| 076:999 Orthopaedics off Campus | arr. |
| Prerequisite: fourth-year M.D. enrollment. | |

Otolaryngology—Head and Neck Surgery

Head: Bruce J. Gantz

Professors: Paul J. Abbas, John Buatti, John W. Canady, Keith D. Carter, Gerry F. Funk, Bruce J. Gantz, Scott M. Graham, Henry T. Hoffman, Jeffrey A. Nerad, Richard J.H. Smith, J. Bruce Tomblin, Christopher W. Turner, Richard S. Tyler

Associate professors: Nancy M. Bauman, Carolyn J. Brown, Steven H. Green, Michael P. Karnell, José M. Manaligod, Douglas K. Trask

Assistant professors: Kristi E. Chang, Kenneth J. Dornfeld, Daniel F. Eberl, Eileen M. Finnegan, Grant S. Hamilton, Marlan R. Hansen, John H. Lee, Russell B. Smith, Douglas J. Van Daele, Min Yao

Clinical assistant professors: Matthew Brown, Jeffrey Carithers, Thomas A. Ericson, Steven R. Herwig, Brenton Koch, Phillip C. Lee, Donald A. Maschka, Richard B. Merrick, Irving E. Peterson, Russell E. Schurtz, Mark K. Zlab

Web site: <http://www.uihealthcare.com/depts/med/otolaryngology/index.html>

The Department of Otolaryngology—Head and Neck Surgery is one of the most comprehensive in the world. Founded in 1922, it also is among the oldest in the United States. Its facilities are situated at University of Iowa Hospitals and Clinics. *US News & World Report* has consistently ranked the department's program among the top three in the nation.

The department's chief focus areas are education and training, patient care, and research. M.D. students in the Carver College of Medicine, residents, and fellows benefit from a faculty dedicated to providing thorough training in all aspects of otolaryngology and patient care. Patients in the otolaryngology clinic enjoy access to comprehensive care in any of five subspecialties: pediatric otolaryngology, otology/neurotology, general otolaryngology and rhinology, head and neck oncology, and facial plastic and reconstructive surgery. University of Iowa faculty members from ophthalmology and radiation oncology hold joint appointments in otolaryngology, adding depth to the department's resources.

The department is home to prominent research programs in cleft palate and other craniofacial defects, head and neck oncology, cochlear implants, and molecular genetics. It also offers fellowships in otology/neurotology, pediatric otolaryngology, and head and neck oncology.

Residency Program

Each year the Department of Otolaryngology—Head and Neck Surgery accepts five applicants to its residency program, which is accredited by the Accreditation Council for Graduate Medical Education. Three residents are matched to the four-year clinical track, and two are matched to the six-year research track.

The clinical track provides four years of concentrated clinical study and application in all aspects of otolaryngology. Residents begin their training with a seven-week intensive basic science course divided into an anatomy component, which includes a supervised cadaver dissection, and a 160-hour lecture series that details the study of otolaryngology and related disciplines. Each resident also completes two research rotations in order to explore research areas that interest him or her.

The research track is a combined clinical-research program designed for residents interested in an otolaryngology research career. After an internship year, residents complete two years of research followed by four years of clinical training. The interaction of clinicians and basic scientists from several departments affords residents the opportunity for involvement in a wide spectrum of current research in areas such as electrophysiology of the auditory system, the genetics of head and neck cancer, and gene therapy.

Fellowships

The Department of Otolaryngology—Head and Neck Surgery offers two-year fellowships in otology/neurotology and in pediatric otolaryngology, which are accredited by the Accreditation Council for Graduate Medical Education, and a one- or two-year fellowship in head and neck oncology accredited by the Advanced Training Council of the American Head and Neck Society.

One applicant is admitted to the otology/neurotology fellowship program every two years. Otolaryngology fellows spend a minimum of 20 months on the clinical service. They attend all otology/neurotology clinics and neurotology cases in the operating room, and are responsible

for inpatient service. They also have one day of dedicated research time each week.

The pediatric otolaryngology fellowship program admits one applicant each year. Fellows spend a minimum of 18 months on the clinical service, where they have the opportunity to train with all pediatric otolaryngology faculty members. Each fellow also has six months of dedicated time for academic research.

One applicant is accepted as a head and neck oncology fellow each year. Training is largely clinical, allowing fellows the opportunity to participate in a variety of procedures, ranging from skull base resection to laryngeal rehabilitation. Fellows routinely perform 35 to 45 free-tissue transfers during one year of training. They also complete a clinical and/or basic science research project relating to head and neck oncology.

Courses

068:003 Clinical Otolaryngology	2 s.h.
068:100 Clinical Internship in Otolaryngology	arr.
068:120 Independent Study in Otolaryngology	arr.
Individual meetings with a faculty member; directed reading, small research study, or similar project. Repeatable.	
068:199 Basic Otolaryngologic Science	arr.
Supervised cadaver head and neck dissection, with 14 areas in detail. Two weeks.	
068:998 Otolaryngology on Campus	arr.
068:999 Otolaryngology off Campus	arr.
Arranged by student with department approval.	

Pathology

Head: Michael B. Cohen

Professors: Gary L. Baumbach, Jo Ann Benda, Michael B. Cohen, Robert T. Cook, Fred R. Dee, Gary V. Doern, George F. Johnson, Alan Junkins, John D. Kemp, Charles F. Lynch, Frank A. Mitros, Steven Moore, Michael A. Pfaller, Robert A. Robinson, Nancy Rosenthal, Mary Stone, Ronald G. Strauss, Lubomir P. Turek, Steven Vincent, Thomas Waldschmidt

Professors emeriti: James A. Goeken, Thomas H. Kent, Richard G. Lynch, George D. Penick, Charles E. Platz, Earl F. Rose, Marian Schwabbauer

Adjunct clinical professors: Dorryl L. Buck (St. Luke's Hospital, Cedar Rapids, Iowa), Oskar W. Rokhlin, David L. Witte (Laboratory Control, Ltd., Ottumwa, Iowa)

Associate professors: Mark Bowman, Morris O. Dailey, Barry De Young, Daniel Diekema, Ronald D. Feld, Thomas H. Haugen, Michael Henry, Chris Jensen, Praful Kelkar, Patricia Kirby, Michael Knudson, Michael MacKey, Marcus Nashelsky, Tom Raife, Annette Schlueter, Robert D. Tucker

Adjunct associate professor: Julia C. Goodin (State Medical Examiner)

Adjunct clinical associate professor: Bradley Randall (Sioux Falls, S.D.)

Assistant professors: Yashpal Agrawal, Leslie Bruch, Laila Dahmouh, Hasimu Hapahake, Jonathan Heusel, Fiorenza Ianzini, Michael Icardi, Toshiki Itoh, Zoya Kurago, Tomomi Kuwana, Kevin Legge, PiFu Luo, Peter Nagy, Sandra Richter, Nasreen Syed, Sergi Syrbu, Thomas Winder

Adjunct assistant professor: Dennis Klein (Deputy State Medical Examiner)

Adjunct clinical assistant professors: Timothy Drevankyo, Jerri McLemore (Deputy State Medical Examiner), L. Jeffrey Rissman

Lecturer: Pamela Roberts

Graduate degree: M.S. in Pathology

Web site: <http://www.medicine.uiowa.edu/pathology>

The Department of Pathology offers basic pathology courses to health science students; a clinical training program for clinical laboratory scientists; a Master of Science in pathology; residency training programs leading to American Board of Pathology certification in anatomic pathology, clinical pathology, and neuropathology; fellowship training in pathology subspecialties; and postdoctoral research training in cellular and molecular pathology.

Clinical Education

See Clinical Laboratory Sciences and Division of Associated Medical Sciences in the Catalog.

Master of Science

The Master of Science in pathology requires a minimum of 30 s.h. of graduate credit, including 21 s.h. of classroom work and 9 s.h. earned for research. The program trains graduate students in cell and molecular biology. Graduates work as research scientists in a range of academic and commercial laboratories, including those in the rapidly expanding biotechnology sector. Others advance to doctoral-level study.

M.S. students take a core curriculum in cell and molecular biology as well as electives suited to their individual interests. They acquire contemporary research skills by pursuing a laboratory thesis project under the guidance of a faculty member. Currently, there are active research programs in immunology, microbiology, neuroscience, signaling and apoptosis, inflammation and vascular biology, tumor biology and cancer, and virology.

Most M.S. students complete their course of study in three years.

The department encourages applicants with Bachelor of Science degrees in biology, chemistry, biochemistry, clinical laboratory science, microbiology, and zoology. Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They should have an undergraduate g.p.a. of at least 3.00 and a combined verbal and quantitative score of at least 1100 on the Graduate Record Exam (GRE) General test.

Residency

The department offers 20 residency positions in pathology, covering a training span of up to four years. The patient populations of University of Iowa Hospitals and Clinics and Veterans Affairs Iowa City Health Care System are integral to the program.

Residents gain experience in systematic rotation through the varied laboratory services, including surgical pathology, autopsy pathology, neuropathology, cytology, clinical chemistry, clinical microbiology, hematology, immunopathology, and transfusion medicine.

They also have the opportunity to pursue one to three years of additional fellowship training in most pathology specialties.

Medical Student Fellowships

The department provides seven 12-month medical student fellowships and a varying number of clerkships for medical students in any of the areas of anatomical and clinical pathology. One of the fellowships is a full-time research position in some facet of experimental pathology; the other six are primarily in anatomic pathology.

Postgraduate Training

The Department of Pathology offers postgraduate clinical fellowship programs in hematopathology, transfusion medicine, clinical microbiology, cytopathology, molecular genetics pathology, and surgical pathology for physicians who have completed residency training in pathology. These fellowships consist of one to two years of diagnostic work and up to two years of laboratory research.

The department provides postdoctoral research training in immunology, neuropathology, apoptosis, cancer biology, and clinical microbiology as well as in other areas of cellular and molecular pathology. These positions are open to individuals with either a Ph.D. or M.D.

Facilities

The Department of Pathology is well-equipped to carry out the sophisticated technology of modern cellular and molecular pathology. It administers more than 90,000 square feet of clinical laboratories at University of Iowa Hospitals and Clinics and has individual research and core facility laboratories, including histopathology and laser capture microscopy for cellular and molecular pathology research, in the Medical Research Center, Medical Laboratories, and at the Veterans Affairs Iowa City Health Care System. Also available are Carver College of Medicine research facilities for nucleic acid chemistry, hybridoma production, flow cytometry, ultrastructural studies, protein structure, image analysis, electron spin resonance, mass spectroscopy, nuclear magnetic resonance, and laboratory animal care.

Courses

- 069:090 Laboratory Tests and Disease** 2 s.h.
069:110 CLS Concepts in Immunoematology 0-1 s.h.
 Basic concepts and techniques in blood banking, including ABO and Rh blood group systems and testing, antiglobulin testing. Offered summer sessions. Prerequisite: Clinical Laboratory Sciences Program or medical technology enrollment.
- 069:111 CLS Concepts in Hematology** 0, 2 s.h.
 Red and white blood cell function, metabolism, identification, and basic hematology laboratory methods and techniques. Offered summer sessions. Prerequisite: Clinical Laboratory Sciences Program or medical technology enrollment.
- 069:112 CLS Concepts in Instrumentation and Urinalysis** 0, 4 s.h.
 Theory and practice of instrumentation and urinalysis as applied in clinical laboratories. Offered summer sessions. Prerequisite: Clinical Laboratory Sciences Program or medical technology enrollment.
- 069:113 CLS Concepts in Microbiology** 0, 2 s.h.
 Principles of microbiology as applied to diagnosis and management of infectious disease. Offered summer sessions. Prerequisites: Clinical Laboratory Sciences Program or medical technology enrollment.
- 069:114 CLS Concepts in Immunology** 0-1 s.h.
 Laboratory diagnosis of immunologic disease; theory and practice.
- 069:118 Phlebotomy for Clinical Laboratory Sciences** 0-1 s.h.
 Experience in phlebotomy techniques. Prerequisites: Clinical Laboratory Sciences Program or medical technology enrollment, and consent of instructor.
- 069:121 Introduction to Clinical Practice** 0-1 s.h.
 Limited rotation through a clinical laboratory. Corequisites: 069:122 and 069:124.
- 069:122 Chemistry for Clinical Laboratory Science** 0, 5 s.h.
 Theory, practice of analytical biochemistry applied to disease states; methodology, automation, reagent preparation. Prerequisite: 069:112.
- 069:123 Immunoematology for Clinical Laboratory Science** 0, 4 s.h.
 Theory, practice of blood banking; donor services. Prerequisite: 069:110.
- 069:124 Hematology for Clinical Laboratory Science** 0, 5 s.h.
 Theory, practice of laboratory hematology as applied to pathologic states; methodology, automation. Prerequisite: 069:111.
- 069:125 Microbiology for Clinical Laboratory Science** 0, 4 s.h.
 Theory, practice of laboratory microbiology applied to pathogenic microorganisms, including bacteria, parasites, fungi, viruses. Prerequisite: 069:113.
- 069:126 Clinical Chemistry** 0, 4 s.h.
 Rotation through clinical chemistry laboratories. Prerequisites: 069:112, 069:121, and 069:122.
- 069:127 Clinical Hematology** 0, 3 s.h.
 Rotation through clinical hematology laboratories. Prerequisites: 069:111, 069:112, 069:121, and 069:124.
- 069:128 Clinical Microbiology** 0, 4 s.h.
 Rotation through clinical microbiology laboratories. Prerequisites: 069:113 and 069:139.

- 069:129 Clinical Immunology and Molecular Pathology** 0, 3 s.h.
Rotation through clinical immunology and molecular pathology laboratories. Prerequisites: 069:112, 069:122 and 069:124.
- 069:130 Clinical Laboratory Medicine for Physician Assistants** 0-1 s.h.
Theory and practice of selected clinical laboratory techniques, procedures; emphasis on effective use of clinical laboratory in the diagnosis, management of disease. Prerequisite: physician assistant student standing.
- 069:131 CLS Professional Skills Seminar** 0-2 s.h.
Prerequisite: Clinical Laboratory Sciences Program senior standing.
- 069:132 CLS Management Topics and Projects** 0-2 s.h.
Theory and practice of clinical laboratory management. Prerequisite: Clinical Laboratory Sciences Program senior standing.
- 069:133 Introduction to Human Pathology** arr.
Human disease; basic disease processes, organ-related and multisystem diseases; case analysis. Offered fall semesters.
- 069:134 Clinical Research for Clinical Laboratory Science** arr.
Prerequisite: Clinical Laboratory Sciences Program enrollment.
- 069:135 Individual Study in Clinical Laboratory Science** arr.
Management, education, or research theory and practice. Prerequisite: Clinical Laboratory Sciences Program enrollment.
- 069:136 Introduction to Clinical Laboratory Science** 0-1 s.h.
Prerequisite: admission to Clinical Laboratory Sciences Program.
- 069:137 Clinical Immunohematology** 0, 2 s.h.
Rotation through clinical immunohematology laboratories. Prerequisites: 069:110, 069:112, and 069:123.
- 069:138 CLS Body Fluids** 0-1 s.h.
Laboratory science applied to body fluids, including cell identification and enumeration, and associated chemical analyses: theory and practice. Prerequisites: 069:112 and 069:124.
- 069:139 CLS Parasitology** 0-1 s.h.
Laboratory diagnosis of parasitic disease: theory and practice. Prerequisites: 069:112, 069:113, and 069:125.
- 069:143 Hemostasis and Thrombosis for CLS** 0-1 s.h.
Laboratory hemostasis and thrombosis; theory and practice. Prerequisite: 069:136.
- 069:205 Medical Pathology I** 5 s.h.
Mechanisms of disease, etiology, pathogenesis, epidemiology, major clinical manifestations of disease in organ systems. Prerequisite: M.D. enrollment, or graduate standing and consent of instructor.
- 069:206 Medical Pathology II** 5 s.h.
Mechanisms of disease, etiology, pathogenesis, epidemiology, major clinical manifestations of disease in organ systems. Prerequisites: 069:205 and M.D. enrollment, or graduate standing and consent of instructor.
- 069:211 Research in Pathology** arr.
Basic aspects of pathology or clinical patient material; emphasis on experimental design, methods, literature review, obtaining formal answers to specific questions. Prerequisite: M.D. enrollment, or graduate standing and consent of instructor.
- 069:220 Seminar in Pathology** 1 s.h.
Current research and literature. Repeatable. Prerequisite: pathology graduate standing.
- 069:231 Special Topics in Pathology** arr.
Prerequisite: M.D. enrollment, or graduate standing and consent of instructor.
- 069:240 Topics in Laboratory Medicine and Pathology** arr.
Issues in appropriate use of clinical laboratory and pathology resources in the primary care setting; case-based approach. Prerequisite: third- or fourth-year M.D. enrollment.
- 069:241 Autopsy Pathology Clerkship** arr.
- 069:245 Hematopathology Clerkship** arr.
- 069:246 Surgical Pathology Clerkship** arr.
- 069:247 Blood Bank Clerkship** arr.
- 069:270 Pathogenesis of Major Human Diseases** 3 s.h.
Critical analysis of pathogenesis models in a series of major human diseases; clinical presentation, analysis of cellular and molecular events leading to the disease, discussion of key papers. Prerequisite: 156:201.
- 069:288 Molecular and Cellular Biology of Cancer** 3 s.h.
Biological features, population characteristics; cell biology, molecular mechanisms; chemical, viral carcinogenesis; immunobiology of neoplasia, with emphasis on in-depth analysis, supporting literature. Prerequisites: strong basic science background and consent of instructor. Same as 077:288.
- 069:290 Medical Student Fellowships in Pathology (Externships)** 0 s.h.
First-hand experience in autopsy, surgical and clinical pathology, teaching, and research to further understanding of disease mechanisms, normal and pathologic anatomy, laboratory use.
- 069:291 Warner Fellowship in Experimental Pathology** 0 s.h.
One-year, full-time membership in established research laboratory in the Department of Pathology or collaborating laboratory. Prerequisite: M.D. enrollment.
- 069:998 Pathology on Campus** arr.
- 069:999 Pathology off Campus** arr.

Pediatrics

Head: Michael Artman

Professors: Adel K. Afifi (Anatomy and Cell Biology/Neurology), Richard C. Ahrens, Michael Artman, Dianne L. Atkins, Edward F. Bell, Trudy Burns (Public Health Genetics), Patricia Donohoue, Claiborne Dungy, Josephine Gittler (Law), Charles Grose (Microbiology), James Hall (Social Work), Dennis C. Harper, Herman A. Hein, David Johnsen (Pediatric Dentistry), Scott D. Lindgren, Vera A. Loening-Baucke, Larry T. Mahoney (Epidemiology), Paul McCray, Frank H. Morriss Jr., Jeffrey C. Murray (Biological Sciences/Dentistry/Epidemiology), M. Sue O'Dorisio, Shivanand R. Patil, Stanley Perlman (Microbiology), Lynn C. Richman, Thomas D. Scholz, Jeffrey Segar, Val C. Sheffield, Richard Smith (Otolaryngology), Bento Soares (Biochemistry/Physiology and Biophysics), Jeanne Snyder (Anatomy and Cell Biology), Ronald Strauss (Pathology), Eva Tsalikian, Don C. Van Dyke (Epidemiology), David P. Wacker (Curriculum and Instruction), Miles M. Weinberger, Robert F. Weir (Religious Studies), John A. Witness, Marcia Willing, Ekhard E. Ziegler

Professors emeriti: William E. Bell, Brenda Cruikshank, Samuel J. Fomon, James Hardy, Alfred Healy, Victor Ionasesai, C. Thomas Kisker, Ronald M. Lauer, John C. MacQueen, Charles H. Read, Vinton N. Rowley, Gerald Solomons, James A. Stehbins, Douglas Weismann

Clinical professors: Jeffrey Lobas, Jill Morriss, Craig Porter

Visiting professors: John Justin, Jan Loney

Associate professors: Michael J. Acarregui, Warren Bishop, Daniel Bonthius, John Dagle, Donna D'Alessandro, Lois B. Dusdieker, Hatem El-Shanti, Frederick D. Goldman, Jonathan M. Klein, Fred S. Lamb, Katherine D. Mathews (Neurology), Jody R. Murph, Charles Rebouche, Brian Schutte, Raymond Tannous, Jerold C. Woodhead

Clinical associate professors: Thomas Fagan, Mary Beth Fasano (Internal Medicine), Thomas George, Lenore Holte (Speech Pathology and Audiology), Kim Keppler-Noreuil, Mary Larew, Ian Law, John Lawrence (Surgery), Deborah Lin-Dyken, Ellen Link, Thomas Loew, Dianne McBrien, Mary Ann Roberts, Jeffrey Smith, Ronald Spiegel, Joel Stenzel

Adjunct clinical associate professors: Vidya Chande, Ken Cheyne, Stephen C. Elliott, Adel F. Makar, Alejandro M. O'Donnell, Rizwan Shah, Peter D. Wallace, Veljko Zivkovich

Assistant professors: Heather Bartlett, Tarah Colaizy, Jorge DiPaola, Polly Ferguson, Carrie George, Bruce Hostager, Jessica Moreland, Andrew Norris, Robert Roghair, Timothy Stamer, Aliye Uc

Clinical assistant professors: Mutasim Abu-Hasan, Jeffrey Burzynski, Lori Christensen, Sara Copeland, Judith Heggen, Adam Kanis, Stacy McConkey, Tammy Meehan, Royann Mraz, Resmiye Oral, Benet Pardini, George Phillips, Vickie Pyevich, Mohamed Radhi, Shannon Sullivan, Michael Tansey, Gretchen Vigil, Zahi Zeidan

Adjunct assistant professors: Linda Cooper-Brown, Bahri Karacay, Joel Ringdahl

Adjunct clinical assistant professors: Nader R.

Ajluni, Baha Al-Shawwa, Kenneth W. Anderson, Siddiq M. Arab, Scott Barron, William G. Bartlett, David Basel, Thomas E. Becker, Robert Bienkowski, Allison Brown, Edward Bottei, Holly Bzdega, Basaviah Chandramouli, Jennifer S. Cook, William E. Daws, Steven Dawson, Ronda Dennis-Smithart, Rhonda Dodge, Eric Dodson, Dan Ellsburg, Ricardo Flores, Keevin J. Franzen, Gregory L. Garvin, Stanley A. Hackbarth, Susan M. Harrell, Eric Haugen, James A. Hendrix, Norma J. Hirsch, Steven Joyce, David L. Little, Asha Madia, Donald R. McCabe, Grant Mellor, Lisa J. Menzies, Debra K. Miller, Torrey Mitchell, Duangchai Narawong, Edward G. Nassif, Scott K. Nau, Everett A. Nitzke, Kathleen Opdebeeck, Linda Ozaki, Richard Robus, Amy R. Schomer, Jaffar Shaik, Scott Sheets, Tameen Shoukih, Daniel Sloven, Cheryl Standing, Maria Stella Serano, Julianne H. Thomas, David Thornston, Judy Walker, Mir Waziri

Associates: Robert Anderson, Jerome Blake, Eyad El-Najawi, Kathleen Foster-Wendel, Therese Halbur, Jay Heitsman, William Howard, Frances Jackson, David Kragenbrink, Phillip Meyer, John O'Brien, Christopher Okiishi, Sushma Sahai, Ray Stardevant, Jack Swanson, Rajeev Vibhakar

Fellow associates: Amy Stier, Heather Zimmerman

Web site: <http://www.uihealthcare.com/depts/med/pediatrics/index.html>

The Department of Pediatrics provides a solid foundation for M.D. students and postgraduate trainees. It offers extensive opportunities for general pediatrics and subspecialties.

Affiliated programs add depth to the educational program in community pediatrics and primary care. The department is affiliated with the child and material health programs of the Bureau of Family Health, Iowa Department of Public Health; the University of Iowa regional Child Health Specialty Clinics and Center for Disabilities and Development; Blank Children's Hospital in Des Moines; and community sites.

Medical Student Training

Didactic lectures and physical examination of the newborn, toddler, and older child provide M.D. students with their initial pediatric patient contact. This experience includes taking a history, performing a physical examination, appraisal of growth and development, nutrition, and symptomatology of newborns, toddlers, and adolescents.

For junior and senior medical students, the inpatient service provides training in the complex problems of disease and critical illness. Students participate in daily rounds involving general pediatrics and all subspecialties. Challenging and interesting cases are presented for discussion of diagnosis and treatment.

Outpatient experience, available in the junior clerkship and fourth-year electives, stresses principles and practices required for the maintenance of children's health, treatment of common general pediatric disorders, and the diagnosis and treatment of subspecialty ambulatory patients.

Residency, Fellowships

The department offers an accredited three-year residency program designed to prepare trainees for professional careers in general pediatrics or for further fellowship training. The program meets the eligibility requirements of the American Board of Pediatrics (ABP).

Fellowships are available in many pediatrics subspecialties. Fellowship programs encourage development of knowledge and skill through research and clinical orientations in the chosen discipline. Upon satisfactory completion of the program, fellows meet the ABP eligibility requirements in their subspecialty.

Facilities

The Department of Pediatrics is located in the Children's Hospital of Iowa at University of Iowa Hospitals and Clinics, with inpatient and outpatient areas immediately adjacent to faculty offices and the pediatric library.

The pediatric inpatient service has approximately 120 beds, and more than 50,000 patients are seen each year in the general, specialty, continuity care, and field clinics and in the Emergency Treatment Center. The Center for Disabilities and Development provides resources for children with developmental disabilities, cerebral palsy, or mental retardation.

The department maintains laboratories that perform both clinical and research studies.

Courses

070:002 Clinical Pediatrics 6 s.h.
Principles, practices of health maintenance and treatment of acute and chronic illnesses in children; emphasis on diagnosis and evaluation, nutrition, behavior problems, disorders affecting children; patient care, daily rounds, ward work. Prerequisite: third-year M.D. enrollment.

070:013 Subinternship in Pediatrics: Blank Children's Hospital, Des Moines arr.
Experience in the care of general pediatric inpatients; daily rounds and teaching by senior residents and faculty members; daily didactic conferences. Prerequisite: fourth-year M.D. enrollment.

070:014 Emergency Room Blank Children's Hospital, Des Moines arr.
Pediatric emergencies and urgent care, proficiency in pediatric medicine procedures; expansion of basic knowledge. Prerequisite: fourth-year M.D. enrollment.

070:016 Pediatric Hematology/Oncology arr.
Basic concepts of clinical approach to hematologic and oncologic problems in children and adolescents; primarily outpatient experience. Prerequisite: fourth-year M.D. enrollment.

070:017 Pediatric Neurology arr.
Participation in outpatient and inpatient activities, teaching, morning ward rounds. Prerequisite: fourth-year M.D. enrollment.

070:019 Pediatric Cardiology arr.
Participation in clinical activities; observation of cardiac catheterization; experience in cardiac auscultation, ECG, radiography; emphasis on physical diagnosis, approach to heart disease and murmurs in children. Prerequisite: fourth-year M.D. enrollment.

070:023 Developmental and Behavioral Pediatrics 4 s.h.
Normal developmental sequence of gestation and early childhood, impact of environmental influences; antecedents of developmental disabilities; methods to detect cognitive and motor delays in preschool children; long-term consequences of developmental disabilities for children, their families; advantages of interdisciplinary teamwork. Prerequisite: fourth-year M.D. enrollment.

070:025 Child Abuse and Neglect 4 s.h.
Hospital- and community-based multidisciplinary responses to child abuse and neglect; experience developing diagnostic skills to recognize, assess, and report cases of child abuse and neglect. Prerequisite: fourth-year M.D. enrollment.

070:027 Neonatology (NICU) arr.
Experience caring for ill neonates, proficiency in using diagnostic tests and procedures; responsibility for care of several infants; reference and literature review, conferences, teaching, clinical rounds. Prerequisite: fourth-year M.D. enrollment.

070:028 Pediatric Inpatient Care Subinternship arr.
Experience on pediatric inpatient team caring for patients ranging from infants through adolescents; evaluation, formulation of differential diagnoses, diagnostic workups, appropriate therapy programs. Prerequisite: fourth-year M.D. enrollment.

070:029 Critical Care (PICU) 4 s.h.
Direct care of critically ill children in a multidisciplinary medical/surgical/cardiac intensive care unit, under supervision of pediatric residents and staff; participation in educational activities and formal clinical rounds. Prerequisite: fourth-year M.D. enrollment.

070:030 Medical Genetics for the Senior Student arr.
Participation in diagnostic, therapeutic problems; techniques for evaluation, appropriate counseling in genetic cases; conferences. Prerequisite: fourth-year M.D. enrollment.

070:033 Pediatric Gastroenterology arr.
Diagnosis, management, treatment of diseases of gastrointestinal tract, liver, pancreas in children; ward rounds, consultations, clinics, diagnostic procedures, conferences. Prerequisite: fourth-year M.D. enrollment.

070:040 Infectious Disease Consults 4 s.h.
Prerequisite: fourth-year M.D. enrollment.

- 070:043 Pediatric Allergy** arr.
Experience in evaluating and treating respiratory and allergic diseases in infants, children, and adolescents. Prerequisite: fourth-year M.D. enrollment.
- 070:055 General Pediatric Outpatient Clinic** 4 s.h.
Work in general pediatric outpatient clinics with acutely or chronically ill patients and with well children. Prerequisite: fourth-year M.D. enrollment.
- 070:110 Medical Genetics** 2 s.h.
Gene structure and function, basic genetics concepts, application to problems in human disease. Offered fall semesters. Prerequisites: M.D. enrollment or graduate standing in related health field, and consent of instructor.
- 070:201 Primary Care: Infants, Children, and Adolescents II** 3 s.h.
Enhancement of clinical knowledge and skills for infant, child, adolescent care; development and refinement of knowledge and skills in primary health care delivery. Prerequisites: 096:219 and 096:280. Same as 096:220.
- 070:245 Evaluation of Children with ADHD and LD** arr.
Clinical experience in conducting pediatric neuropsychology examinations in the Pediatric Attention/Learning Disorders Clinic. Prerequisites: course on psychological testing (including IQ), graduate psychology student standing (school, counseling, rehabilitation, clinical), and consent of instructor. Same as 07P:207.
- 070:247 Neuropsychology of Learning Seminar** arr.
Research and theory on varied approaches to learning disability; language disability, visual/perceptual disability, serial order and memory deficits. Prerequisites: 070:245 or 070:251, course on psychological testing including IQ, and consent of instructor.
- 070:250 Social Psychology of Disability** 3 s.h.
Research seminar; mental/physical disability from individual and societal perspectives; emphasis on clarifying research and theoretical strategies in psychology of disability. Prerequisite: Ph.D. student standing and consent of instructor. Same as 07P:210.
- 070:251 Clinical Pediatric Neuropsychology** arr.
Learning and behavior disorders resulting from central nervous system dysfunction; clinical experience in assessment of cognitive, behavioral patterns. Prerequisite: consent of instructor.
- 070:252 Assessment of Attention Deficit Disorder** 3 s.h.
Participation in clinical, research, didactic work in evaluating children with attention deficit disorder. Prerequisite: experience in intellectual assessment of children.
- 070:253 Assessment of Behavior Disorders** arr.
Experience in diagnostic and behavioral assessments of children with conduct disorders.
- 070:300 Pediatric Independent Study** arr.
- 070:333 Pediatric Intensive Care off Campus** arr.
Arranged by student and department. Prerequisite: fourth-year M.D. enrollment.
- 070:653 Adult and Pediatric Nephrology and Hypertension** arr.
Prerequisite: fourth-year M.D. enrollment. Same as 078:653.
- 070:662 Medical and Pediatric Endocrinology** arr.
Prerequisite: fourth-year M.D. enrollment. Same as 078:662.
- 070:998 Pediatrics on Campus** arr.
Prerequisite: fourth-year M.D. enrollment.
- 070:999 Pediatrics off Campus** arr.
Prerequisite: fourth-year M.D. enrollment.

Pharmacology

Interim head: Donna Hammond

Professors: Mario Ascoli, Frank Faraci, Rory Fisher, G.F. Gebhart, Donna Hammond, Donald Heistad, Raymond Hohl, A. Kim Johnson, Herbert K. Proudfit

Professors emeriti: Jeffrey Baron, Ranbir Bhatnagar, Gary R. Dutton, J. Paul Long, Thomas Shires, James Spratt, Thomas Tephly, Harold Williamson

Associate professors: Timothy Brennan, Minnetta Gardinier, Johannes Hell, Barry Kasson, John Koland, Ulla Kopp, Kathryn G. Lamping, Dawn E. Quelle, Frederick W. Quelle, Stefan Strack

Assistant professors: Mary Horne, Nancy Lill, David Sheff, Yuriy Usachev

Graduate degrees: M.S., Ph.D. in Pharmacology

Web site: <http://www.medicine.uiowa.edu/pharmacology>

The Department of Pharmacology offers graduate study programs leading to the M.S. and Ph.D. These programs include both didactic and research experience. Also available are opportunities for qualified students to pursue an M.S. in clinical pharmacology or a combined M.D./Ph.D. in the Medical Scientist Training Program.

The department provides professional training in pharmacology for health science students and participates with other departments in educational and research activities such as the Medical Scientist Training Program, the Physician Scientist Training Program, the Molecular Biology Program, the Neuroscience Program, the Holden Comprehensive Cancer Center, and the Iowa Cardiovascular Center.

The pharmacology department was a pioneer in offering pharmacology to undergraduate students with little or no science background. The lecture and discussion sessions in 071:120 Drugs: Their Nature, Action, and Use emphasize the mechanisms of drug action and give students a background for rational decisions concerning use of drugs. Undergraduates interested in science careers may attend an eight-week summer research program that provides opportunities for outstanding students to conduct research in faculty laboratories.

Pre- and postdoctoral students can pursue research training in all areas of pharmacology in the department in preparation for career opportunities in academia, government, and industry.

Master of Science

The Master of Science in pharmacology requires a minimum of 30 s.h. of graduate credit. Core course requirements are as follows.

071:135 Principles of Pharmacology	4 s.h.
071:203 Pharmacology Research	arr.
071:204 Pharmacology Seminar	1 s.h.
071:302 Pharmacology for Graduate Students	6 s.h.
072:153 Graduate Physiology	4 s.h.
156:201 Principles in Molecular and Cell Biology	4 s.h.

Students also are expected to gain maximum experience in laboratory research while completing their course work. Satisfactory preparation and oral defense of a thesis based on the student's own research are required for completion of the program.

Doctor of Philosophy

The Doctor of Philosophy in pharmacology requires a minimum of 72 s.h. of graduate credit. Core course requirements are as follows.

071:135 Principles of Pharmacology	4 s.h.
071:203 Pharmacology Research	arr.
071:204 Pharmacology Seminar	1 s.h.
071:209 Receptors and Signal Transduction	3 s.h.
071:302 Pharmacology for Graduate Students	6 s.h.
072:153 Graduate Physiology	4 s.h.
156:201 Principles in Molecular and Cell Biology	4 s.h.

Individual faculty research advisors may require additional courses.

During the first semester in the program, students are required to work in two different faculty laboratories before selecting a laboratory in which to pursue thesis research. Students then are expected to gain maximum laboratory research experience while completing course work. The Ph.D. comprehensive examination (written and oral) is given at the end of the fourth semester. Satisfactory preparation and oral defense of the thesis complete the program.

There is no departmental foreign language requirement.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They should have a g.p.a. of at least 3.00 and a combined verbal and quantitative score of at least 1200 on the Graduate Record Examination (GRE) General Test. They should have completed undergraduate courses in chemistry, biology, biochemistry, and mathematics.

Admission to the graduate programs is determined by the faculty after receipt of a completed formal application and interview (if appropriate) by faculty members or other designated individuals. Each application is reviewed individually. Some standard admission criteria may be set aside for applicants who possess outstanding credentials in other areas.

Financial Support

The department provides all Ph.D. students and some M.S. students with financial support in the form of stipends and tuition support. Support is renewed annually based on satisfactory progress toward meeting degree requirements.

Courses

071:105 Pharmacology for Health Sciences: Medical 5 s.h.

Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 050:240 and 099:163, or equivalents; and M.D. enrollment.

071:111 Pharmacology for Dental Students 5 s.h.

Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered spring semesters. Prerequisites: 072:152 and 099:161, or consent of instructor; and D.D.S. enrollment.

071:115 Pharmacology for Health Sciences—Nurse Anesthetist 5 s.h.

Principles of pharmacology; pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 060:270 or 096:270 or equivalents, and enrollment in Anesthesia Nursing Program.

071:120 Drugs: Their Nature, Action, and Use 2 s.h.

Principles of drug action, toxicity; sedatives, stimulants, hallucinogens, narcotics, over-the-counter agents, antibiotics, oral contraceptives. Offered spring semesters. Prerequisite: closed to Pharm.D. students.

071:125 Pharmacology for Health Sciences: Physician Assistant Students 6 s.h.

Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 072:164 and 099:164, or consent of instructor; and Physician Assistant Program enrollment.

071:130 Drug Mechanisms and Actions 3 s.h.

Introduction to principles of pharmacology, pharmacologic actions of drugs. Offered spring semesters. Prerequisites: undergraduate

biochemistry and physiology courses, or consent of instructor; and science background.

071:135 Principles of Pharmacology 4 s.h.

Principles of drug action, disposition; statistical analysis. Offered spring semesters. Prerequisite: consent of instructor.

071:180 Pharmacology for Pharmacy Students I 3 s.h.

Principles of pharmacology, toxicology; drug and toxic mechanisms; systemic and organ-specific pharmacologic and toxic responses. Offered spring semesters. Prerequisite: first-year Pharm.D. enrollment, or graduate standing and consent of instructor.

071:181 Pharmacology for Pharmacy Students II 4 s.h.

Continuation of 071:180. Offered fall semesters. Prerequisite: second-year Pharm.D. enrollment, or graduate standing and consent of instructor.

071:182 Neurotransmitter Receptors and Ion Channels 3 s.h.

Biochemistry, cell biology, physiology, and pharmacology of ionotropic and metabotropic neurotransmitter receptors and ion channels, neuronal excitability, and synaptic transmission. Offered spring semesters. Prerequisite: consent of instructor.

071:203 Pharmacology Research arr.

Prerequisite: consent of department head.

071:204 Pharmacology Seminar 1 s.h.

Prerequisite: consent of department head.

071:209 Receptors and Signal Transduction 3 s.h.

Major receptor families: G-protein coupled receptors, ligand-regulated transmembrane enzymes, ligand-regulated ion channels, the steroid receptor superfamily; emphasis on description, interpretation of specific experiments, experimental strategies underlying current research. Offered spring semesters. Prerequisites: 072:153 and 156:201, or equivalents. Same as 072:209, 132:209.

071:210 Special Topics in Pharmacology arr.

Prerequisite: consent of department head.

071:215 Topics in Neuropharmacology 1 s.h.

Recent advances in neuropharmacology, developmental neurobiology, neuroendocrinology, related neurosciences. Prerequisite: consent of instructor.

071:225 Topics in Molecular Pharmacology 1 s.h.

Recent advances in molecular pharmacology; receptor, postreceptor events in stimulus coupling. Prerequisite: consent of instructor.

071:235 Topics in Pain and Analgesia 1 s.h.

Recent advances in pain research, therapy. Prerequisite: consent of instructor.

071:250 Advanced Problem Solving in Pharmacological Sciences 1 s.h.

Discussion of methodologies, strategies, and approaches commonly used to solve pharmacological sciences problems; use of interpersonal problem-solving skills to develop experimental study plans for solving contemporary scientific problems in pharmacology.

071:277 Mechanisms of Pain Transmission 3 s.h.

Anatomical, physiological, and pharmacological mechanisms that underlie central neuronal processing of pain; emphasis on neuronal changes during pathological conditions such as inflammation/arthritis, peripheral neuropathy. Offered fall semesters of even years. Same as 101:277, 132:277.

071:302 Pharmacology for Graduate Students 6 s.h.

Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 072:153 and 156:201, or equivalents; and consent of instructor.

Physical Therapy and Rehabilitation Science

Director: David H. Nielsen

Professors: David H. Nielsen, Richard K. Shields, Kathleen Sluka

Associate professor: H. John Yack

Assistant professors: Laura Frey Law, Katrina S. Maluf, Glenn N. Williams

Lecturer: Byron Bork

Associates: Lisa Ainsworth, James Holte, Karla Laubenthal, Erin Pazour, David Reese III, Kelly Sass, Carol Vance, David Williams

Affiliated faculty: Annunziato Amendola (Orthopaedics and Rehabilitation), Daniel Anton (Occupational and Environmental Health), David Asprey (Physician Assistant Program), Rhonda Barr, Kathryn Bewyer, Joseph Chen (Orthopaedics and Rehabilitation), Kelly Cole (Exercise Science), Thomas Cook (Occupational and Environmental Health), Warren Darling (Exercise Science), Kim Eppen, Julie Fitzpatrick, Douglas Geraets (Pharmacy), Melanie House, Patrick Johnston, Carol Kelderman, Lisabeth Kestel, Ken Leo, Katherine Mellen, Mary Milavetz, Bruce Miller, Mark Moser, David Rubsam, Donald Shurr, Elayne Sexsmith, Brian R. Wolf (Orthopaedics and Rehabilitation)

Graduate degrees: D.P.T.; Ph.D. in Physical Rehabilitation Science

Web site: <http://www.medicine.uiowa.edu/PhysicalTherapy>

The Physical Therapy and Rehabilitation Science Program is one of five academic units in the Division of Associated Medical Sciences. For information on the division's general academic policies, see Associated Medical Sciences in the Catalog.

Physical therapists provide services to patients and clients who have impairments, functional limitations, disabilities, pain, or changes in physical function resulting from injury, disease, or other causes. Physical therapists practice and collaborate with a variety of health professionals. In the area of health promotion and wellness, they provide screening examinations, prescribe fitness programs, and educate the public regarding healthy lifestyles. Research, teaching, consultation, and administration also are parts of a physical therapist's professional role.

A wide variety of opportunities exist for professional practice in inpatient, outpatient, and community-based settings. Examples include practice in general or specialized hospitals, programs for children with disabilities, private physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces,

foreign service, home health agencies, school systems, fitness centers, and athletic facilities. Research and teaching careers in academic institutions are available for those who earn a Ph.D. in rehabilitation science.

The Physical Therapy and Rehabilitation Science Program is located in the Carver College of Medicine on the University of Iowa Health Sciences Campus, which includes University of Iowa Hospitals and Clinics, one of the nation's largest university-owned teaching hospitals. The program has eight state-of-the-art independent research laboratories and is well equipped for classroom and laboratory instruction and innovative research. Students have access to faculty members in the basic sciences and medicine, basic sciences courses, clinical specialty expertise, and innovative learning experiences associated with a medical college environment.

Graduate Programs

The Physical Therapy and Rehabilitation Science Program offers the Doctor of Physical Therapy (the entry-level professional degree) and Doctor of Philosophy in physical rehabilitation science. The D.P.T. program admits 36 students each year. Around 20 physical therapists are enrolled in the Ph.D. program each year.

Applicants for admission to University of Iowa graduate degree programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Doctor of Physical Therapy

The Doctor of Physical Therapy (D.P.T.) professional program requires a minimum of 102 s.h. and is completed in two and a half years. The program is fully accredited by the Commission on Accreditation in Physical Therapy Education. Satisfactory completion of the professional program qualifies candidates to take the National Physical Therapy Examination for licensure to practice. The minimum passing score on the exam is the same in all jurisdictions.

Technical Standards for Graduation

Doctor of Physical Therapy graduates must possess and demonstrate the physical and cognitive skills and character attributes required

- communicate effectively through appropriate verbal, nonverbal, and written communication with patients, families, and others;
- demonstrate ability to apply universal precautions;
- utilize appropriate tests and measures in order to perform a physical therapy examination; examples include, but are not limited to, examination and evaluation of cognitive/mental status, vital signs, skin and vascular integrity, wound status, endurance, segmental length, girth, volume, sensation, strength, tone, reflexes, movement patterns, coordination, balance, developmental stage, soft tissue, joint motion/play, cranial and peripheral nerve function, posture, gait, functional abilities, assistive devices fit/use, psychosocial needs, and the pulmonary system;
- demonstrate the ability to reach diagnostic and therapeutic judgments through analysis and synthesis of data gathered during patient/client examination in order to develop an appropriate plan of care;
- perform fully, or in a reasonably independent manner, physical therapy interventions appropriate to the patient's status and desired goals;
- apply teaching/learning theories and methods in health care and community environments;
- accept criticism and respond by appropriate behavior modification;
- possess the perseverance, diligence, and consistency to complete the physical therapy curriculum and enter the practice of physical therapy.

Applicants with health conditions or disabilities who need accommodation to meet the technical standards for graduation should contact the University's Student Disability Services office.

Requirements

D.P.T. students complete a minimum of 102 s.h. The following courses are required.

Summer Session

101:140 Introduction to Physical Therapy Practice 2 s.h.

101:141 Principles of Physical Therapy I 2 s.h.
101:205 Health Promotion and Wellness 3 s.h.

First Semester

060:108 Human Anatomy 5 s.h.
069:133 Introduction to Human Pathology 4 s.h.
101:120 Professional Issues and Ethics 1 s.h.
101:142 Principles of Physical Therapy II 2 s.h.
101:189 Clinical Education I 1 s.h.
101:209 Surface Anatomy 1 s.h.
101:210 Kinesiology and Pathomechanics 4 s.h.
101:235 Case-Based Learning I 1 s.h.

Second Semester

060:234 Medical Neuroscience 4 s.h.
101:131 Therapeutic Physical Agents 2 s.h.
101:185 Musculoskeletal Therapeutics I 3 s.h.
101:190 Clinical Education II 1 s.h.
101:201 Applied Clinical Medicine 2 s.h.
101:206 Cardiopulmonary Therapeutics 3 s.h.
101:236 Case-Based Learning II 1 s.h.
*Elective (optional) 1 s.h.

Summer Session

101:119 Physical Therapy Management and Administration I 2 s.h.
101:143 Selected Topics in Physical Therapy Practice 2 s.h.
101:176 Pharmacology for Physical Therapists 3 s.h.
101:194 Clinical Internship 3 s.h.

Third Semester

101:122 Psychosocial Aspects of Patient Care 1 s.h.
101:133 Pain Mechanisms and Treatment 2 s.h.
101:134 Physical Therapy Management of Integumentary System 2 s.h.
101:170 Prosthetics and Orthotics 2 s.h.
101:191 Clinical Education III 1 s.h.
101:202 Musculoskeletal Therapeutics II 3 s.h.
101:224 Principles of Motor Control 4 s.h.
101:237 Case-Based Learning III 1 s.h.
101:248 Research in Physical Therapy 2 s.h.
*Elective (optional) 1 s.h.

Fourth Semester

101:121 Physical Therapy Management and Administration II 1 s.h.
101:151 Progressive Functional Exercise 2 s.h.
101:172 Radiology/Imaging for Physical Therapists 2 s.h.
101:173 Differential Diagnosis in Physical Therapy 2 s.h.
101:192 Clinical Education IV 1 s.h.

101:200 Pediatric Physical Therapy	1 s.h.
101:203 Musculoskeletal Therapeutics III	4 s.h.
101:225 Neuromuscular Therapeutics	3 s.h.
101:238 Case-Based Learning IV	1 s.h.
101:251 Critical Inquiry in Physical Therapy I	2 s.h.
*Elective (optional)	1 s.h.

*The curriculum allows students the option to earn a total of 3 s.h. in electives.

Summer Session

101:194 Clinical Internship	7 s.h.
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Fifth Semester

101:194 Clinical Internship	5 s.h.
101:252 Critical Inquiry in Physical Therapy II	1 s.h.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They must have completed a baccalaureate degree from an accredited institution in the United States, or anticipate completing the degree before enrolling in the D.P.T. program. They must have a cumulative g.p.a. of at least 3.00 and must have completed the following prerequisite course work, preferably with a g.p.a. of at least 3.00. All science courses must include the appropriate laboratory instruction. The prerequisite courses must have been taken for a letter grade.

Biological sciences: a complete introductory course in principles of general biology or zoology, and advanced course work in biology or zoology (for which an introductory course is prerequisite) equivalent to 12 s.h.

Physics: a complete introductory course equivalent to 8 s.h.

Chemistry: a complete introductory course equivalent to 8 s.h.

Physiology: a systemic human physiology course equivalent to 3 s.h.

Psychology: courses equivalent to 6 s.h.

Mathematics: a college-level mathematics course, at the level of trigonometry or higher, equivalent to 3 s.h.

Statistics: a college-level statistics course equivalent to 3 s.h.

Applicants must have a combined verbal and quantitative score of at least 1000 on the

Graduate Record Examination (GRE) General Test. They must take the test early enough for their scores to be received by the University in time for the December 1 application deadline.

Applications must include three letters of recommendation, which should be sent to the Physical Therapy and Rehabilitation Science Program.

Personal interviews are required of applicants selected for consideration by the admissions committee. Interviews are conducted at The University of Iowa. The physical therapy admissions committee selects applicants who appear to be best qualified for the study and practice of the profession. Some preference is given to Iowa residents.

Applications are accepted from September 1 to December 1 for entry the following summer. Prospective students should apply as early as possible.

EARLY ADMISSION

The Doctor of Physical Therapy early admission plan is available to outstanding applicants. Generally, applicants have a g.p.a. of 3.75 or higher and a combined verbal and quantitative score above 1100 on the Graduate Record Examination (GRE) General Test. Application materials are the same as those for regular admission. Application deadline is October 1; applicants are notified of admission by December 1. Those who are interviewed but are not selected for early admission are automatically placed in the final general applicant pool. Contact the Physical Therapy and Rehabilitation Science Program for more information.

Background Checks

A criminal background check is required for all applicants who are recommended for admission. Drug screening may be required for some clinical rotations.

Expenses

Applicants admitted to the D.P.T. program must make an advance tuition payment of \$300, which is forfeited if the applicant does not enroll. In addition to paying University tuition and fees, students are assessed a laboratory fee for the human anatomy course and are responsible for purchasing lab coats, patient evaluation kits, and course syllabi.

All students are required to comply with the pre-entry and periodic health screening program

developed by Student Health Service in cooperation with University of Iowa Hospitals and Clinics. Students must pay for the health screenings. Students also are required to have health insurance.

Ph.D. in Physical Rehabilitation Science

The Doctor of Philosophy in physical rehabilitation science requires a minimum of 72 s.h. of graduate credit. The program is designed to advance the student's ability to independently develop and carry out research that establishes the scientific basis for prevention, evaluation, and treatment of impairments, functional limitations, and disability. The curriculum is flexible enough to accommodate research focusing on basic, applied, or clinical studies in the rehabilitation sciences. Students have access to the program's research laboratories (see "Research Facilities" later in this section).

Graduates who complete the program are prepared for academic appointments that emphasize research, scholarship, and teaching. They possess:

- theoretical and scientific knowledge to perform basic, applied, or clinical-level original research that leads to scientific presentations, publication in peer-reviewed journals, and competition for extramural funding through scientific grant writing;
- breadth of knowledge in the cardiopulmonary, musculoskeletal, or neuromuscular specialty areas as they relate to impairment, functional limitation, and disability; and
- theoretical and practical skills required for college or university teaching at the professional entry and advanced graduate levels.

Requirements

Ph.D. students complete a minimum of 72 s.h. beyond the baccalaureate. Each student and his or her faculty advisor develop an individualized study plan. A preliminary study plan is developed within the first 9 s.h. of graduate study; a final plan is submitted to the Graduate College when the Ph.D. comprehensive examination is scheduled.

To ensure breadth of knowledge, all students complete specific scientific area core courses. Each student also must take a minimum of 20 s.h., excluding research, in his or her defined specialty area. Elective courses are selected to

provide in-depth study of the specialty; they are complemented by an advanced seminar course specific to the student's specialty and taken in preparation for the comprehensive examination. Other requirements include specific core tools and practicum courses, which provide background knowledge and skill acquisition for research and teaching.

Students must satisfactorily complete the comprehensive examination, which is taken after all required course work is completed. Doctoral study culminates with 12 s.h. of thesis research and an oral examination.

GENERAL CORE REQUIREMENTS

101:212 Biomedical Instrumentation and Measurement 4 s.h.

101:220 Seminar in Rehabilitation Science 4 s.h.

Two approved courses in statistics (prerequisite to master's-level course work):

22S:102 Introduction to Statistical Methods and 22S:148 Intermediate Statistical Methods 7 s.h.

or

171:161 Introduction to Biostatistics and 171:162 Design and Analysis of Biomedical Sciences 6 s.h.

07P:385 Teaching and Learning in Higher Education (or an equivalent approved teaching methods course) 3 s.h.

101:280 Teaching Practicum 3 s.h.

101:300 Rehabilitation Research Capstone Project 4 s.h.

Research requirements (all of these, total of 10 s.h.):

101:284 Practicum in Research arr.

101:325 Independent Study arr.

101:327 Research in Rehabilitation Science arr.

Both of these:

101:301 Thesis: Rehabilitation Science (Ph.D.) (thesis proposal must be approved before data are collected) 12 s.h.

101:326 Scientific Writing in Rehabilitation Science 3 s.h.

SCIENTIFIC CONTENT CORE AND SPECIALTY FOCUS REQUIREMENTS

Students take one first-level course from each of the three specialty areas, and one second-level course from two of the three specialty areas (courses outside the department may be substituted when appropriate, with the advisor's consent). Specialty focus courses include 101:214 Advanced Seminar in Rehabilitation

Science (a specialty-oriented seminar taken in preparation for the Ph.D. comprehensive exam) and elective specialty courses to provide at least 20 s.h. in the student's specialty area.

Cardiopulmonary

First-level courses:
 027:141 Exercise Physiology 3 s.h.
 101:206 Cardiopulmonary Therapeutics (with lab) 3 s.h.

Second-level course:
 101:260 Advanced Health Promotion and Cardiopulmonary Therapeutics 3 s.h.
 An advanced exercise physiology laboratory (respiratory and cardiovascular)

Specialty focus courses:
 101:214 Advanced Seminar in Rehabilitation Science 3 s.h.
 Elective specialty courses 10 s.h.

Musculoskeletal

First-level courses:
 027:197 Biomechanics of Human Motion 4 s.h.
 101:210 Kinesiology and Pathomechanics (with lab) 4 s.h.

Second-level courses:
 027:155 Skeletal Muscle Biology 3 s.h.
 053:190 Readings in Civil and Environmental Engineering 2 s.h.
 101:285 Biomechanical Analysis in Rehabilitation 3 s.h.
 175:190 Occupational Ergonomics I 3 s.h.
 175:294 Occupational Ergonomics II 3 s.h.
 175:295 Clinical Ergonomics 3 s.h.

Specialty focus courses:
 101:214 Advanced Seminar in Rehabilitation Science 3 s.h.
 Elective specialty courses 9-11 s.h.

Neuromuscular

First-level course:
 101:224 Principles of Motor Control 4 s.h.

Second-level courses:
 027:155 Skeletal Muscle Biology 3 s.h.
 027:314 Seminar in Motor Control 2 s.h.
 060:234 Medical Neuroscience 4 s.h.
 071:182 Neurotransmitter Receptors and Ion Channels 3 s.h.
 101:275 Analysis of Sensori-Motor Systems in Health and Disease 3 s.h.
 101:277 Mechanisms of Pain Transmission 3 s.h.
 101:295 Applied Electromyography 3 s.h.
 132:180 Fundamental Neurobiology 4 s.h.

Specialty focus courses:
 027:197 Biomechanics of Human Motion 4 s.h.
 101:214 Advanced Seminar in Rehabilitation Science 3 s.h.
 Elective specialty courses 11 s.h.

ELECTIVES

The requirement varies.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They should have a cumulative g.p.a. of at least 3.00 and a combined verbal and quantitative score of at least 1100 on the Graduate Record Exam (GRE) General Test. A minimum of two years of clinical experience is desirable.

International applicants whose first language is not English must score at least 600 (paper-based) or 250 (computer-based) on the Test of English as a Foreign Language (TOEFL).

Application materials must include a complete Graduate College application form, test scores, transcripts, three letters of recommendation, and a statement of purpose. Completed applications should be sent to the Physical Therapy and Rehabilitation Science Program.

Personal interviews are required of all applicants selected for consideration by the admissions committee. On-campus interviews are preferred, but telephone interviews may be substituted when necessary.

Application deadlines are October 15 for spring semester entry (notification by December 15); March 15 for summer entry (notification by May 15); and May 15 for fall semester entry (notification by July 15).

Financial Support

A number of teaching and research assistantships are available for Ph.D. students. Faculty advisors provide guidance for students seeking external scholarship support through foundations and federal programs that support Ph.D. training.

Research Facilities

The program's state-of-the-art research facilities include the Orthopedic Gait Analysis Laboratory and a spinal cord research laboratory at University Hospitals and Clinics; the Neuromuscular Research/Motor Control

Laboratory; the Cardiopulmonary Research Laboratory; the Musculoskeletal Biomechanics and Sports Medicine Research Laboratory; the Neurophysiology of Pain Laboratory; the Applied Neuromuscular Physiology Laboratory; and the Neuromuscular Biomechanics Laboratory. Use of other laboratories may be arranged.

Courses

101:119 Physical Therapy Management and Administration I 2 s.h.

The changing U.S. health care system; access to physical therapy services; reimbursement to health care providers; mechanisms for controlling costs while providing quality care; clinical vignettes, small group problem solving.

101:120 Professional Issues and Ethics 1 s.h.

Evolution of physical therapy and rehabilitation science as a profession; contemporary issues in education and practice; ethical theory and approaches to analyzing and acting on ethical problems; professional and peer relationships.

101:121 Physical Therapy Management and Administration II 1 s.h.

Principles of management in physical therapy practice; historical perspective, current health care environment; business principles; marketing, managing risk, medical/legal concerns, preparing for the future.

101:122 Psychosocial Aspects of Patient Care 1 s.h.

Emotional reactions to disability, psychosocial aspects of disability as they relate to patient-physical therapist interaction; specific problems of the angry, non-compliant, or chronic-pain patient; complementary roles of other health professionals; cultural competence in professional behavior and patient treatment; importance of holistic health care.

101:131 Therapeutic Physical Agents 2 s.h.

Theoretical and practical applications for safe, effective use of physical agents (superficial and deep heat, cold, hydrotherapy), electrotherapeutic modalities (biofeedback, NMES, TENS, iontophoresis); massage and soft tissue mobilization; emphasis on problem solving, clinical decision making. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment.

101:133 Pain Mechanisms and Treatment 2 s.h.

Introduction to basic science mechanisms, assessment, and management of pain; basic science mechanism involved in transmission and perception of painful stimuli after tissue injury, assessment and physical therapy management of pain; emphasis on scientific principles and published literature to support treatment techniques. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment.

101:134 Physical Therapy Management of the Integumentary System 2 s.h.

Overview of physical therapy examination and management of the integumentary system; wound pathology, diagnosis associated with the integumentary system, inflammation and repair, examination and reexamination techniques, documentation, clinical decision making, lecture and laboratory formats; interventions, including patient/client information, physical agents, electrotherapy, wound dressing. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment.

101:140 Introduction to Physical Therapy Practice 2 s.h.

Lectures, case presentations, and group activities using the Guide to Physical Therapist Practice; elements of the patient/client management model, concepts of the disablement model; preferred practice patterns as applied in clinical problems; importance of professionalism, professional socialization; introduction to evidence-based practice; competence in medical terminology.

101:141 Principles of Physical Therapy I 2 s.h.

Patient management skills: documentation, basic assessment, preambulatory activities, joint range-of-motion, strength assessment, patient transfers, gait assessment and training, negotiation of architectural barriers.

101:142 Principles of Physical Therapy II 2 s.h.

Continuation of 101:141; expansion of previously learned skills; new skills in documentation, assessment of joint range of motion/goniometry, manual muscle testing, preambulatory intervention strategies, postural assessment, gait analysis, performance of musculoskeletal, neuromuscular, and integumentary systems review. Prerequisite: 101:141.

101:143 Selected Topics in Physical Therapy Practice 2 s.h.

Specialty topics in physical therapy, such as women's health, aquatic therapy, patient care across the lifespan, alternative or new treatments; guest lectures, lab component. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment.

101:151 Progressive Functional Exercise 2 s.h.

Therapeutic exercise options (e.g., isometrics, isotonic, isokinetic, plyometrics, endurance exercises, stretching exercises) and training principles; application to functional activities, including those of daily living, work, recreation, and sport; laboratory component. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment.

101:170 Prosthetics and Orthotics 2 s.h.

Physical therapy management and assessment of patients in need of prosthetic and orthotic devices; principles and components of prosthetic and orthotic design and use.

101:172 Radiology/Imaging for Physical Therapists 2 s.h.

Basic principles and procedures for acquisition and interpretation of radiology and imaging in clinical practice and research; plain film radiographs, CT, MRI, other common imaging modalities; case-based, multidisciplinary approach.

101:173 Differential Diagnosis in Physical Therapy 2 s.h.

Use of physical therapy examination and evaluation skills to diagnose physical therapy problems; focus on use of good clinical decision-making skills when analyzing a patient's history and administering physical therapy tests and measures to confirm or rule out differential diagnoses; components of the medical examination; importance of collaboration between therapists and other health professionals; interactive case studies presented by clinical experts.

101:176 Pharmacology for Physical Therapists 3 s.h.

Contemporary pharmacology; overview of basic pharmacokinetic and pharmacodynamic principles; relation of drug therapy to therapeutic interventions provided by physical therapists; small group clinical case presentations.

101:185 Musculoskeletal Therapeutics I 3 s.h.

Musculoskeletal techniques and biomechanical principles applied to assessment and evaluation of common orthopedic problems of the spine; problem solving, case-study approach to clinical methods, skill acquisition.

101:189 Clinical Education I 1 s.h.

Integrated clinical experiences in area physical therapy clinics; overview of the diverse nature of practice through half- or full-day experience; basic skills in examination, intervention, documentation.

101:190 Clinical Education II 1 s.h.

Continuation of 101:189; integrated half-day clinical experiences. Prerequisite: 101:189.

101:191 Clinical Education III 1 s.h.

Two-week, full-time clinical experience in physical therapy clinics in Iowa, under the guidance of physical therapists. Prerequisite: 101:190.

- 101:192 Clinical Education IV** 1 s.h.
Continuation of 101:191; theory and practice of physical therapy procedures; development of competence in basic skills through two-week, full-time clinical experience.
- 101:194 Clinical Internship** arr.
Full-time clinical education divided among varied settings; development of competence in independent examination, evaluation, and treatment of patients under supervision of clinical faculty.
- 101:200 Pediatric Physical Therapy** arr.
Preparation for physical therapy practice in pediatric settings using interdisciplinary family-centered practice; normal and abnormal development, standardized assessment, service-delivery settings, interventions, management strategies specific to pediatrics.
- 101:201 Applied Clinical Medicine** 2 s.h.
Pathological disorders frequently encountered by physical therapists in clinical practice, addressed by physicians and health professionals who are not physical therapists; physical therapy management.
- 101:202 Musculoskeletal Therapeutics II** 3 s.h.
Pathology, assessment, management of orthopedic disorders of the upper quarter; problem-solving approach to evaluation and management of patients with musculoskeletal conditions.
- 101:203 Musculoskeletal Therapeutics III** 4 s.h.
Pathology, assessment, management of orthopedic disorders of the lower quarter; problem-solving approach to evaluation and management of patients with musculoskeletal conditions.
- 101:205 Health Promotion and Wellness** 3 s.h.
Overview of health promotion, fitness, and wellness strategies, with background information on applied physiology (energy metabolism and physiological responses to exercise), exercise testing and training guidelines, body composition assessment, diet, body weight management; laboratories, development of individual weight management and exercise training programs.
- 101:206 Cardiopulmonary Therapeutics** 3 s.h.
Cardiorespiratory anatomy, physiology, and application of basic concepts, techniques in management of patients with acute and chronic cardiac, pulmonary disorders; laboratories.
- 101:209 Surface Anatomy** 1 s.h.
Laboratory teaching activities that parallel the human anatomy course; observation, palpation, and problem solving skills; upper- and lower-limb, head and neck, thorax, and abdomen.
- 101:210 Kinesiology and Pathomechanics** 4 s.h.
Normal and pathological movement based on understanding of muscle mechanics, segment and joint mechanics, muscle function; instructor- and student-centered learning experiences; EMG laboratories.
- 101:212 Biomedical Instrumentation and Measurement** 4 s.h.
Introduction to biomedical instrumentation and measurement, with focus on understanding sources of error and noise in biomedical research applications; basic circuit analysis, calibration of measurement tools, A/D conversion, digital filtering; lab components. Offered fall semesters of even years.
- 101:214 Advanced Seminar in Rehabilitation Science** arr.
Current status of research for biological, mechanical, psychological components pertinent to cardiopulmonary, musculoskeletal, neuromuscular areas of rehabilitation science; preparation for comprehensive exam.
- 101:220 Seminar in Rehabilitation Science** 1 s.h.
Exploration of research related to rehabilitation science; lectures by faculty, graduate students, and guest scholars with expertise in areas relevant to rehabilitation science (e.g., neuroscience, physiology, medicine, engineering, pharmacology, exercise science).
- 101:224 Principles of Motor Control** 4 s.h.
Sensorimotor mechanisms involved with normal and abnormal neuromuscular systems function; skeletal muscle properties/plasticity, muscle fatigue, neural mechanisms of muscle strengthening, spinal circuitry, simple and complex reflexes, spasticity, rigidity, posture control/balance, motor learning, applied neurological assessment of pathological conditions, such as stroke, SCI. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment.
- 101:225 Neuromuscular Therapeutics** 3 s.h.
Techniques used in evaluation, treatment of persons with nervous system dysfunction; methods of identifying and scientific rationale for abnormal sensorimotor activity and movement; normal, abnormal motor development; techniques used to provide comprehensive institutional and home rehabilitation programs for conditions such as stroke, traumatic brain injury, multiple sclerosis, Parkinson's disease, cerebral palsy, vestibular disorders, spinal cord injury. Prerequisite: 101:224.
- 101:235 Case-Based Learning I** 1 s.h.
Small-group seminars and simulated patient-instructor clinical assessment labs; two clinical cases per semester; clinical problems coordinated with concurrent course work; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. First in a four-course sequence.
- 101:236 Case-Based Learning II** 1 s.h.
Small-group seminars and simulated patient-instructor clinical assessment labs; two clinical cases per semester; clinical problems coordinated with concurrent course work; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. Second in a four-course sequence. Prerequisite: 101:235.
- 101:237 Case-Based Learning III** 1 s.h.
Small-group seminars and simulated patient-instructor clinical assessment labs; two clinical cases per semester; clinical problems coordinated with concurrent course work; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. Third in a four-course sequence. Prerequisite: 101:236.
- 101:238 Case-Based Learning IV** 1 s.h.
Small-group seminars and simulated patient-instructor clinical assessment labs; two clinical cases per semester; clinical problems coordinated with concurrent course work; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. Fourth in a four-course sequence. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment.
- 101:248 Research in Physical Therapy** 2 s.h.
Topics relevant to evidence-based practice and research design; identification of appropriate questions for research and clinical applications, location and evaluation of available evidence, identification of issues that affect validity of research designs, interpretation of basic statistical analyses. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment.
- 101:251 Critical Inquiry in Physical Therapy I** 2 s.h.
Experience conducting group research projects under faculty supervision; data collection and analysis, manuscript preparation, oral defense of research findings during a formal poster presentation. Prerequisites: 101:248 and Physical Therapy and Rehabilitation Science Program enrollment.
- 101:252 Critical Inquiry in Physical Therapy II** 1 s.h.
Principles and procedures learned in 101:248 and 101:251 applied to a clinical setting; students write and present a case report with an evidence-based practice focus, using a clinical case from their final internships.
- 101:260 Advanced Health Promotion and Cardiopulmonary Therapeutics** arr.
Anatomical, physiological principles applied to health care continuum, including wellness programs, cardiac and pulmonary

rehabilitation; emphasis on body composition and weight control, exercise and cardiorespiratory adaptations to training; laboratories. Offered spring semesters.

101:275 Analysis of Sensori-Motor Systems in Health and Disease **3 s.h.**

Neurophysiological mechanisms underlying posture, movement in normal and pathologic conditions; systems approach to neuromuscular system function, including skeletal muscle plasticity, muscle fatigue, neurological adaptations to strengthening, spinal circuitry, complex reflexes, spasticity, rigidity, posture/balance, motor learning; specific applications to CNS disease states (SCI, stroke, degenerative diseases). Offered fall semesters. Prerequisite: consent of instructor.

101:277 Mechanisms of Pain Transmission **3 s.h.**

Anatomical, physiological, and pharmacological mechanisms underlying peripheral and central neuronal processing of pain; emphasis on neuronal changes that occur during pathological conditions such as inflammation/arthritis, peripheral neuropathy. Offered fall semesters of even years. Same as 071:277, 132:277.

101:280 Teaching Practicum **arr.**

Individual instruction, observation, experimentation in teaching, guidance, analysis of evaluation processes in Physical Therapy and Rehabilitation Science Program.

101:282 Clinical Educational Practicum **arr.**

Individualized clinical experience in selected physical therapy setting; instructor-student development of objectives, learning contract.

101:284 Practicum in Research **arr.**

Laboratory experiences connected with investigative process; individual instruction, observation, activities in methodological development, data acquisition, data analysis aspects of research.

101:285 Biomechanical Analysis in Rehabilitation **3 s.h.**

Assessment of pathological movement through human movement analysis techniques, including link segment modeling and analysis, mechanical energy and power analysis, electromyography and muscle modeling.

101:295 Applied Electromyography **3 s.h.**

Physiological bases of electromyographic signals; intramuscular/surface electrode techniques performed in laboratory; temporal and frequency analysis of the signal; introduction to EMG/force relationship, motor unit activity, muscle fatigue. Offered spring semesters of odd years. Prerequisite: consent of instructor.

101:300 Rehabilitation Research Capstone Project **arr.**

Specific phases of the research process; development of a research question and associated hypotheses, collection and analysis of data, interpretation and discussion of the information's meaning; presentation to sponsoring mentor's laboratory/program, and written document.

101:301 Thesis: Rehabilitation Science **arr.**

Investigative process: formulation of problem, literature search and analysis, procedure for collecting data, data analysis, organization and writing of thesis proposal, thesis.

101:325 Independent Study **arr.**

Problem-solving experience in physical therapy; commensurate with student's interest, ability.

101:326 Scientific Writing in Rehabilitation Science **arr.**

Knowledge of and experience related to scientific writing, critical review of scientific literature, publication in the biomedical sciences, thesis/dissertation writing, grant writing, scientific presentation, writing used in academic and scientific careers.

101:327 Research in Rehabilitation Science **arr.**

Placement of physical therapy on sound scientific base; therapy; initiation, refinement, establishment of methods in physical therapy evaluation, treatment; direct clinical and laboratory approach, philosophical treatise, or research proposal.

Physician Assistant Program

Director: David P. Asprey

Medical director: Daniel Fick

Assistant director: Richard W. Dehn

Director of curriculum and evaluation: Theresa Hegmann

Director of clinical education: Anthony Brenneman

Clinical professor: Richard W. Dehn

Associate professor: David P. Asprey

Assistant professors (clinical): Anthony Brenneman, Theresa Hegmann

Graduate degree: M.P.A.S.

Web site: <http://www.medicine.uiowa.edu/pa/pa.htm>

The Physician Assistant Program is one of five academic units in the Division of Associated Medical Sciences. For information on the division's general academic policies, see Associated Medical Sciences in the Catalog.

The physician assistant profession is one of the newest and most exciting in health care. Physician assistants (PAs) are licensed to practice medicine with physician supervision. They are responsible for making medical decisions and providing a broad range of diagnostic and therapeutic services.

Physician assistants work in a variety of settings, including medical offices, hospital emergency rooms, nursing homes, rural satellite clinics, health maintenance organizations, and patients' homes.

In the traditional office setting, PAs see patients, obtain histories, perform physical examinations, and order necessary laboratory and/or radiological studies. Based on this information, the PA establishes a diagnosis, develops an appropriate management plan, and initiates treatment that may include prescribing medications. The physician is consulted as needed and remains ultimately responsible for the care provided by the physician/PA team. PAs also are involved in both patient and community health education.

The Physician Assistant Program at The University of Iowa is accredited by the Accreditation Review Commission on Education for the Physician Assistant, Inc., and is a member of the Physician Assistant Education Association. Students who complete the program are granted the Master of Physician Assistant Studies (M.P.A.S.). They are eligible to take the National

Certifying Examination for Primary Care Physician Assistants, which they must complete successfully in order to register as a physician assistant in Iowa.

The Physician Assistant Program emphasizes primary care medicine, family medicine in particular. It also offers elective clinical rotations in selected medical subspecialties.

Master of Physician Assistant Studies

The Master of Physician Assistant Studies requires a minimum of 104 s.h. The curriculum spans 25 months and is divided into two phases: didactic and clinical. Both phases emphasize primary health care delivery and the physician assistant's role as a member of the health care team. The program is integrated with teaching at the Carver College of Medicine, permitting interdisciplinary activities between Doctor of Medicine and health care professions students. Physician assistant students complete approximately 65 percent of the curriculum's didactic phase with second-year M.D. students.

The first phase is conducted on the University's Health Sciences Campus. It begins in late May with seven months of course work in a number of basic science areas, including anatomy, biochemistry, infectious disease, pathology, pharmacology, and physiology. Whenever appropriate, related subjects are integrated to provide sequential lecture and laboratory experience. This session also includes courses in clinical decision making and an introductory course on taking a medical history and performing a physical examination.

The program's patient assessment curriculum couples a sequence of didactic instruction with practical experiences involving simulated and real patients. The level and intensity of patient interactions increase throughout the curriculum as the student gains confidence and clinical competence.

The spring semester of the first phase consists of 050:175 Foundations of Clinical Practice IV for Physician Assistant Students, an 18-week course. Three interrelated courses focus on the application of basic science knowledge to

understanding clinical-pathologic correlations of common and/or catastrophic disorders encountered in clinical medicine's major disciplines. The courses continue with instruction in obtaining a problem-oriented medical history and performing a physical examination. The semester also includes continuation of the clinical decision-making course and a short course in clinical pathology.

Two weeks before clinical rotations begin, students complete 117:110 Introduction to Clinical Skills, which includes instruction in several skill areas (e.g., suturing, injections, prescription writing, medical orders). They also complete the Advanced Cardiac Life Support Program and a seminar course, in which they research and discuss professional issues that will affect their practice as physician assistants.

The program's second phase concentrates on clinical education. In 117:201 Clinical Decision Making III, students select a pertinent health question and apply an evidence-based medicine review of the data. They give a PowerPoint presentation of their findings to their colleagues, write a paper for submission to a journal, or prepare a poster presentation for a conference.

Students complete a 42-week core of required primary-care clinical rotations, including six weeks each of family medicine I, family medicine II, general internal medicine, pediatrics, and surgery; and four weeks each of emergency medicine, gynecology, and psychiatry. Students also select six-week electives, which may include geriatrics, cardiology, dermatology, and orthopaedics.

The primary-care clinical rotations are designed to provide instruction and experience in caring for patients in a way that enables students to integrate the knowledge, skills, behaviors, and attitudes they learned in the program's didactic phase. Clinical training is provided at University of Iowa Hospitals and Clinics, the Veterans Affairs Iowa City Health Care System, the Veterans Affairs Central Iowa Health Care System and Broadlawns Medical Center in Des Moines, and other affiliated hospitals throughout Iowa. In elective rotations, students gain additional clinical experience through placement with selected preceptors involved in office-based practices, typically in medically underserved rural areas.

Professional Curriculum

FIRST YEAR (PHASE I)

Summer and Fall

050:174 Foundations of Clinical Practice for Physician Assistants	5 s.h.
060:111 Gross Human Anatomy for Physician Assistant Students	6 s.h.
061:104 Principles of Infectious Diseases for Physician Assistant Students	4 s.h.
069:133 Introduction to Human Pathology	4 s.h.
071:125 Pharmacology for Health Sciences: Physician Assistant Students	6 s.h.
072:164 Human Physiology for Physician Assistant Students	4 s.h.
099:164 Biochemistry for Physician Assistant Students	3 s.h.
117:101 Introduction to Medical History and Physical Examination for Physician Assistant Students	3 s.h.
117:103 Clinical Decision Making I	1 s.h.

Spring

050:175 Foundations of Clinical Practice IV for Physician Assistant Students	13 s.h.
050:183 Ethics and Health Law	2 s.h.
069:130 Clinical Laboratory Medicine for Physician Assistant Students	1 s.h.
117:104 Clinical Decision Making II	1 s.h.

SECOND YEAR (PHASE II)

117:107 Seminar for Physician Assistant Students	1 s.h.
117:110 Introduction to Clinical Skills	1 s.h.
117:201 Clinical Decision Making III	1 s.h.

The following are required clinical rotations.

117:300 Emergency Medicine for Physician Assistant Students	4 s.h.
117:301 Gynecology for Physician Assistant Students	4 s.h.
117:302 Family Practice I for Physician Assistant Students	6 s.h.
117:303 Family Practice II for Physician Assistant Students	6 s.h.
117:304 General Surgery for Physician Assistant Students	6 s.h.
117:305 Internal Medicine for Physician Assistant Students	6 s.h.
117:306 Pediatrics for Physician Assistant Students	4, 6 s.h.
117:307 Psychiatry for Physician Assistant Students	4 s.h.

Elective clinical rotations are selected from the following.

- 117:321 Dermatology Elective for Physician Assistant Students arr.
- 117:322 Neurology Elective for Physician Assistant Students arr.
- 117:323 Obstetrics for Physician Assistant Students arr.
- 117:324 Ophthalmology Elective for Physician Assistant Students arr.
- 117:325 Otolaryngology Elective for Physician Assistant Students arr.
- 117:326 Pediatric Elective for Physician Assistant Students arr.
- 117:327 Radiology Elective for Physician Assistant Students arr.
- 117:328 Pediatric Elective (Bone Marrow Transplant) for Physician Assistant Students arr.
- 117:329 Pediatric (Cardiology) Elective for Physician Assistant Students arr.
- 117:330 Psychiatry Elective for Physical Assistant Students arr.
- 117:331 Surgery Elective for Physician Assistant Students arr.
- 117:332 Surgery Elective (Transplant/Organ Retrieval) for Physician Assistant Students arr.
- 117:333 Surgery Elective (Burn Unit) for Physician Assistant Students arr.
- 117:334 Surgery Elective (Cardiac Surgery) for Physician Assistant Students arr.
- 117:335 Orthopedics Elective for Physician Assistant Students arr.
- 117:336 Internal Medicine Elective for Physician Assistant Students arr.
- 117:337 Internal Medicine (Cardiology) Elective for Physician Assistant Students arr.
- 117:338 Internal Medicine (EKG) Elective for Physician Assistant Students arr.
- 117:339 Internal Medicine (Gastroenterology) Elective for Physician Assistant Students arr.
- 117:340 Internal Medicine (Oncology) Elective for Physician Assistant Students arr.
- 117:341 Internal Medicine (Geriatrics) Elective for Physician Assistant Students arr.
- 117:342 Internal Medicine (Pulmonary) Elective for Physician Assistant Students arr.
- 117:343 Internal Medicine (Hospice) Elective for Physician Assistant Students arr.

- 117:344 Internal Medicine (Infectious Disease) Elective for Physician Assistant Students arr.
- 117:345 Internal Medicine (Correctional Medicine) Elective for Physician Assistant Students arr.
- 117:347 Urology Elective for Physician Assistant Students arr.
- 117:348 Family Practice Elective for Physician Assistant Students arr.
- 117:349 Gynecology Elective (Women's Health) for Physician Assistant Students arr.
- 117:350 Migrant Health Elective for Physician Assistant Students arr.
- 117:351 Occupational Medicine Elective for Physician Assistant Students arr.
- 117:352 Pediatrics (Neonatology) Elective for Physician Assistant Students arr.
- 117:353 Internal Medicine (Rheumatology) for Physician Assistant Students arr.
- 117:354 Medical Intensive Care for Physician Assistant Students arr.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Applicants must have taken the Graduate Record Examination (GRE) General Test within the last 10 years. They must hold a baccalaureate degree from an accredited institution in the United States and have a cumulative g.p.a. of at least 3.00 and a science g.p.a. of at least 3.00.

Applicants must have completed preparatory science courses in organic and inorganic chemistry, introductory animal biology or zoology, and general statistics or biostatistics. They also must have completed upper-level courses in human or animal physiology (lower-level combined anatomy/physiology courses do not satisfy this requirement); three upper-level courses in endocrinology, microbiology, histology, and/or related disciplines; and an introductory biochemistry course (combined organic/biochemistry courses do not satisfy this requirement). Courses in cell biology, cell physiology, genetics, molecular biology, neurobiology, and parasitology are recommended.

Applicants also must have at least 1,200 hours of health care experience.

The admissions committee gives special attention to applicants' performance in science courses. Some successful applicants have had a cumulative and science g.p.a. of at least 3.70; up to 141 s.h. of college credit, including at least 81 s.h. in the sciences; and more than 3,000 hours of clinical and/or research experience.

Satisfaction of the basic admission requirements does not ensure acceptance to the program. The admissions committee selects the applicants it considers best qualified. Previous health care experience involving direct patient contact is preferred. The committee requests interviews with the most qualified applicants.

Applications are accepted from May 1 to November 15 for entry the following May. Each applicant must complete the Association of Physician Assistant centralized application, which includes three letters of recommendation, GRE scores, and transcripts. The majority of prerequisite course requirements must be completed by the November 15 application deadline.

Expenses

In addition to University of Iowa tuition and fees, Physician Assistant Program students must purchase their medical uniforms and diagnostic equipment, an expense of approximately \$1,700. Microscopes are not required.

Courses

- 117:201 Clinical Decision Making III** 1 s.h.
Asking appropriate clinical questions in the course of patient care; gathering information from multiple sources to answer questions.
- 117:210 Physician Assistant Internship Seminar** 2 s.h.
Supervised experience in program administration, student advising and admissions, teaching, program and student evaluation, health professions research; opportunities for clinical practice.
- 117:300 Emergency Medicine for Physician Assistant Students** arr.
Obtaining and recording pertinent historical data, obtaining indicated laboratory studies, assessing the results, arriving at a diagnosis, formulating a treatment plan, implementing appropriate therapy.
- 117:301 Gynecology for Physician Assistant Students** 4 s.h.
Opportunity to develop proficiency in history and physical exams of gynecological patients; outpatient, family planning, gynecological cancer, concepts of diagnostic techniques and therapy.
- 117:302 Family Practice I for Physician Assistant Students** 6 s.h.
Obtaining and recording complete history and physical exams; formulation of differential diagnosis and problem list; ordering, obtaining, and interpreting lab and diagnostic studies; implementation of therapeutic procedures and treatment plans.
- 117:303 Family Practice II for Physician Assistant Students** 6 s.h.
Opportunity to participate in delivery of ambulatory primary care; at a different site from 117:302.
- 117:304 General Surgery for Physician Assistant Students** 6 s.h.
Preparation for work as an assistant to the generalist; outpatient and inpatient surgical services, including surgical procedures and management of postoperative course.
- 117:305 Internal Medicine for Physician Assistant Students** 6 s.h.
Eliciting a medical history, doing a pertinent physical exam, obtaining indicated lab studies, assessment of results, formulation of management plan and implementation of appropriate therapy for common internal medicine problems.
- 117:306 Pediatrics for Physician Assistant Students** arr.
Knowledge and skills required for providing appropriate medical care to infants, children, and adolescents; initiation and promotion of interpersonal relationships.
- 117:307 Psychiatry for Physician Assistant Students** 4 s.h.
Training in history and physical exams of psychiatry patients, including individual and family therapy, vocational testing and guidance, development of interviewing skills.
- 117:321 Dermatology Elective for Physician Assistant Students** arr.
Recognizing dermatologic diseases and disorders, instituting appropriate management of patients with dermatologic problems.
- 117:322 Neurology Elective for Physician Assistant Students** arr.
Performing general and neurological exams, establishing diagnosis, recommending lab studies, instituting appropriate management of common neurological diseases and disorders, recognizing the need for urgent treatment.
- 117:323 Obstetrics for Physician Assistant Students** arr.
Proficiency in physical exam of OB patients; applying concepts of diagnostic techniques and therapy; following patients' course, including labor, delivery, and postpartum care.
- 117:001 Physician Assistant Clinical Second Year** arr.
- 117:101 Introduction to Medical History and Physical Examination for Physician Assistant Students** 0-3 s.h.
Development of skills vital to taking a comprehensive medical history, psychomotor skills, and physical examination techniques necessary for conducting a comprehensive physical exam.
- 117:103 Clinical Decision Making I** 1 s.h.
Review of basic concepts of research design and statistics as they apply to medical research literature; formation of a basis for sound, evidence-based, clinical decision making. Repeatable.
- 117:104 Clinical Decision Making II** 1 s.h.
Core concepts of evidence-based medicine; development of the knowledge and practical skills to search the medical literature for answers to clinical questions and critically appraise the evidence found. Repeatable.
- 117:107 Seminar for Physician Assistant Students** 1 s.h.
Professional issues that affect the physician assistant's practice of medicine.
- 117:110 Introduction to Clinical Skills** 1 s.h.
Suturing, injections, prescription and order writing, medical records, patient confidentiality, Iowa Law governing physician assistant practice, completion of the American Heart Association's Advanced Cardiac Life Support Program. Prerequisites: completion of physician assistant curriculum phase I.

- 117:324 Ophthalmology Elective for Physician Assistant Students** arr.
Proficiency in recognizing ophthalmology problems; how to institute appropriate management of these conditions.
- 117:325 Otolaryngology Elective for Physician Assistant Students** arr.
Proficiency in recognizing otolaryngology problems; how to institute appropriate management of these conditions; opportunity for involvement in varied surgical procedures.
- 117:326 Pediatric Elective for Physician Assistant Students** arr.
Experience working with children and adolescents.
- 117:327 Radiology Elective for Physician Assistant Students** arr.
Proficiency in systematic evaluation of normal and abnormal routine radiologic examinations; listing indications for special exam procedures, including details of prepping the patient.
- 117:328 Pediatric Elective (Bone Marrow Transplant) for Physician Assistant Students** arr.
Basic clinical knowledge and skills for diagnosis, treatment, and management of pre- and post-bone-marrow transplant patients.
- 117:329 Pediatric (Cardiology) Elective for Physician Assistant Students** arr.
Cardiovascular assessment and problem management of pediatric patients; experience with a range of acute, chronic, common, and rare cardiology diseases.
- 117:330 Psychiatry Elective for Physician Assistant Students** arr.
Training in evaluation and treatment of psychiatry patients.
- 117:331 Surgery Elective for Physician Assistant Students** arr.
Experience in a wide range of surgical problems, procedures, and treatments, including diagnosis, care and treatment, and postoperative courses of surgical patients.
- 117:332 Surgery Elective (Transplant/Organ Retrieval) for Physician Assistant Students** arr.
Extensive experience in care of patients with end-stage organ failure; evaluation of potential transplant candidates, participation in surgical procedures on transplant service.
- 117:333 Surgery Elective (Burn Unit) for Physician Assistant Students** arr.
Involvement in care on burn unit and in operating room; skills in burn debridement, grafting techniques, skin storage techniques, dressing changes, tub baths, and physical therapy procedures.
- 117:334 Surgery Elective (Cardiac Surgery) for Physician Assistant Students** arr.
Development of technical skills in operating room; essentials of preoperative evaluation and postoperative management of cardiac surgical patient.
- 117:335 Orthopedics Elective for Physician Assistant Students** arr.
Recognition of varied orthopedic problems and treatments; musculoskeletal diseases and disorders, both emergencies and common conditions, and how to establish appropriate management.
- 117:336 Internal Medicine Elective for Physician Assistant Students** arr.
Training in varied internal medicine problems; recognition, appropriate treatment.
- 117:337 Internal Medicine (Cardiology) Elective for Physician Assistant Students** arr.
Cardiovascular assessment and problem management; experience with wide range of acute, chronic, common, and rare diseases.
- 117:338 Internal Medicine (EKG) Elective for Physician Assistant Students** arr.
Experience reading electrocardiograms, interpreting cardiac arrhythmias, performing and evaluating EKG stress tests.
- 117:339 Internal Medicine (Gastroenterology) Elective for Physician Assistant Students** arr.
Experience with a wide range of gastrointestinal pathology; history and physical exams of gastrointestinal diagnostic procedures, follow-up care of patients through outpatient clinics.
- 117:340 Internal Medicine (Oncology) Elective for Physician Assistant Students** arr.
Experience to develop diagnostic skills in clinical oncology and gain familiarity with methods of staging common cancers; assistance in therapy and outpatient management of cancer patients.
- 117:341 Internal Medicine (Geriatrics) Elective for Physician Assistant Students** arr.
Familiarity with broad spectrum of medical conditions among the elderly; experience in history and physical exams, diagnosis of geriatric patients along with follow-up visits.
- 117:342 Internal Medicine (Pulmonary) Elective for Physician Assistant Students** arr.
Development of basic clinical knowledge and skills for diagnosis, treatment, and management of pulmonary diseases.
- 117:343 Internal Medicine (Hospice) Elective for Physician Assistant Students** arr.
Work on a hospice care team performing evaluation, treatment, and education of patients with terminal illnesses; dealing with the prospect of death.
- 117:344 Internal Medicine (Infectious Disease) Elective for Physician Assistant Students** arr.
Development of basic clinical knowledge and skills for diagnoses, treatment, and management of infectious diseases.
- 117:345 Internal Medicine (Correctional Medicine) Elective for Physician Assistant Students** arr.
Experience with ambulatory medicine in a correctional institution; management of acute and chronic diseases, including HIV, hepatitis B&C, psychiatric conditions; focus on confidentiality, security.
- 117:347 Urology Elective for Physician Assistant Students** arr.
Proficiency in managing patients with urologic conditions; skill in taking a urologic history, performing physical exams, interpreting laboratory studies and data.
- 117:348 Family Practice Elective for Physician Assistant Students** arr.
Proficiency in delivering ambulatory primary care.
- 117:349 Gynecology Elective (Women's Health) for Physician Assistant Students** arr.
Experience in annual gynecologic exams, PAP screening, gynecology problems, contraception issues, STD screening and counseling, common gynecologic procedures.
- 117:350 Migrant Health Elective for Physician Assistant Students** arr.
Basic clinical knowledge and skills for diagnosis, treatment, and prevention of diseases, injuries, and conditions related to environmental exposure in migrant worker populations.
- 117:351 Occupational Medicine Elective for Physician Assistant Students** arr.
Basic clinical knowledge and skills for diagnosis, treatment, and prevention of work-related diseases, injuries, and conditions related to environmental exposure.

117:352 Pediatrics (Neonatology) Elective for Physician Assistant Students arr.

Basic clinical knowledge and skill for diagnosis, treatment, and management of critically ill infants.

117:353 Internal Medicine (Rheumatology) for Physician Assistant Students arr.

Basic clinical knowledge and skills for diagnosis, treatment, and management of rheumatologic diseases.

117:354 Medical Intensive Care for Physician Assistant Students arr.

Basic clinical knowledge and skills for diagnosis, treatment, and management of critically ill patients.

117:355 International Medicine for Physician Assistant Students arr.

Basic clinical knowledge and skills for diagnosis, treatment, and prevention of diseases, injuries, and conditions relevant to international medicine. Repeatable.

117:356 Interventional Radiology for Physician Assistant Students arr.

Basic clinical knowledge and skills for diagnosis and treatment of conditions requiring interventional therapy. Repeatable.

117:357 Gynecologic Oncology Elective for Physician Assistant Students arr.

Experience developing diagnostic skills in clinical gynecologic oncology, learning methods of staging specific cancers; and assisting in therapy and outpatient management of patients with varied cancers.

Psychiatry

Head: Robert G. Robinson

Professors: Arnold Andersen, Nancy Andreasen, Stephan Arndt, George Bergus, Donald Black, Kathleen Buckwalter, Brian Cook, William Coryell, Raymond Crowe, Michael Garvey, Samuel Kuperman, Delwyn Miller, Peggy Nopoulos, Daniel O'Leary, Jane S. Paulsen, Bruce Pfohl, Scott Stuart, Veronica Vieland

Professors emeriti: Remi Cadoret, Arthur Canter, Harold Mulford, Herbert Nelson, Russell Noyes

Clinical professors: Bruce Alexander, Wayne Bowers, Scott Temple

Associate professors: Beng Choon Ho, Michael Flaum, Gary Gaffney, Douglas Langbehn, David Moser, Robert Philibert, Susan Schultz, Victor Swayze, Thomas Wassink, Catherine Woodman

Clinical associate professors: James Amos, John Bayless, James Beeghly, Judith Crosssett, Jerry Lewis, Jill Liesveld, Robert Smith, Janetta Tansey, Beth Troutman, Nancy Williams

Assistant professors: Leigh Beglinger, Anjan Bhattacharyya, Chadi Calarge, Kevin Duff, Tracy Gunter, Ricardo Jorge, Vicki Kijewski, Sergio Paradiso, Carolyn Turvey, John Wemmie

Clinical assistant professors: Sarah Brown, Patricia Espe-Pfeifer, Anne Kolar, John Kuzma, Linda Madson, Karen Nelson, Richard Rinehart, Debra Suda, Jodi Tate, Michelle Weckman, Allison Williams

Adjunct assistant professors: John Hartson, Cheryl Hetherington, Jason Lassner, Polly Nichols

Clinical assistant professors: Raja Akbar, Bridget Buck, Kathryn Curdue, Gertrude Doughten, Manmohan Singh, Douglas Steenblock, Kevin Took, Robert Wesner, Alan Whitters

Adjunct instructors: Nancee Blum, Dan Grinstead, Betty Moore, Nancy Richards

Associates: Allison Abreu, Robin Kopelman, Oladipo Kukoyi, Laurie McCormick

Web site: <http://www.uihealthcare.com/depts/med/psychiatry/index.html>

The Department of Psychiatry teaches M.D. students, principally during their third year, and trains resident physicians for academic and clinical careers in psychiatry. It offers no degree program.

The department maintains a four-year training program approved by the Residency Review Committee of the American Medical Association. Training experiences are available at University of Iowa Hospitals and Clinics and at the Veterans Affairs Iowa City Health Care System. Additional experiences are available at affiliated institutions: Broadlawn Medical Center in Des Moines, the Iowa Medical and Classification Center at Oakdale, the Mid-Eastern Iowa Community

Mental Health Center in Iowa City, and the Independence Mental Health Institute (Iowa Department of Human Services).

The department also offers an approved two-year residency in child psychiatry. Fellowships in geriatrics and psychosomatic medicine are available after residency training.

Department of Psychiatry staff members are involved in genetic and family studies of psychiatric disorders, and research in genetic and biological psychiatry, neurochemistry, neuroimaging, neurophysiology, neuropsychiatry, and psychosocial aspects of behavior.

Many research opportunities in psychiatry are available to students and residents, and the basic science areas of neurochemistry, neurophysiology, and electrophysiology offer additional opportunities. The clinical areas of psychology, child psychiatry, and psychotherapy also offer opportunities to a limited number of students for research and further study.

Courses

073:037 Addiction Psychiatry arr.
Work with patients and staff at University Hospitals and Clinics chemical dependency service; evaluation, diagnosis, management of alcohol and other substance-related disorders.

073:130 Research in Child Psychiatry for Undergraduates arr.
Psychological research related to child psychiatry. Repeatable. Prerequisites: 031:001, undergraduate standing, and consent of instructor.

073:230 Research in Psychiatry arr.
Biological or psychological problems related to psychiatry. Prerequisite: M.D. enrollment or graduate standing, or standing as physician with training in scientific methodology.

073:255 Psychiatric Epidemiology 3 s.h.
Same as 173:267.

For Medical Students

073:005 Clinical Psychiatry 4 s.h.
Prerequisite: junior medical student standing.

073:031 General Hospital Psychiatry arr.
Supervised evaluation of patients at General Hospital Psychiatry, University Hospitals and Clinics. Prerequisite: M.D. enrollment.

073:033 Adult Psychiatry, Pappajohn Pavilion arr.
Prerequisite: M.D. enrollment.

073:035 Child Psychiatry, Pappajohn Pavilion arr.
Roles of child psychiatry as a consultation service. Prerequisite: M.D. enrollment.

073:045 Adult Outpatient Psychiatry and Psychotherapy 4 s.h.

Diagnostic assessment, evaluation, treatment of psychiatric patients; exposure to both psychotherapeutic, psychopharmacologic treatments. Prerequisite: M.D. enrollment.

073:105 Research Psychiatry arr.

Experience, training in practical application of scientific methodology; work with research project at Psychiatric Service or affiliated cooperating research centers. Prerequisite: fourth-year M.D. enrollment.

073:835 Subinternship in Medical Psychiatry 4 s.h.

Hands-on experience in evaluation and treatment of patients with combined medical and psychiatric disease; decisions regarding appropriate consultations, diagnostic tests, treatment; etiology and pathophysiology. Prerequisite: M.D. enrollment.

073:998 Psychiatry on Campus arr.

Arranged by student with departmental approval. Prerequisite: M.D. enrollment.

073:999 Psychiatry off Campus arr.

Prerequisite: M.D. enrollment.

Radiation Oncology

Head: John Buatti

Professors: John Buatti, Garry R. Buettner, Frederick E. Domann Jr., Larry W. Oberley, Douglas R. Spitz

Professor emeritus: James W. Osborne

Associate professors: John E. Bayouth, Geraldine Jacobson

Associate professor emeritus: J. Fred Doornbos

Assistant professors: Sudershan Bhatia, Mark W. Dion, Kenneth Dornfeld, Prabhat Goswami, Joseph Modrick, R. Alfredo C. Siochi, Mark C. Smith, Min Yao

Associates: Edward Pennington, Timothy J. Waldron

Web site: <http://www.uihealthcare.com/depts/med/radiationoncology/index.html>

Courses

186:202 Radiation Oncology 4 s.h.
Integration of clinical oncology, physics, and cancer biology; clinical work with faculty mentors; experience in clinical evaluation, technical physics, biological application.

186:998 Radiation Oncology on Campus arr.
Development of new markers for normal tissue toxicity following radiation treatment.

186:999 Radiation Oncology off Campus arr.
Arranged by the student with department approval.

Radiation oncology specializes in the delivery of radiation treatments for cancer patients. It includes treatments with linear accelerators as well as isotopes and temporary and permanent surgically implanted sources. Radiation oncologists also use these methods to treat some benign diseases, such as Graves's ophthalmopathy.

The Department of Radiation Oncology is dedicated to educating graduate students, radiation therapy technology students, physics students, and medical residents. Its faculty members provide instruction for Master of Science and Doctor of Philosophy students in the Free Radical and Radiation Biology Program, through their participation in 077:103 Radiation Biology, 077:211 Medical Physics, 077:222 Free Radicals in Biology and Medicine, and 077:288 Molecular and Cellular Biology of Cancer. The department's professional staff provide training in radiation therapy technology for undergraduate students in the Radiation Sciences Program (Division of Associated Medical Sciences) by teaching courses 672:803 and 672:804 Radiation Therapy I-II.

The department provides a four-year physician residency training program in radiation oncology that includes clinical care and education. It also has a residency program in medical physics. M.D. students can elect a two- or four-week radiation oncology rotation. Nursing students, dental residents, and fellows in gynecologic oncology and in adult and pediatric hematology and oncology do rotations in the department.

The department also offers specialized research projects and sponsors postdoctoral students in biology, physics, and clinical disciplines by arrangement with the instructor or mentor.

Radiation Sciences

Director: Shelley Matzen

Undergraduate degree: B.S. in Radiation Sciences

Web site: <http://www.radiology.uiowa.edu/BSRS>

The Radiation Sciences Program is one of five academic units in the Division of Associated Medical Sciences. It is sponsored by the College of Liberal Arts and Sciences, the Carver College of Medicine, and University of Iowa Hospitals and Clinics. For information on the division's general academic policies, see Associated Medical Sciences in the Catalog.

Radiation sciences professionals work with physicians to gather accurate patient information for diagnosis, treatment, and/or research of disease and injury. The radiation sciences professional must possess knowledge, skill, and mature judgment in order to operate complex equipment safely and efficiently and to produce quality images using multiple sources of radiation energy while delivering quality patient care during procedures.

The Bachelor of Science in radiation sciences provides graduates with the knowledge they need to adapt to the increasing sophistication of the profession of radiation sciences and meet the multicredential/multicompetency demands of the profession.

Bachelor of Science

The Bachelor of Science in radiation sciences requires a minimum of 124 s.h.

Radiation sciences students complete specific components of the College of Liberal Arts and Sciences General Education Program, a professional radiography program, a specialty (modality program), and advanced course work. The modality program must be completed at the Carver College of Medicine. All radiation sciences students must meet residency and g.p.a. requirements; see "General Academic Policies" in the Division of Associated Medical Sciences section of the Catalog.

Students who complete the entire program at Iowa enroll first as pre-radiation science majors in the College of Liberal Arts and Sciences, where they complete the General Education Program. During the fall semester of the first year, students apply to University of Iowa Hospitals and Clinics

Radiologic Technology Program. Admission is selective. Accepted students enroll for the second and third years as nondegree students in the Radiologic Technology Program. Finally, students must be accepted to a modality program, be admitted to the Carver College of Medicine B.S. program in radiation sciences, and complete the advanced course requirements.

Certified radiographers who hold national certification from the American Registry of Radiologic Technologists, or student radiographers intending to take the national certification exam, must be admitted to the Carver College of Medicine as Bachelor of Science students in the Radiation Sciences Program. They must complete the required University courses and a specialty (modality program). Admission to modality programs is selective. Applicants must meet semester-hour, grade-point average, and residency requirements.

The program plan is as follows.

GENERAL EDUCATION COURSES

Rhetoric

Students take 010:001 and 010:002 Rhetoric I-II (8 s.h.) or 010:003 Accelerated Rhetoric (4 s.h.).

Natural Sciences

One of these sequences:

004:007-004:008 General Chemistry I-II	6 s.h.
004:011-004:012 Principles of Chemistry I-II	8 s.h.

Social Sciences

031:001 Elementary Psychology	3 s.h.
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Quantitative or Formal Reasoning

22M:015 Mathematics for the Biological Sciences	4 s.h.
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Distributed Education

One course in two of these areas:
social sciences (except psychology),
humanities, cultural diversity, and
historical perspectives 6 s.h.

For information about the General Education Program, contact the College of Liberal Arts and Sciences or visit its web site (<http://www.clas.uiowa.edu>).

RADIOLOGIC TECHNOLOGY PROGRAM

Students must complete a radiologic technology program and pass the American Registry of Radiologic Technologists (AART) national certification exam. The Radiologic Technology Program sponsored by University of Iowa Hospitals and Clinics (670:901 and 670:902 Radiologic Technology I-II, 0 s.h.) provides education in pathology, radiation biology, radiation protection, patient care, and ethics. Students learn about anatomy and physiology, medical terminology, and radiographic procedures, imaging, and evaluation. They become acquainted with imaging equipment, study quality assurance, and participate in supervised clinical education. The 24-month program begins in June. Graduates of the program are eligible to take the national certification exam; upon successful completion of the exam, students are granted 60 s.h. of credit toward the B.S. in radiation sciences.

SPECIALTY (MODALITY PROGRAM)

Radiation sciences students must apply to, be accepted, and complete one of the following specialties (modality programs) at University of Iowa Hospitals and Clinics. Each program offers modality-specific didactic and supervised clinical education courses. Program duration varies. Graduates of the modality programs are eligible to take certification exams.

Nuclear Medicine Technology (074:101, 074:102, 074:103, 074:104, and 074:105)

includes classes in radiopharmacy, radiobiology, radioimmunology, radiation protection, patient care, medical terminology, instrumentation, computer applications, administration, and ethics; 12-month program (30 s.h.); begins in August.

Radiation Therapy (672:803, 672:804, and 672:805)

teaches theory and techniques of radiation therapy technology, with emphasis on competence in areas of oncology treatment planning, treatment delivery, dosimetry, and use of megavoltage radiation-producing equipment to administer treatment; 12-month program (30 s.h.); begins in August.

Diagnostic Medical Sonography (673:803, 673:804, 673:805, 673:806, and 673:807)

focuses on principles and methods in using ultrasound and offers specialties in abdominal, pediatric, obstetric, and gynecologic imaging as well as interventional procedures and vascular technology; 18-month program (36 s.h.); begins in August.

Magnetic Resonance Imaging (674:806, 674:807, and 674:808) offers intensive study and practice in magnetic resonance imaging, including computer technology, pathophysiology, physics, advanced sectional anatomy, and instrumentation; nine-month program (24 s.h.); begins in September and March.

Cardiovascular Intervention (675:808 and 675:809)

teaches about imaging equipment, pharmacology, sterile techniques, cardiac monitoring, vascular anatomy and physiology, cardiovascular intervention technology imaging procedures, therapeutic intervention techniques, and digital angiography; six-month program (15 s.h.); begins in September and March.

Computed Tomography (676:810 and 676:813)

concentrates on sectional anatomy, single and multislice computed tomography (CT), electron beam CT, physiologic and 3-D imaging, CT simulation, physics and imaging, and procedures and pathology; six-month program (15 s.h.); begins in September and March.

Quality Management/Picture Archival and Communication Systems (678:816 and 678:817)

includes courses in quality management, radiographic and mammographic quality control, research methods, federal regulations, PACS technology, networking and standards, PACS management, radiology department design and workflow, and QA for the digital department; advanced national recognition exam in Quality Management is recommended at completion; six-month program (15 s.h.); begins in September and March.

ADVANCED COURSES

06J:048 Introduction to Management	3 s.h.
22S:102 Introduction to Statistical Methods	3 s.h.
096:263 Informatics in Nursing and Health Care	3 s.h.

ELECTIVES

Elective course work, to complete the required 124 s.h., should be planned in consultation with the advisor.

Advising

Pre-radiation science majors completing the General Education Program before admission to the Radiologic Technology Program are advised at the University's Academic Advising Center. After admission to the Radiologic Technology Program, they are advised by the program's director. Radiation sciences majors are advised by Radiation Sciences Program personnel.

Admission

Students who intend to complete the entire program at Iowa must be admitted to The University of Iowa as pre-radiation sciences majors in the College of Liberal Arts and Sciences. For information on admission requirements, contact the University's Office of Admissions. Students already enrolled at the University who decide to enroll in the Radiation Sciences Program can declare a pre-radiation sciences major.

Admission to the Radiologic Technology Program is competitive; enrollment is limited to 25. Student selection begins in October and continues until the class is full. Students accepted to the program are admitted to the Carver College of Medicine on nondegree (special) student status and must meet specific program requirements; see Information/RT & Modality Programs on the Radiation Sciences Program web site. A g.p.a. of 2.50 in general education courses is recommended.

Admission to the Carver College of Medicine radiation sciences major requires national certification in radiologic technology from the American Registry of Radiologic Technologists and a cumulative g.p.a. of at least 2.00.

Admission to specialties (modality programs) is competitive; enrollment is limited. See Prospective Students/Admission on the Radiation Sciences Program web site or contact the individual modality program directors. The application deadline is February 1. Admission to the radiation sciences major does not guarantee admission to a modality program. Cumulative grade-point averages of 2.50 are recommended. Applicants must hold national certification from the American Registry of Radiologic Technologists.

Radiology

Head: Laurie Fajardo

Professors: Monzer M. Abu-Yousef, Kevin S. Berbaum, David Bushnell, John C. Chaloupka, Michael D'Alessandro, Georges Y. El-Khoury, Jafar Golzarian, Michael M. Graham, Richard D. Hichwa, Eric A. Hoffman, Charles Jacoby, Daniel Kahn, Simon Kao, Mark T. Madsen, Axel Ruprecht, Yutaka Sato, Wendy Smoker, Timothy Tewson, Edwin VanBeek, Ge Wang, Yanbo Ye

Professors emeriti: Robert Brown, Frank Cheng, James Ehrhardt, William E. Erkonen, Edmund A. Franken Jr., Peter Kirchner, Charles C. Lu, William Stanford, Donald Young

Associate professors: Joong Ahn, Thomas Barloon, Bruce P. Brown, Thomas Grabowski, Malik Juweid, Joan Maley, Louis Messerle, Brian Mullan, Kenjirou Ohashi, William Sickels, Alan Stolpen, Shiliang Sun, Brad H. Thompson, Jinhu Xiong

Assistant professors: Kelli Andresen, D. Lee Bennett, Geetika Khanna, David Kuehn, Vincent Magnotta, Yusuf Menda, Heather Ohrt, Stanley Parker, Daniel Thedens, G. Leonard Watkins

Web site: <http://www.radiology.uiowa.edu>

Clinical Education

The Department of Radiology offers clinical education to Division of Associated Medical Sciences students; see Nuclear Medicine Technology and Radiation Sciences in the Catalog.

Courses

- 074:006 Clinical Radiology** 2 s.h.
Two-week clerkship. Prerequisite: M.D. enrollment.
- 074:101 Principles of Nuclear Medicine I** 0, 6 s.h.
Didactic and laboratory work in radiopharmacy, patient care, radiation protection, math and statistics, radiation physics, anatomy and physiology, radiochemistry and tracer techniques, medical terminology, computer applications. Prerequisite: Nuclear Medicine Technology Program enrollment.
- 074:102 Introductory Clinical Nuclear Medicine** 0, 6 s.h.
Experience in preparing radiopharmaceuticals, performing routine nuclear imaging and in vitro procedures; work with clinical instructors. Prerequisite: Nuclear Medicine Technology Program enrollment.
- 074:103 Principles of Nuclear Medicine II** 0, 3 s.h.
Didactic and laboratory work in nuclear medicine instrumentation, radiobiology, professional ethics, administration and management, computer applications. Prerequisite: Nuclear Medicine Technology Program enrollment.
- 074:104 Intermediate Clinical Nuclear Medicine** 0, 9 s.h.
Progressive responsibility in radiopharmacy, nuclear and P.E.T. imaging, cardiac stress testing. Prerequisite: Nuclear Medicine Technology Program enrollment.
- 074:105 Advanced Clinical Nuclear Medicine** 0, 6 s.h.
Proficiency in performance, quality assurance of all radiopharmacy and nuclear medicine procedures; opportunities for independent study, research. Prerequisite: Nuclear Medicine Technology Program enrollment.
- 074:191 Health Informatics I** 3 s.h.
Same as 021:275, 050:283, 051:187, 056:186, 096:283, 174:226.
- 074:192 Health Informatics II** 3 s.h.
Same as 021:280, 051:189, 056:287, 096:289.
- 074:201 Advanced Clinical Radiology** arr.
Prerequisite: M.D. enrollment.
- 074:203 Vascular and Interventional Radiology** arr.
Prerequisite: M.D. enrollment.
- 074:901 Community Radiology** arr.
Prerequisite: M.D. enrollment.
- 074:998 Radiology on Campus** arr.
Prerequisite: M.D. enrollment.
- 074:999 Radiology off Campus** arr.
Prerequisite: M.D. enrollment.

Surgery

Head: Ronald Weigel

Professors: John W. Canady, Joseph J. Cullen, Kimberly S. Ephgrave, Jamal J. Hoballah, James R. Howe, G. Patrick Kealey, Timothy F. Kresowik, Sheldon F. Kurtz (Law/Surgery), Amanda M. Metcalf, Anthony O. Sandler, Carol E.H. Scott-Conner, Siroos S. Shirazi

Professors emeriti: Albert E. Cram, Nelson J. Gurl, Peter R. Jochimsen, Ken Kimura, James W. Maher, Edward E. Mason, Robert T. Soper, Luis F. Urdaneta
Professor (clinical): Timothy A. Thomsen

Adjunct clinical professors: Philip R. Caropreso, Douglas B. Dorner

Adjunct clinical professor emeritus: Frederick D. Staab

Visiting professor: Sung W. Chung

Associate professor: W. John Sharp

Associate professor emeritus: Wilbur L. Zike

Associate professors (clinical): Barbara Latenser, John Lawrence

Associate professor (clinical) emeritus: Cornelius Doherty

Adjunct clinical associate professor: Robert J. Cak

Adjunct clinical associate professors emeriti: Luke C. Faber, Alfred J. Herlitzka, Samuel D. Porter

Assistant professors: Daniel A. Katz, Geeta Lal, Isaac Samuel, Lucy A. Wibbenmeyer, Neal W. Wilkinson

Assistant professors (clinical): Kent C. Choi, Ty Dunn, Mohammad Jamal, John J. Meehan, Dionne A. Skeete

Adjunct clinical assistant professors: P. Sue Beckwith, Akella Chandrasekhar, Daniel P. Congreve, Ronald K. Grooters, Michael S. Irish, Daniel R. Kollmorgen, Joseph L. Lohmuller, William F. Nelms, Michael J. Page, Carl M.H. Peterson, Michael A. Phelps, Walter J. Riley, Rick A. Shelman, David T. Sidney, Richard A. Sidwell, David H. Stubbs, Anson Yeager

Adjunct assistant professors emeriti: Donald E.

Boyle, Robert L. Kollmorgen

Associate: Cassidy Mitchell

Web site: <http://www.uihealthcare.com/surgery>

The Department of Surgery offers courses that provide a unique combination of experience oriented toward patient care, with basic surgical research designed to promote student awareness of surgery's place among the physician's skills. Surgery courses are open only to M.D. students and qualified students in associated health sciences.

Students develop awareness of surgical therapy's place in the treatment of disease. Emphasis is placed on basic emergency techniques, trauma, oncology, burns, gastrointestinal and biliary tract disease, endocrine disease, transplantation, plastic surgery and reconstruction, and peripheral vascular surgery.

The majority of surgery courses involve patient-centered discussions and practical exercises interwoven with operating room experience. Lectures and conferences are scheduled regularly on specific topics.

Independent study courses in selected surgery topics and clinical experiences are available to fourth-year M.D. students by arrangement with the faculty.

Faculty

The faculty's strengths center in pathophysiology and problems of severe burns, organ transplantation, surgical control of morbid obesity, inflammatory bowel disease, biliary tract disease, pediatric surgery, endocrine disease, plastic surgery, and vascular surgery.

Facilities

Abundant patient contact provides education in a wide variety of surgical diseases. The Department of Surgery provides training in the only burn unit in Iowa approved by the American College of Surgeons and in the Level I Trauma Center at University of Iowa Hospitals and Clinics.

Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. Projects are available in gastrointestinal surgery, surgical microbiology, peripheral vascular surgery, transplantation, wound healing, organ preservation, vascular surgery, pediatric surgery, and surgical oncology.

Courses

075:005 Clinical Surgery 6 s.h.

Experience as active member of surgical team; work on wards, in clinics and operating room; assistance in elective and emergency care.

075:216 Subinternship in General Surgery 4 s.h.

Responsibility for patient care on wards, in operating rooms on a surgical service. Prerequisite: 075:005.

075:218 Veterans Administration Medical Center Surgical Intensive Care arr.

Experience assessing and managing seriously or critically ill patients from general surgery; full range of subspecialties. Prerequisite: 075:005.

075:223 Subinternship in Burn Therapy arr.

Experience as member of burn team on ward, in operating room; resuscitation with fluid and electrolytes, nutritional support, wound healing, rehabilitation. Prerequisite: 075:005.

075:224 Subinternship in Pediatric Surgery arr.

Clinical experience in ward, operating room, outpatient clinics; surgical, pediatric conferences. Prerequisite: 075:005.

075:225 Subinternship in Transplantation Surgery arr.

Experience on renal transplant team; exposure to coordinated efforts of other medical disciplines (e.g., internal medicine, urology) in daily rounds, conferences. Prerequisite: 075:005.

075:226 Subinternship in Plastic Surgery arr.

Experience with problems in plastic and reconstructive surgery. Prerequisite: 075:005.

075:229 Research Surgery arr.

Project with faculty member. Prerequisites: 075:005 and consent of instructor.

075:230 Subinternship in Vascular Surgery arr.

Diagnosis, treatment of peripheral vascular disease; noninvasive diagnosis of arterial, venous problems; vascular problems in outpatient clinic, inpatient service; time in operating room, rounds with residents, conferences. Prerequisite: 075:005.

075:231 Research in Vascular Surgery arr.

Clinical- or laboratory-oriented projects. Prerequisites: 075:005 and consent of instructor.

075:235 Subinternship in General Surgery, Iowa Methodist Medical Center 4 s.h.

Care of general surgery patients in private hospital setting. Prerequisites: 075:005 and consent of instructor.

075:236 Intensive Care Unit—Trauma, Iowa Methodist 4 s.h.

Subinternship on trauma service team; evaluation and management of critically ill patients in the emergency room, operating room, intensive care unit. Prerequisite: fourth-year M.D. enrollment.

075:237 Subinternship in General Surgery, Davenport 4 s.h.

Participation in diagnosis and management of general surgical patients under supervision of attending surgeons from Davenport Surgical Group, Genesis Medical Center. Prerequisites: 075:005 and fourth-year M.D. enrollment.

075:998 Surgery on Campus arr.

Surgery on campus; individually arranged. Prerequisite: 075:005.

075:999 Surgery off Campus arr.

Prerequisites: 075:005 and consent of instructor.

Urology

Head: Richard D. Williams

Professors: Michael B. Cohen, Bernard Fallon, Karl J. Kreder, David M. Lubaroff, Michael A. O'Donnell, Timothy L. Ratliff, Richard D. Williams, Howard N. Winfield

Professor emeritus: Charles E. Hawtrey

Associate professor: Christopher S. Cooper

Clinical associate professor: Victoria J. Sharp

Assistant professors: J. Christopher Austin, Thomas S. Griffith, Fadi Jouidi, Moshe Wald

Web site: <http://www.uihealthcare.com/depts/med/urology/index.html>

Urology encompasses the subspecialty areas of urologic nephrology, oncology, and endocrinology; male reproductive physiology; erectile dysfunction; neurourology; pediatric urology; urinary tract stone and infection, including endourology; laparoscopic urology; diagnostic urology, and urinary tract obstruction.

The Department of Urology offers instruction in all of these areas at both the undergraduate and graduate levels and provides continuing education for the delivery of urologic care.

Medical Student Training

The department cooperates with several University of Iowa basic science departments to educate first-year M.D. students in the relationship between urology and the basic sciences. It collaborates with the Department of Microbiology in teaching and research concerning immunology of genitourinary cancers and renal transplantation.

In the second-year M.D. course, 050:165 Foundations of Clinical Practice IV, the department presents illustrative lectures and demonstrations related to diagnosis and treatment of genitourinary tract diseases.

Third- and fourth-year M.D. students take Department of Urology courses that provide experience in all areas of urology. The required third-year clerkship covers the fundamentals of these areas through experience in outpatient clinics and inpatient units at University of Iowa Hospitals and Clinics and the Veterans Affairs Iowa City Health Care System, as well as in daily interactive teaching seminars. Fourth-year M.D. students can take advanced elective courses of intensive study in any of the urologic subspecialties.

Continuing Education

The department offers continuing education activities throughout the year for urologic and family practitioners. These activities are conducted by the senior staff, whose interests include pediatric urology, reproductive physiology, urologic oncology, urinary tract stone (including endourology/laparoscopy), and prostatic diseases.

Research

The department has earned international recognition for its studies of prostatic diseases. The urological laboratories conduct research and offer instruction in experimental oncology, cellular immunology, and infertility.

Courses

079:104 Clinical Urology 2 s.h.

Work in urology unit, clinic; responsibility for patient care, working with residents.

079:108 Advanced Clerkship in Urology 4 s.h.

Experience as integral member of urological staff, junior resident level.

079:109 Advanced Clerkship in Pediatric Urology 4 s.h.

In-depth study of pediatric urology topics. Prerequisite: 079:104.

079:110 Individual Study and Research arr.

Preclinical or clinical projects; may include research presentation, collaboration on a publication.

079:115 Urological Oncology arr.

Experience in diagnosis, management of genitourinary neoplasms; participation in oncology protocols; may include collaboration on a publication.

079:119 Advanced Clerkship Female and Reconstructive Surgery 4 s.h.

Clinical and surgical experience in voiding dysfunction, incontinence, urodynamics. Prerequisite: 079:104.

079:999 Urology off Campus arr.

Individually arranged by students with departmental approval.

College of Nursing

Interim dean: Martha Craft-Rosenberg

Executive associate dean: M. Patricia Donahue

Associate dean, research and scholarship:

Toni Tripp-Reimer

Chair, adult and gerontology study: Keela Herr

Chair, systems and practice: Rita Frantz

Chair, parent, child, and family study:

Martha Craft-Rosenberg

Professors: Kathleen Buckwalter, Gloria Bulechek, Martha Craft-Rosenberg, M. Patricia Donahue, Rita Frantz, Keela Herr, Diane Huber, Anne Marie McCarthy, Toni Tripp-Reimer, Janet Williams

Professors emeritae: Myrtle Aydelotte, Connie Delaney, Joanne McCloskey Dochterman, Geraldene Felton, Marion Johnson, Meridean L. Maas, Rosemary McKeighen, Hope Solomons, Barbara Thomas

Clinical professors: Patricia Clinton, Geri Hall, Edward S. Thompson

Associate professors: Howard K. Butcher, Mary Kathleen Clark, Toni Clow, Perle Slavik Cowen, Ren Culp, Joann Eland, Michele Eliason, Linda Everett, Kathleen Hanson, Charmaine Kleiber, Leslie Marshall, Paula Mobily, Sue Moorhead, Ann Rhodes, Janet Specht, Elizabeth Swanson, Janette Taylor

Associate professors emeritae: Janice Ann Denehy, Mildred Freel, Rose Marie Friedrich, Orpha Glick, Laura Hart, Jean Lakin, Marjorie Lyford, Eleanor McClelland, Anna E. Overland, Sandra Powell, Etta H. Rasmussen, Jean Reese, Kay Weiler

Clinical associate professors: Teresa Boese, Ellen Cram, Kerri Rupe, Deborah Schoenfelder

Assistant professors: Lioness Ayres, Jane Brokel, Sue Gardner, Lisa Kelley, Sonja Lively, Der-Fa Lu, Rene Martin, Barbara Rakel, Beverly Saboe, Deborah Schutte, Hwanjo Yu

Assistant professors emeritae: Carolyn Crowell, Merle Heick, Louise Kruse, Frances Milde, Mary Stewart-Dedmon, Pamela Willard

Clinical assistant professors: Pamela Ballard, Mary Berg, Veronica Brighton, Karen Griffith, Brenda Hoskins, Todd Ingram, Teresa Judge-Ellis, Susan Lehmann, Nicolett Markovetz, Sherry McKay, Rebecca Siewert, Anita Stineman, Connie Trowbridge, Jill Valde, Ann Willemsen-Dunlap

Lecturers: Carol Caldwell, Judith Collins, Carol Dupic, Barbara Kyles, Patricia Nelson, Kelly Smith, Karin Zuehls

Undergraduate degree: B.S.N.

Postbaccalaureate degree: M.N.H.P.

Graduate degrees: M.S.N., Ph.D. in Nursing

Graduate nondegree programs: Certificate in Advanced Practice Nursing, Health Informatics, Nursing Informatics, Nursing Service Administration

Web site: <http://www.nursing.uiowa.edu>

The College of Nursing is an integral part of the University of Iowa Health Science Campus, sharing in and contributing to teaching, research, and patient care resources that have earned international recognition. The University provides an unusually fine setting for nursing preparation because the educational and clinical resources vital to educating nurses are available on or near the campus. Faculty and students participate fully in University life and contribute their time, interests, and abilities to the many general and special activities of a major research university.

The college's Bachelor of Science in Nursing (B.S.N.), Master's in Nursing and Health Care Practice (M.N.H.P.), and Master of Science in Nursing (M.S.N.) programs are accredited by the Commission on Collegiate Nursing Education (CCNE), an autonomous accrediting arm of the American Association of Colleges of Nursing (AACN). They also are approved by the Iowa Board of Nursing. The anesthesia nursing program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs.

Graduates of the B.S.N. and M.N.H.P. programs qualify to take the licensure examination required for practice as registered nurses (RN). Graduates of advanced practice majors in the graduate program are eligible to take certification examinations and apply for ARNP licensure.

Undergraduate Program

The Bachelor of Science in Nursing (B.S.N.) provides preparation for careers in the hospital care of patients and in community agencies such as public health services, schools, homes, and industries. It also provides a base for graduate study in nursing.

In addition to the advantages of combining general education with specialized career preparation, a college or university program offers the advantages of full participation in the social,

cultural, and recreational activities of a highly diverse campus community. In nursing, no less than in other pursuits, a college or university background enables people not only to prepare for a career but to achieve a life of thought and action informed by knowledge, introspection, and contemplation.

The nursing major provides a basis for nurses' roles in wellness and health promotion, in acute care, and in long-term care for chronic illness. The professional nurse provides care to individuals, families, groups, and communities along a continuum of health, illness, and disability in any sector of the health care system.

In addition to providing care, the nurse serves as a coordinator of health care by organizing and facilitating the delivery of comprehensive, efficient, and appropriate service to individuals, families, groups, and communities. The nurse demonstrates the ability to conceptualize the total continuing health needs of the patient, including legal and ethical aspects of care. The University of Iowa program's goal is to produce graduates who are competent, committed, creative, and compassionate.

Bachelor of Science in Nursing

The Bachelor of Science in Nursing requires 128 s.h., including 65 s.h. in the nursing major and 63 s.h. in the College of Liberal Arts and Sciences General Education Program and supportive pre-nursing courses. Students can expect to complete the program in four or four-and-a-half academic years.

B.S.N. students may complete their entire program at Iowa, enrolling for their first year or year-and-a-half in the College of Liberal Arts and Sciences. Or they may transfer from an institution that offers specific courses approved by the College of Nursing. See "Admission to the B.S.N." later in this section.

Each B.S.N. student is assigned a College of Nursing faculty member as an advisor on career planning and professional development.

Nursing courses are based on concepts of health, deviations from health, and nursing intervention. Course work progresses in complexity from the sophomore through the senior year. The curriculum reflects the current trend in health care delivery toward emphasis on nursing as a service provided both inside and outside hospitals. Students have access to clinical experiences selected from more than 60 agencies in Iowa.

Advising

Advisors from the University's Academic Advising Center advise pre-nursing students. After admission to the College of Nursing, each student is assigned a College of Nursing faculty advisor.

RN/B.S.N. for Registered Nurses

The RN/B.S.N. progression program is designed to offer registered nurses the opportunity to build on their nursing knowledge and experience by earning a Bachelor of Science in Nursing. RN/B.S.N. students take courses that focus on professional aspects of nursing, nursing process and health assessment, community/public health, leadership and management, research, and nursing issues. Each student is assigned to a College of Nursing faculty member for academic advising and curriculum planning.

The College of Nursing participates as a receiving institution in the Iowa Statewide Articulation Plan for Nursing Education: RN to Baccalaureate.

Students may transfer course work completed at other colleges and universities to satisfy prerequisites and degree requirements other than those for the nursing major. Once they satisfy prerequisites, students may complete the RN/B.S.N. in one calendar year in a sequence that begins each summer and includes three clinical and five nonclinical nursing courses.

The RN/B.S.N. program uses online educational technologies. Face-to-face meetings are limited to physical assessment lab practice and testing each summer, available at support centers across Iowa. Students may be required to do a practicum presentation in fall and spring semesters. Presentations are flexibly scheduled and may be done on site, at a support center, or using online presentation software.

Registered nurses who plan to enter the baccalaureate program should contact the College of Nursing RN/B.S.N. Program Office for information and early advising.

Honors

The College of Nursing Honors Program provides seminars and independent study experience for qualified students. In order to pursue honors studies in nursing, students must have completed the first clinical nursing course and must maintain an overall cumulative g.p.a. of at least 3.33 and a nursing major g.p.a. of at least 3.50.

The honors program enables students to explore subject matter based on individual interests, needs, and goals. It provides opportunities for self-initiative, research experience, and intellectual and personal development, and challenges students to grow and excel. Students who fulfill the requirements of the program graduate with honors in nursing.

Certificate, Minor in Aging Studies

Students in the College of Nursing may participate in the Aging Studies Program, which provides undergraduate students with a multidisciplinary approach to gerontology. Students plan their course of study with their academic advisor in close cooperation with the Aging Studies Program coordinator. Nursing students who successfully complete 21 s.h. of approved course work in aging studies are awarded the Certificate in Aging Studies. Nursing students also may complete a minor in aging studies by taking 15 s.h. outside of their major in courses approved by the Aging Studies Program. See Aging Studies (College of Liberal Arts and Sciences) in the Catalog.

Study Abroad

The College of Nursing advocates study abroad as a rich educational experience for students. Nursing students have the opportunity to encounter another culture directly through the college's cultural nursing experiences abroad. The intent of these regular programs is to introduce students to health care systems in other countries. In addition, students learn about health conditions and circumstances not widely prevalent in the United States (e.g., diphtheria, nutritional deficiencies). For more information, contact the College of Nursing Office of Student Services.

Expenses and Insurance

Students pay University of Iowa student fees throughout the B.S.N. program. They also must purchase uniforms, white shoes, a stethoscope, a watch with a full-sweep second hand, and supplies and materials for required nursing courses. Students arrange for their own health screening requirements, health insurance, professional liability insurance, and transportation once they are enrolled in clinical nursing courses. Students also pay fees for computer testing, criminal background checks, and laboratory equipment.

Mandatory Health Insurance

All students in the College of Nursing must show annual verification that they have obtained and currently hold health insurance sufficient to satisfy the following minimal standards of coverage (or an equivalent alternative care plan):

- \$250,000 lifetime benefit;

- coverage for hospitalization, including coverage for room and board, physician visits, surgeon services, X-ray, and lab services;

- inpatient deductible under an individual policy not exceeding \$500 per admission and a 20 percent copayment/coinsurance requirement;

- coverage for medically necessary care, including both physician services for treatment of emergencies, illness, accident, injury, X-ray, and lab services.

Professional Liability Insurance

All students in the College of Nursing are required to carry professional liability insurance throughout the duration of their program. Agencies in which students are involved in clinical practicums require that students have insurance coverage. Entering students in the College of Nursing are provided information about this requirement and must show verification that they have purchased and currently hold professional liability insurance with a minimum coverage of \$1 million per single occurrence.

Undergraduate Student Organizations

College of Nursing undergraduate students are eligible for membership in the state and national associations of nursing students, but they also have their own organization, the University of Iowa Association of Nursing Students (UIANS), which provides opportunities for professional growth and development in nursing. UIANS representatives are members of the University of Iowa Student Government (UISG), and there is a UIANS representative on the Academic Council of the College of Nursing.

The University of Iowa Minority Student Nursing Association (UIMNSA) provides opportunities for professional growth and development for students from populations underrepresented in nursing. UIMNSA board members are members of the University of Iowa Student Government.

Admission to the B.S.N.

B.S.N. students may complete their entire program at Iowa, enrolling for their first year or year-and-a-half in the College of Liberal Arts and Sciences. Highly qualified students may be admitted early to the College of Nursing if they have an Admission Index Score of 148 or higher and have no high school unit deficiencies. The Admission Index Score equals ACT composite score multiplied by two, plus high school percentile rank. For more information, contact the College of Nursing or the University of Iowa Office of Admissions.

Students also may transfer from an institution that offers specific courses approved by the University of Iowa College of Nursing. Cooperating state institutions and independent colleges that participate in the transfer plan include Iowa State University; the University of Northern Iowa; Upper Iowa University; and Briar Cliff, Morningside, Loras, Luther, Clarke, Simpson, and Wartburg colleges. Participating community colleges are located in Ankeny, Bettendorf, Boone, Burlington, Calmar, Carroll, Cedar Rapids, Clarinda, Clinton, Council Bluffs, Davenport, Des Moines, Emmetsburg, Estherville, Fort Dodge, Iowa Falls, Keokuk, Marshalltown, Mason City, Muscatine, Ottumwa, Peosta, Sheldon, Sioux City, and Waterloo.

Completion of the transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing; admission standards for transfers are the same as for all other College of Nursing applicants. Prospective transfer students who want more information about this plan should contact the cooperating institution of their choice.

To apply for admission to the B.S.N. program in nursing, each student must qualify for admission to The University of Iowa and meet these requirements:

- completion of all prerequisites for admission to the College of Nursing, or current enrollment in any remaining prerequisites;

- a grade of C or higher in all prerequisite courses;

- a g.p.a. of at least 2.70 (recommended).

Applicants whose first language is not English must score at least 550 (paper-based) or 213 (computer-based) on the Test of English as a Foreign Language (TOEFL). Registered nurses educated outside the United States are required to present verification of having passed the CGFNS examination and specified Excelsior

baccalaureate nursing examinations. They also must meet the University's English proficiency requirements.

A criminal background check is conducted for all prelicensure and undergraduate students upon admission.

High School Background

The College of Nursing requires four years of English, three years of social science, three years of mathematics (a minimum of algebra I-II and geometry), two years of one foreign language, one year each of biology and chemistry, one-half year of physics, and other college preparatory courses selected with the help of the high school counselor.

Preclinical Background

In addition to the biological and behavioral science courses required for College of Nursing admission, students must satisfy the following requirements before beginning clinical course work.

Rhetoric: 8 s.h. (may be satisfied by testing for advanced standing); a student who has earned 6 s.h. of credit in English composition may complete the speech component after admission.

Mathematics: three years of high school mathematics, or a score of 26 or higher on the mathematics battery of the ACT, or completion of a college mathematics course comparable to or more advanced than 22M:002 Basic Algebra II.

Physics: one-half year of high school physics or equivalent.

Other course work: animal biology, inorganic chemistry I, microbiology, human anatomy, psychology, and human development and behavior.

American College Tests

All entering first-year and undergraduate transfer students who have earned fewer than 24 s.h. when they apply for admission to The University of Iowa must complete the American College Test (ACT) or the Scholastic Aptitude Test (SAT). For information on the ACT, write to ACT Inc., Box 451, Iowa City, Iowa 52243.

Core Performance Standards

Applicants to the College of Nursing are expected to be capable of completing the entire nursing curriculum and of earning a B.S.N. The nursing curriculum requires demonstrated proficiency in

a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills. Therefore, College of Nursing students must meet the following performance standards.

- Possess and use critical thinking skills sufficient for clinical judgment (e.g., identify cause-effect relationships in clinical situations, develop nursing care plans)
- Demonstrate interpersonal abilities sufficient for interaction with individuals, families, and groups from a variety of social, emotional, cultural, and intellectual backgrounds (e.g., establish rapport with patients, clients, colleagues)
- Possess and use communication skills sufficient for interacting with others (e.g., explain treatment procedures, initiate health teaching, observe patient/client responses, document and interpret nursing actions and patient/client responses)
- Administer cardiopulmonary procedures and other clinical procedures necessary for nursing care; calibrate and use equipment, position patients and clients
- Possess the tactile abilities (with or without an assistive device) sufficient for performing physical assessment (e.g., perform palpation functions of physical exam and those related to nursing interventions)

The examples above are not all-inclusive.

Applicants who may not meet these standards are encouraged to contact the College of Nursing associate dean for academic affairs for a personal interview.

Selection

The college's admission committee recommends to the dean the applicants who appear to be best qualified. Fulfillment of minimum admission requirements does not guarantee admission to the College of Nursing. The committee may require personal interviews. A physical examination report and specific health screening requirements must be on file at the University of Iowa Student Health Service 10 days before the class opens for the first clinical nursing course.

Application Deadlines

Fall semester: April 1

Summer session (RN students only):
January 15

Spring semester: October 1

Financial Aid

In addition to general assistance available to University students, there are assistance programs specifically for nursing students. Information about financial aid is available from the University's Office of Student Financial Aid.

Postbaccalaureate Program

Master's in Nursing and Health Care Practice

The Master's in Nursing and Health Care Practice (M.N.H.P.) requires 61 s.h.

The M.N.H.P. provides students with an education in the clinical skills and knowledge necessary for entry into the nursing profession; it is not an academic master's degree with a research focus. Graduates of the program are prepared to join the nursing workforce in entry-level positions or to pursue the M.S.N. or a Ph.D. in nursing.

The M.N.H.P. program is a highly structured, full-time plan of study that is completed in four consecutive semesters, including summer. Students are strongly advised not to work while enrolled in the program.

The application deadline for the M.N.H.P. program is June 1.

Graduate Programs

Master of Science in Nursing

The Master of Science in Nursing (M.S.N.) requires 33-52 s.h., depending on the choice of concentration area. The program is designed to build on general and professional baccalaureate study. Graduation from an approved baccalaureate degree program is one of the admission requirements. Options are available for registered nurse applicants with a non-accredited B.S.N., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country.

The degree ordinarily requires four semesters of full-time study. Part-time study is available for some specializations. The M.B.A./M.S.N. and anesthesia nursing programs require a minimum of six semesters of full-time study.

The M.S.N. curriculum consists of a core component and areas of specialization enhanced

by supporting course work in the College of Nursing or in related disciplines. Students may take two to three supporting courses related to their nursing specialization in the social, behavioral, or biological sciences or in business administration, law, or health management and policy.

Students must maintain a g.p.a. of at least 2.75 and must successfully complete a thesis, project, or portfolio.

The M.S.N. curriculum consists of the following components.

ADVANCED NURSING CORE

Core courses are taken by all students in the program. The core consists of 12 s.h. of course work, including leadership in nursing (3 s.h.), research application (3 s.h.), health policy and economics (3 s.h.), and nursing informatics in nursing and health care (3 s.h.).

NURSING SPECIALIZATION

Specialization allows students to build a specialized area of knowledge and practice that extends beyond the advanced nursing core. Clinical specialization may be in any of the following options: adult and gerontological nursing, child health nursing, genetics nursing, community health nursing, occupational health nursing, psychiatric/mental health nursing, anesthesia nursing, pediatric nurse practitioner, adult/gerontology nurse practitioner, neonatal nurse practitioner, and family nurse practitioner. Nonclinical options include nursing administration, the M.B.A./M.S.N. joint degree program, the M.S.N./M.P.H. joint degree program, and informatics. Some options require special acceptance procedures. Students with unique career goals have the option of modifying their plans of study under the direction of their academic advisors.

Students in the practitioner programs take an advanced clinical core that includes advanced physiology, pharmacology, health assessment, health promotion, and a professional role course. Students in other clinical options may be required to take one or more of these courses. Some of the clinical core courses are open to other students. Students in a clinical or management specialization develop their knowledge and practice through course work and fieldwork.

SUPPORTING COURSES

Supporting course work varies with each specialization area. Supporting courses can be selected from varied academic departments at the

University and should relate to the student's interest and specialization area.

Some areas of specialization require students to take some courses in other departments. For example, students in the community health nursing specialization must complete an upper-division or equivalent course in epidemiology and a management course; students in the management option select supporting courses from business, health management and policy, or allied study areas. Students select supporting course work in collaboration with their faculty advisor.

THESIS/PROJECT/PORTFOLIO

All M.S.N. students must take a final examination. Students satisfy this requirement by completing a thesis, project, or portfolio. Students, with their advisors, select the option that best serves their individual career objectives.

The master's thesis is a systematic inquiry into a nursing problem. Methodologies may include historical research, case studies, analytical literature review, surveys, or experimental studies that meet the requirements of the University of Iowa Graduate College. Students earn a total of 5 s.h. for the thesis.

The master's project is an in-depth synthesis and analysis of a chosen topic in nursing. The 15-to-20-page paper of publishable quality may not replicate previous course assignments. Students earn 2-3 s.h. for the project.

The master's clinical portfolio is a written description of the clinical experiences that contributed to the development of the advanced practice role and a self-assessment of clinical competencies and areas for future growth. Students in the nurse practitioner, nurse anesthesia, and clinical specialty tracks are eligible to complete the clinical portfolio.

The master's professional portfolio is a written description of practicum experiences and competencies. Students in the nonclinical tracks are eligible to complete the professional portfolio.

Students earn no credit for the portfolio.

Admission

Applicants to the M.S.N. must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Applicants must have taken the Graduate Record Examination (GRE) General Test and must have a g.p.a. of at least 3.00.

In addition, the College of Nursing requires the following:

- a bachelor's degree with a major in nursing from an accredited program (options are available for registered nurse applicants with a non-accredited B.S.N., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country);

- the legal requirements for the practice of nursing in Iowa;

- current written recommendations from three persons familiar with the applicant's competence in the practice of nursing and potential for leadership and scholarship (forms required);

- current résumé, goal statement, and supplemental/information form;

- completion of an upper-division nursing research course in the undergraduate program; and

- successful completion of an upper-level statistics course (or equivalent) within five years of registering for 096:206 Nursing Science and Inquiry.

Students whose first language is not English must score at least 550 (paper-based), 213 (computer-based), or 81 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applications for admission to the M.S.N. program are reviewed twice a year. For review, the applicant's file must be complete, with all relevant materials submitted. Application deadlines are February 15 for fall admission and October 1 for spring admission. Students in the practitioner programs and the anesthesia program may begin those programs only in fall. Application deadline for the anesthesia program is October 1.

A criminal background check is conducted for all graduate students upon admission.

All Graduate College policies pertaining to academic standing, probation, and dismissal are applicable to graduate students in nursing. Transfer credit applicable to the master's degree program is limited and must be approved by the director of the graduate program in nursing and by the student's advisor. Course work taken 10 years or more before the final examination must be updated, according to University policy.

Joint M.B.A./M.S.N.

The joint Master of Business Administration/Master of Science in Nursing requires 61 s.h. The program is designed for students with previous

clinical and administrative experience. Separate application to each program is required. For more information, contact the College of Nursing Graduate Programs Office.

Joint M.S.N./M.P.H.

The joint Master of Science in Nursing/Master of Public Health requires 60 s.h.

The program is designed for students who want to pursue careers that include professional activities in nursing and public health. Separate application must be made to each program. Contact the College of Nursing Graduate Programs Office for more information.

Nursing Home Administrator Licensure

The nursing home administrator program offers students an efficient option for completing requirements for licensure examination while obtaining a M.S.N. Students may complete the requirements for licensure by supplementing study in adult and gerontology health nursing, adult/gerontology nurse practitioner, or nurse manager.

Doctor of Philosophy

The Doctor of Philosophy in nursing requires a minimum of 72 s.h. of graduate credit. The program prepares scientists to conduct research in nursing, extend their knowledge base relevant to nursing, and contribute to the body of knowledge in the discipline of nursing. Study requires expertise in clinical nursing and competence in research that relates to nursing practice and health care delivery.

B.S.N. students who intend to pursue a Ph.D. in nursing may be eligible to enter the doctoral program directly, once they have completed the B.S.N. Contact the College of Nursing Graduate Programs Office for more information.

The curriculum has five focal areas from which students choose: nursing in aging, nursing administration, nursing informatics, child and family nursing, and an individualized focus. Graduates of the program aspire to careers as researchers, college and university faculty members, consultants, and as leaders in the nursing profession, in health policy-making agencies, and in health care delivery systems.

Degree Requirements

All students must take the following courses.

- 096:340 Nursing Theory Construction I 3 s.h.
- 096:342 Qualitative Research 3 s.h.
- 096:344 Quantitative Research 3 s.h.

A graduate-level course in nursing/health informatics 3 s.h.

A graduate-level course in each of two of these areas: history of nursing, health economics, health policy 6 s.h.

Cognate minor courses 12 s.h.

Cognate research sequence: research methods and statistics 9 s.h.

096:490-096:491 Research Practicum 0 s.h.

B.S.N. graduates who enter the Ph.D. directly must take the following courses in addition to those listed above.

096:206 Nursing Science and Inquiry 3 s.h.

096:208 Leadership for Advanced Nursing Practice 3 s.h.

Two masters-level specialization courses, such as one of the following pairs:

096:219-096:220 Primary Care: Infants, Children, and Adolescents I-II 6 s.h.

096:260-096:261 Nursing Administration: Process, Roles, and Strategies I-II 6 s.h.

096:280 & 096:284 Primary Care: Adult and Older Individuals I-II 6 s.h.

In addition, all Ph.D. students must take the seminars and practicums appropriate for their focus area.

Aging Focus

096:410 Nursing Research of Biological Phenomena and Interventions for the Elderly 3 s.h.

096:420 Geriatric Mental Health Research 3 s.h.

096:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.

096:440 Research Utilization Residency in Care of the Elderly 3 s.h.

Nursing Administration Focus

096:450 Research Seminar in Nursing Administration I: Organizational Systems Concepts 3 s.h.

096:451 Research Seminar in Nursing Administration II: Health Care System Concepts 3 s.h.

096:460 Innovations in Nursing Management 3 s.h.

096:480 Residency in Nursing Service Administration 3 s.h.

Nursing Informatics Focus

096:462 Research in Nursing Informatics I 3 s.h.

096:465 Residency in Nursing Informatics 3 s.h.

Two of these:

06K:234 Information and Knowledge Management 3 s.h.

06K:272 Database Analysis and Design 3 s.h.

06K:275 Knowledge Discovery 3 s.h.

096:309 Data Mining and Machine Learning 3 s.h.

096:310 Advanced Nursing Informatics 3 s.h.

096:313 Computational Intelligence 3 s.h.

096:463 Research in Nursing Informatics II 3 s.h.

096:464 Nursing and Health Representation and Knowledge Building 3 s.h.

096:470 Methods and Issues in Nursing Interventions Effectiveness Research 3 s.h.

An approved CIC doctoral-level course

Child and Family Nursing Focus

096:405 Family Nursing Research 3 s.h.

096:445 Research Residency in Child and Family Nursing 3 s.h.

Two of these:

096:415 Genetic Nursing Research 3 s.h.

096:425 Research in Sociocultural Perspectives for Family and Women's Health 3 s.h.

096:435 Research in Cognitive and Behavioral Interventions for Children 3 s.h.

COMPREHENSIVE EXAM, DISSERTATION

All Ph.D. students must complete a written comprehensive examination. They earn 12 s.h. for work on the dissertation by completing 096:497 Dissertation Research Seminar I: Scholarship Development (1 s.h.), 096:498 Dissertation Research Seminar II (0 s.h.), and 096:499 Dissertation Research (11 s.h.), which includes a dissertation prospectus, the dissertation, and an oral defense.

Admission

All applicants to the Ph.D. program must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or Graduate College in the Catalog. Applicants must have taken the

Graduate Record Examination (GRE) General Test, preferably within the preceding five years. They must have completed an accredited basic nursing program and must hold a current license to practice nursing (special license for international students). Applicants must submit:

- a two-to-three-page statement describing their educational objectives and identifying a focal area for their doctoral study;
- three recommendations from nursing professionals that speak to the applicant's potential as a scholar;
- a current résumé or curriculum vitae; and
- a complete transcript of all college programs and courses.

Applicants who hold a master's degree must have a g.p.a. of at least 3.00. They must have successfully completed at least one graduate-level course in research and inferential statistics (3 s.h.) and at least one graduate-level course in information systems/informatics (3 s.h.).

B.S.N. graduates who apply directly to the Ph.D. program must have a grade-point average of at least 3.00 and must have successfully completed an upper-division course in statistics. They also must submit a strong statement of their research focus and career goals.

Applicants whose first language is not English must score at least 550 (paper-based), 213 (computer-based), or 81 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Nursing Service Administration Certificate

The Certificate in Nursing Service Administration provides ongoing education for nurses who have a bachelor's degree but do not wish to pursue the M.S.N. Students in the 15 s.h. certificate program must hold a B.S.N. and have an RN license.

Advanced Practice Nursing Certificate

The post-master's degree Certificate in Advanced Practice Nursing allows for advanced clinical training in four specialty tracks: pediatric nurse practitioner, adult/gerontology nurse practitioner, family nurse practitioner, and psychiatric/mental health nursing. Certificate requirements include advanced clinical core courses and a sequence of specialty courses. Students formulate a plan of

study with the advice and counsel of their advisor and/or the director of the master's program. Successful completion of the specialty sequence qualifies a student to sit for professional certification examinations. Completion of the certificate program is noted on the student's transcript.

Nursing Informatics Certificate

The Certificate in Nursing Informatics is a program for graduate students. Course work for the certificate focuses on methods and technologies of information handling and knowledge building in nursing. Certificate students must earn 20 s.h. in courses that cover the development, support, and evaluation of applications, tools, processes, and structures used to manage data for patient care and administrative support.

Health Informatics Certificate

The Certificate in Health Informatics is a program for graduate students. Certificate students must earn 20 s.h. in courses numbered 100 or above, including two required core courses.

Health Informatics I (096:283, 3 s.h.) is an interdisciplinary course intended primarily for graduate students, faculty, and health care clinicians. It explores decision-making processes and technological tools to support health care administration, management, and practice.

Health Informatics II (096:289, 3 s.h.) is an interdisciplinary course focused on field projects related to one or more health informatics topics under the direction of established researchers/educators. It includes a seminar.

Students select electives (9-14 s.h.) from outside their major program of study. For example, a student working toward a nursing degree and the Certificate in Health Informatics can use only non-nursing electives for the certificate. Students choose electives with the guidance of their academic and certificate advisors.

Students who earn credit for a thesis, project, or independent study in their major program of study may apply the credit to the Certificate in Health Informatics if the certificate advisor determines that the subject matter is pertinent.

Professional Improvement

Registered nurses who wish to take University of Iowa course work to fulfill professional or personal improvement objectives may request admission in the professional improvement (PI) category. This admission status allows students to take some graduate courses at the University without committing to a degree objective.

Admission as a nursing professional improvement student requires a formal application, including submission of three current written recommendations and all academic transcripts. GRE General Test scores, required by the University, must be submitted before the end of first semester registration. Deadlines are July 15 for fall semester admission, December 1 for spring semester admission, and May 1 for summer session admission.

Since acceptance as a PI student does not influence acceptance to the M.S.N. or Ph.D. programs, PI students interested in master's or doctoral study in nursing must follow the application procedures for those programs (see the appropriate sections, above). Only 6 s.h. or two required nursing core courses taken under professional improvement status may be used to fulfill M.S.N. requirements. Professional improvement students may not enroll in Ph.D. courses.

Student Organizations

College of Nursing undergraduate students are eligible for membership in the state and national associations of nursing students, but they also have their own organization, the University of Iowa Association of Nursing Students (UIANS), which provides opportunities for professional growth and development in nursing. UIANS representatives are members of the University of Iowa Student Government (UISG), and there is a UIANS representative on the Academic Council of the College of Nursing.

The University of Iowa Minority Student Nursing Association (UIMNSA) provides opportunities for professional growth and development for students from populations underrepresented in nursing. UIMNSA board members are members of the University of Iowa Student Government.

The college's Association of Graduate Nursing Students (AGNS) provides opportunities for professional growth sharing of research, and representation on varied college and University committees.

Continuing Education

The college offers nonacademic, short-term continuing education programs for registered nurses. Continuing Education Units (CEUs) are awarded for each program on the basis of one unit per 10 clock hours of instruction. The College of Nursing is approved by the Iowa Board of Nursing as an approved provider, number 1, and is accredited by the American Nurses Association Board of Accreditation and the National Association of Pediatric Nurse Associates and Practitioners.

Facilities

The Nursing Building is centrally located on the University's main campus, in close proximity to the Carver College of Medicine, the College of Dentistry, the College of Pharmacy, the College of Public Health, University of Iowa Hospitals and Clinics, Bowen Science Building, and the Hardin Library for the Health Sciences.

Completed in 1971, the building consists of five floors with varied and specialized facilities. Administrative offices are located on the first floor. Faculty offices are located on every floor except the second, which is used entirely for classrooms and laboratories.

Learning Resource Services, located on the ground level, includes a technology laboratory. There are classrooms throughout the building; conference rooms, student lounges, and meeting rooms are located conveniently. Research and computer facilities provide direct access to the University's computing facilities and to college-owned microcomputers.

Courses

Primarily for Undergraduates

096:030 Human Development and Behavior 3 s.h.
Normal developmental transitions experienced by individuals and family systems throughout the lifespan, including physical, cognitive, and social-emotional development. Prerequisite: 031:001. Same as 153:030.

096:031 Adult Development and Aging 1 s.h.

096:050 Perspectives on Health Care Systems 3 s.h.
Health care systems, delivery modes, resources, economics, contemporary problems and policies that influence health care; emphasis on the context of health care delivery. Prerequisite: facility with e-mail and World Wide Web.

096:051 Art and Science of Nursing 3 s.h.
Integrated view of theories from nursing, the arts, the sciences; historic, holistic, and global perspectives on creative and scientific processes and concepts that underlie and guide nursing practice.

- 096:100 Mental Health Services and Policy I** 3 s.h.
Same as 174:140.
- 096:109 Leadership U** 1-3 s.h.
Repeatable.
- 096:114 Human Pathophysiology: Organ Systems** 3 s.h.
Normal and abnormal functioning of human cells, tissues, and organ systems over the lifespan; focus on cardiovascular, respiratory, renal, gastrointestinal, endocrine, and reproductive systems, and on processes of metabolism and homeostasis of the internal milieu. Prerequisites: approved courses in biology, inorganic chemistry, microbiology, and human anatomy; or consent of instructor.
- 096:115 Human Pathophysiology: Cellular/Neurology/Immunology** 3 s.h.
Normal and abnormal functioning of human cells, tissues, and organ systems over the lifespan; focus on processes of communication, control, defense, and movement. Prerequisites: approved courses in biology, inorganic chemistry, microbiology, and human anatomy; or consent of instructor.
- 096:116 Introduction to Human Genetics** 3 s.h.
Introduction to organization of the human genome and basic principles of inheritance in humans; cells and development, chromosome structure and function, gene structure and function, genes in pedigrees and populations, implications of genetic variation on health.
- 096:124 Pharmacotherapeutics in Nursing** 3 s.h.
Basic principles of pharmacotherapeutics and pharmacologic interventions; focus on mechanism of drug actions in patient treatment. Prerequisites: 096:114 and 096:115, or consent of instructor.
- 096:126 Communication for Health Professionals** 2 s.h.
The communication process in health care settings; emphasis on theory-based strategies to improve communication with individuals, families, other health care professionals.
- 096:127 Health Assessment Across the Life Span** 4 s.h.
Knowledge and skills health professionals need to perform holistic health assessments of individuals across the life span; emphasis on history taking, physical assessment skills; laboratory practices. Prerequisites: anatomy, human development and behavior, and animal biology courses; and admission to the College of Nursing.
- 096:134 Basic Concepts of Nursing Care** 4 s.h.
Physiological and behavioral concepts, nursing interventions, and activities across settings and populations; based on nursing interventions classification taxonomy. First in a two-course sequence. Prerequisite: nursing major. Pre- or corequisites: 096:114 or 096:115, and 096:127.
- 096:135 Complex Concepts of Nursing Care** 4 s.h.
Continuation of 096:134; physiological and behavioral concepts, nursing interventions, and activities across settings and populations. Prerequisites: 096:134 and nursing major. Pre- or corequisites: 096:114 or 096:115, and 096:124. Corequisite: 096:136.
- 096:136 Core Clinical Practicum** 4 s.h.
Acute care of adult clients in the clinical setting; in-depth practicum experience applying basic and complex concepts of nursing care; focus on clinical decision-making skills. Prerequisites: 096:126, 096:127, and 096:134. Corequisite: 096:135.
- 096:139 Parent-Child Nursing** 3 s.h.
Health promotion, maintenance, and restoration for parents, infants, children, and adolescents in childbearing and child-rearing families. Prerequisite: 096:135. Pre- or corequisite: 096:124.
- 096:140 Parent-Child Nursing Practicum** 3 s.h.
Principles of health promotion, maintenance, and restoration applied among parents, infants, children, and adolescents in childbearing and child-rearing families. Prerequisites: 096:135 and 096:136. Pre- or corequisites: 096:124 and 096:139.
- 096:141 Gerontological Nursing** 3 s.h.
Nurse's role in promoting, maintaining, and restoring the health of aging adults; nursing science applied to care of older adults in diverse settings. Prerequisite: 096:135. Pre- or corequisite: 096:124.
- 096:142 Gerontological Nursing Practicum** 3 s.h.
Nursing process applied to promote, maintain, and restore health of older adults; opportunities to provide nursing care to well elderly and to acutely and/or chronically ill elderly in a variety of settings. Prerequisites: 096:135 and 096:136. Pre- or corequisites: 096:124 and 096:141.
- 096:143 Research for Nursing Practice** 3 s.h.
The research process and its application to nursing. Prerequisites: 096:050, an approved statistics course, and admission to the College of Nursing.
- 096:146 Health Promotion for Older Adults** 3 s.h.
Same as 153:146, 169:146.
- 096:147 End-of-Life Care for Adults and Families** 2-4 s.h.
End-of-life issues in care of adults, older adults, and their families; key concepts related to end-of-life care, including the epidemiology of dying and systems of care; communication, roles and relationships, pain and symptom management, legal and ethical issues, grief and grieving, well being; psychosocial, spiritual, cultural aspects of care. Prerequisites: 096:135 and 096:136, or RN student standing, or consent of instructor. Same as 046:146, 050:147, 153:147.
- 096:150 Independent Study** arr.
Supervised study designed for individual undergraduate students.
- 096:151 Honors Independent Study** 1-3 s.h.
Supervised study designed for individual honors students.
- 096:152 Honors Seminar** 1 s.h.
Supervised study designed for individual honors students.
- 096:153 Public Health Nursing** 3 s.h.
Nursing's role in the relationship between community conditions and public health. Prerequisite: 096:135. Pre- or corequisite: 096:124.
- 096:154 Public Health Nursing Practicum** 3 s.h.
Application of public health principles and nursing knowledge and skills to primary, secondary, and tertiary disease prevention problems of individuals, families, social aggregates. Prerequisites: 096:135 and 096:136. Pre- or corequisites: 096:124 and 096:153.
- 096:155 Psychiatric/Mental Health Nursing** 3 s.h.
General principles and practices of psychiatric/mental health nursing; psychiatric disorders, populations at risk, continuity of care, problems in daily living. Prerequisite: 096:135. Pre- or corequisite: 096:124.
- 096:156 Psychiatric/Mental Health Nursing Practicum** 3 s.h.
Nursing process used to deliver nursing care to individuals and families with mental illness in a variety of clinical settings; focus on promotion, maintenance, restoration of the mental health of individuals and families. Prerequisites: 096:135 and 096:136. Pre- or corequisites: 096:124 and 096:155.
- 096:157 Nursing Leadership and Care Management** 3 s.h.
Analysis of nursing leadership, care management, and models of care in the context of society and the interdisciplinary health care system. Prerequisite: senior standing in nursing or consent of instructor.

096:158 Clinical Nursing Internship 5 s.h.
Independent internship in one of a variety of health care settings to promote role transition, lifelong learning; emphasis on integration and application of knowledge and skills to design, provide, manage, and coordinate care. Prerequisite: senior standing in nursing.

096:159 Contemporary Nursing Practice Issues 3 s.h.
Identification, exploration, analyses of selected issues in nursing and health care; impact of significant historical, social, political, genetic, legal, and ethical factors on development of the nursing discipline. Prerequisite: senior standing in nursing or consent of instructor.

096:168 Nonprofit Organizational Effectiveness I 3 s.h.
Same as 06J:147, 024:147, 025:176, 032:127, 042:157, 049:175.

096:169 Nonprofit Organizational Effectiveness II 3 s.h.
Same as 06J:148, 024:148, 025:177, 032:128, 042:158, 049:176.

096:171 Nursing and Society 1 s.h.
Introduction to professional nursing; history, knowledge development, roles, and health professional relationships of nursing; nursing's unique contribution to meeting societal needs through theory, research, and practice. Prerequisite: admission to M.N.H.P. program.

096:173 Clinical Inquiry 4 s.h.
Clinical reasoning and outcomes, information systems and management, evidence-based practice, scholarship and scientific writing; development of skill using the research process to define clinical research problems. Prerequisites: 22S:101 or 22S:102 or equivalent, and admission to M.N.H.P. program.

096:176 Clinical Reasoning 4 s.h.
Skills to help nontraditional nursing students synthesize, expand, and refine nursing concepts and clinical reasoning competencies; development and application of cognitive and psychomotor skills necessary for performing systematic, holistic, and culturally competent health assessment. Prerequisites: 096:114 or 096:115 or equivalent, 096:177, and admission to M.N.H.P. program.

096:177 Therapeutic Nursing Interventions I 4 s.h.
Physiological and behavioral concepts, nursing diagnoses, interventions, and outcomes across settings and populations; nursing classifications; experience in the laboratory. Prerequisites: 096:114 or 096:115 or equivalent, 096:176, and admission to M.N.H.P. program.

096:178 Therapeutic Nursing Interventions II 4 s.h.
Continuation of 096:177. Prerequisites: 096:176, 096:177, and admission to M.N.H.P. program. Corequisite: 096:124.

096:180 Intensive Practicum I 4 s.h.
Applications of health care concepts, nursing diagnoses, interventions, and outcomes presented in 096:176 and 096:177; focus on clinical decision-making skills. Prerequisites: 096:176, 096:177, and admission to M.N.H.P. program. Corequisites: 096:124 and 096:178.

096:183 Intensive Practicum II 4 s.h.
Experience in varied acute and community-based settings; opportunity to apply principles to the care of diverse populations, consistent with the four specialty theory courses; proficiency with advanced care management interventions and technologies. Prerequisites: 096:180 and admission to M.N.H.P. program. Corequisites: 096:139, 096:141, 096:153, and 096:155.

096:184 Heritage: African American Women's Hair Culture 2-3 s.h.
Hair and its centrality to the experience of women of African descent; emotional, political, economical, and historical significance; political, legal, and educational implications; connections to ideas of aesthetics, race relations, family dynamics, consumerism, and so forth.

096:185 Internship in Care Management 14 s.h.
Intensive clinical experience in nursing care management with nurse preceptors, with focus on complex, collaborative nursing care management of diverse populations; enhancement of care management skills as a foundation for optimal clinical outcomes. Prerequisites: 096:139, 096:141, 096:153, 096:155, 096:183, and admission to M.N.H.P. program.

096:186 Cultural Expeditions in Nursing 3 s.h.
Multicultural awareness, recognition of specific health care beliefs and values; online course originating at University of Missouri-Columbia. Prerequisite: 096:135 or consent of instructor.

096:187 Legal Issues for Health Care Providers 3 s.h.
Legal issues faced by health care providers, counselors, and social services providers; administrative and regulatory requirements, civil lawsuits, issues that affect students as providers, advocates, and individuals.

096:188 Clinical Leadership I 2 s.h.
Nursing leadership, care management, and models of care in contexts of society and interdisciplinary health care; resource allocation and utilization, and delivery of care; clinical outcome improvement for populations and individuals. Prerequisites: 096:176 and 096:177.

096:189 Clinical Leadership II 2 s.h.
Builds on the content in 096:188; application of leadership and management concepts and skills in a changing, interdisciplinary health care system; concepts for human resource management and quality care outcomes for individuals and populations; personal professional roles, transition to leadership roles, support from professional organizations. Prerequisite: 096:188.

096:190 Dimensions of Professional Nursing 3 s.h.
The nursing discipline; identification, exploration, analysis of contemporary issues and trends in nursing; professional roles and responsibilities; the health care environment; importance of nursing science, theory, and research to nursing practice. Prerequisites: computer literacy and RN/B.S.N. standing, or consent of instructor.

096:191 Health Assessment 4 s.h.
Health assessment of adults; experience demonstrating assessment skills, compiling a health history, conducting a physical exam, and developing nursing diagnoses for clients. Prerequisite: RN/B.S.N. standing or consent of instructor.

096:192 Community Health Nursing 3 s.h.
Nursing's role in the relationship between community conditions and public health; principles of public health, nursing knowledge, skills used to address primary, secondary, tertiary disease prevention needs. Prerequisites: 096:190, 096:191, and nursing major or consent of instructor.

096:193 Community Health Nursing Practicum 1, 3 s.h.
Experience applying principles of public health and nursing skills and knowledge to primary, secondary, and tertiary disease prevention problems of individuals, families, and groups. Prerequisites: 096:190 and 096:191, or consent of instructor; and RN licensure in state of practicum. Pre- or corequisite: 096:192.

096:194 Leadership and Care Management in Professional Nursing Practice 3 s.h.
Nursing leadership and management in a dynamic practice environment; focus on context in which nurses practice, leadership and management principles in changing health care system. Prerequisites: 096:192, 096:193, and 096:197; or consent of instructor.

096:195 Practicum for Leadership and Care Management in Professional Nursing 3 s.h.
Experience applying concepts of leadership, management, and evidence-based practice in a variety of settings; development of individualized plan of study for the experience. Prerequisites: 096:192, 096:193, and 096:197, or consent of instructor; and RN licensure in state of practicum. Pre- or corequisite: 096:194.

096:196 Special Studies in Nursing 3 s.h.

Identification, exploration, and analysis of contemporary issues that confront the professional nurse; the practice of nursing, regulation of health care systems, available resources. Prerequisite: 096:192 or consent of instructor.

096:197 Research for Practicing Nurses 3 s.h.

Research process, its application to nursing practice for RN students; conceptual basis, methodology, data collection, data analysis, presentation and utilization of research. Prerequisites: 096:190 or consent of instructor, and an approved statistics course.

096:198 Rural Clinical Leadership Practicum 3 s.h.

Nursing leadership preparation; observation of health professional role models, hands-on interdisciplinary experience in a rural low hospital system; complex leadership roles, unique health care needs and opportunities in rural nursing and health care; contact with a faculty mentor by telephone and email; clinical course. Prerequisites: 096:050, 096:051, and 096:136.

Primarily for Graduate Students

Courses are offered only if minimum enrollments are maintained.

096:130 Teaching and Learning Online 3 s.h.

Synthesis and critical evaluation of current knowledge about online learning; empirical research, best practices, and available resources for implementing and managing online learning; hands-on, web-based course. Prerequisite: graduate standing or consent of instructor.

096:205 Clinical Practicum: Health of Children in Schools 3 s.h.

Delivery of health care in school settings; educational, legal, cultural, ethical issues in school nursing practice; developmental issues and their relationship to risk factors and the school population's health; application of nursing interventions, evaluation of nursing and educational outcomes; clinical practicum with children in a school setting; seminar, 90 clock hours in clinical practicum. Prerequisite: M.S.N. enrollment with school health focus.

096:206 Nursing Science and Inquiry 3 s.h.

Research design and analysis for examining, applying, and using nursing science. Prerequisites: 096:143 or equivalent, and an advanced statistics course within past five years.

096:208 Leadership for Advanced Nursing Practice 3 s.h.

Roles and behaviors for leading others and influencing health care delivery.

096:209 Health Systems/Economics/Policy 3 s.h.

Global, economic, organizational, political, and technological contexts for advanced nursing practice.

096:210 Healthcare Financial Management 3 s.h.

Overview of health care finance and finance management; finance principles used by health services organizations.

096:213 Physiology for Advanced Clinical Practice 3 s.h.

Regulation of cellular, organ, and system function; regulation of internal milieu; functional interrelationships among body systems; cellular and body-wide mechanisms of self-defense; illustrative examples of pathological phenomena. Prerequisites: anatomy, physiology, microbiology, and pathophysiology courses, or equivalents, or consent of instructor.

096:214 Advanced Health Assessment for Clinical Practice 3 s.h.

Knowledge and skills necessary for advanced health assessment of individuals and families across the life span. Prerequisite: graduate standing in nursing or consent of instructor.

096:219 Primary Care: Infants, Children, and Adolescents I 2-3 s.h.

Enhancement of clinical knowledge and skills for infant, child, adolescent care. Prerequisites: 096:213, 096:214, 096:222, and 096:224.

096:220 Primary Care: Infants, Children, and Adolescents II 3 s.h.

Enhancement of clinical knowledge and skills for infant, child, adolescent care; development and refinement of knowledge and skills in primary health care delivery. Prerequisite: 096:219 or 096:280. Same as 070:201.

096:221 Primary Care: Pediatric Nurse Practitioner III Intensive Practicum 3 s.h.

In-depth practicum synthesizing clinical management and role enactment; opportunity for discussion and analysis of practice and role issues. Prerequisites: 096:220 and 096:285.

096:222 Health Promotion and Intervention for Primary Care 3 s.h.

Theories of health promotion in primary care, levels of prevention, epidemiological principles and methods; specific interventions designed to maintain, promote, optimize health across the lifespan.

096:223 Clinical Applications for Health Assessment and Health Promotion 1-3 s.h.

Advanced health assessment and promotion skills applied to planning, implementing, and evaluating interventions designed to maintain, promote, and optimize health across the lifespan. Prerequisite: graduate standing in nursing or consent of instructor. Pre- or corequisites: 096:214 and 096:222.

096:224 Pharmacotherapeutics for Advanced Clinical Practice 4 s.h.

Pharmacologic, pharmacokinetic, and pharmacodynamic principles essential for advanced clinical practice; classes of drugs frequently used in management of common clinical conditions; legal considerations in prescriptive authority. Prerequisite: 096:213 or consent of instructor.

096:225 Biopsychosocial Dimensions of Healthy Aging 3 s.h.

Biopsychosocial dimensions of healthy aging in individuals; healthy aging, including behavior and normal age-related physiological changes, psychosocial and cultural implications of aging; expansion of gerontological nursing based on integration of theory, research, standardized nursing languages.

096:228 Advanced Practice Genetic Nursing I 3 s.h.

Theories and principles of nursing, counseling, and human genetics; focus on nursing assessment, interventions, and outcomes for individuals, families, and populations at risk for genetic conditions. Prerequisites: 096:213, 096:214, and 096:223. Pre- or corequisites: 002:128 and 070:110. Corequisite: 096:229.

096:229 Advanced Practice Genetic Nursing Practicum I 2 s.h.

Integration and application of advanced practice in genetic nursing assessment and counseling skills with individuals and families. Corequisite: 096:228 or consent of instructor.

096:230 Advanced Practice Genetic Nursing II 3 s.h.

Genetic conditions that present in adult years; gene detection, ethical and social aspects of genetic health care delivery, professional issues in the delivery of genetic care. Prerequisites: 096:228 and 096:229. Corequisites: 07C:178 and 096:231.

096:231 Advanced Practice Genetic Nursing Practicum II 2 s.h.

Application of advanced practice in genetic nursing; emphasis on conditions that present in the adult years and the nurse's role in an interdisciplinary genetic delivery system. Prerequisite: 096:229. Corequisite: 096:230.

096:232 Professional Aspects of Clinical Nursing Practice 3 s.h.
 Advanced nursing role competencies and related settings in which advanced nursing practice occurs; history and development, core competencies, advanced practice roles, practice management issues. Prerequisite: 096:208.

096:234 Advanced Community Health Assessment 3 s.h.
 Health of communities, process of assessment; emphasis on conceptual models from public health that focus on select populations, community assessment. Prerequisite: epidemiology course.

096:235 Advanced Community Health Nursing Practicum I 2 s.h.
 Integration and application of advanced community health assessment knowledge, skills; nurse's role in population-focused practice. Prerequisites: epidemiology course and M.S.N. student standing. Corequisite: 096:234.

096:236 Advanced Community Health Intervention and Evaluation 3 s.h.
 Development, implementation, evaluation of health promotion and disease prevention strategies for select populations, communities. Prerequisite: 096:234.

096:237 Advanced Community Health Nursing Practicum II 2 s.h.
 Integration and application of knowledge and skills for advanced community health intervention, outcome evaluation. Offered spring semesters of odd years. Prerequisite: M.S.N. enrollment. Pre- or corequisite: 096:236.

096:238 Intensive Practicum in Advanced Community Health 3 s.h.
 Synthesis of advanced public health theory, nursing knowledge; in-depth experience synthesizing clinical management, role enactment. Offered summer sessions of odd years. Prerequisites: 096:235 and 096:237.

096:241 The Care of the Frail Elderly 3 s.h.
 Clinical management of the elderly; emphasis on economic considerations, principles of gerontological care, common syndromes, ethical issues; clinical application experience in a long-term care setting. Prerequisites: 096:214, 096:222, and 096:224. Same as 153:241.

096:242 Primary Care: Adult/GNP Clinical Practice I 3 s.h.
 Clinical management of the pathological alterations presented in 096:280; development of comprehensive assessment and clinical management skills in the context of community services and resources.

096:243 Primary Care: Adult/GNP Clinical Practice II 3 s.h.
 Continuation of 096:242, which is prerequisite; clinical management of the pathological alterations presented in 096:284; comprehensive assessment and clinical management skills. Corequisite: 096:284.

096:244 Primary Care: Adult/Gerontological Nurse Practitioner III Intensive Practicum 3 s.h.
 Transition from student to advanced adult/gerontological nurse practitioner; in-depth primary care experience synthesizing aspects of clinical management and role enactment. Prerequisite: 096:243.

096:246 Nursing Education: Process, Roles, and Strategies 3 s.h.
 Role of nurse educator through study, application of teaching/learning theories; learning tasks of students in nursing education programs. Pre- or corequisite: 096:208 or consent of instructor.

096:247 Curriculum Development in Nursing Education 3 s.h.
 Societal, educational, professional factors in undergraduate curriculum design; evaluation of components in basic nursing education programs. Prerequisite: 096:246.

096:250 Psychiatric/Mental Health Nursing Theory I 3 s.h.
 Basic psychological principles, theories related to mental health and intersections between physical and mental health; psychological theory viewed through framework of lifespan development, infancy through adulthood. Prerequisite: graduate standing or consent of instructor.

096:251 Psychiatric/Mental Health Nursing Theory II 3 s.h.
 Advanced psychiatric nursing practice with selected populations; definition and expansion of practice based on the integration of theory, standardized languages, research, self-evaluation. Prerequisite: 096:250.

096:252 Psychiatric/Mental Health Nursing Practice with Individuals 3 s.h.
 Therapeutic models that guide clinical practice with individuals; major psychological and biological theories applied to nursing process with individuals in a variety of settings. Prerequisites: 096:224, 096:251, and admission to psychiatric/mental health nursing program.

096:253 Psychiatric/Mental Health Nursing Practice with Families 3 s.h.
 Experience using family therapy as a treatment modality; relevance of family intervention models for meeting mental health needs of families. Prerequisites: 096:251 and admission to psychiatric/mental health nursing program.

096:254 Psychiatric/Mental Health Nursing Practice with Groups 3 s.h.
 Experience using group process as a treatment modality; relevance of group intervention models for meeting mental health needs of clients across the life span. Prerequisites: 096:251 and admission to psychiatric/mental health nursing program.

096:255 Psychiatric/Mental Health Care Management 3 s.h.
 Direct and indirect care responsibilities, including clinical supervision, evaluation of treatment environments, program development, interdisciplinary collaboration; development of goals for future professional development and contributions to nursing. Prerequisites: 096:251 and 096:252.

096:256 Occupational Health Nursing I 3 s.h.
 Framework for occupational health nursing practice and evolving role of the occupational health nurse; focus on health in the workplace. Prerequisite: 175:230 or consent of instructor. Corequisite: 096:257.

096:257 Occupational Health Practicum I 3 s.h.
 Concepts and theories of 096:256 integrated with professional nursing practice in the workplace; clinical focus on environmental perspective of worker health and role of occupational health nurse at worksite. Prerequisites: 175:230 and 173:140. Corequisite: 096:256.

096:258 Occupational Health Nursing II 3 s.h.
 Framework for implementing and evaluating risk reduction program in the workplace; compliance with regulatory entities in occupational health, quality assurance, surveillance, injury prevention. Prerequisites: 096:206, 096:208, and 096:256. Corequisite: 096:259.

096:259 Occupational Health Practicum II 3 s.h.
 Transition from student role to clinical specialist role in occupational health nursing; in-depth experience in student's interest area. Corequisite: 096:258.

- 096:260 Nursing Administration: Process, Roles, and Strategies I** 3 s.h.
Leadership concepts and theories and their application to the nurse administrator's unique roles in institutional and community health care organizations; influence of environmental, technological, and professional forces on the structure and function of health care and nursing service organizations and on the role of the nurse administrator; leading patient care delivery, healthcare systems and environment, and strategic management modules; practicum for nurse administrator students. Prerequisite: 096:208 or consent of instructor.
- 096:261 Nursing Administration: Process, Roles, and Strategies II** 3 s.h.
Concepts and theories on administration of financial, material, and human resources and service quality related to the nurse administrator's administrative functions; financial, human resources, and outcomes management examined in context of institutional settings such as hospitals, nursing homes, community and ambulatory care settings; influence of economic and social forces on the administration of resources, personnel, and service quality; research in nursing, business, and behavioral science related to the administrative functions; financial management, human resources management, outcomes and safety management modules; practicum for nurse administrator students. Prerequisite: 096:208 or 096:260 or consent of instructor.
- 096:263 Informatics in Nursing and Health Care** 3 s.h.
Foundation of information management and processing principles that support data, information, and knowledge in provision and delivery of nursing and health care. Prerequisites: competence in computer use and nursing major, or consent of instructor.
- 096:264 Nursing and Health Informatics in the International Context** 2, 4 s.h.
Informatics dimensions of health care systems within a specific historical, cultural, legal, ethical, and political national context; focus on unique services of nursing, necessary information infrastructure. Prerequisite: graduate informatics course.
- 096:266 Advanced Case Management: Interdisciplinary Approach** 3 s.h.
Theory, evidence, and strategies for health care coordination and integration drawn from case management and disease management interventions; leadership for interdisciplinary teamwork; analysis of case and disease management theory and models; synthesis of case and disease management principles as a framework for managing health care cost and quality, for identifying evidence-based clinical care guidelines, and for analyzing financial, legal, ethical, and outcomes management components of case and disease management practice. Same as 174:266.
- 096:269 Human Physiology, Pathology, and Assessment for Advanced Practice Nursing** 3 s.h.
Detailed study of normal and abnormal human physiology, including mechanisms that govern and support cell, organ, and system function; builds on basic sciences required for undergraduate nursing curriculum and on clinical skills from experience in intensive care setting. Prerequisite: admission to anesthesia nursing program or consent of instructor.
- 096:270 Human Anatomy, Physiology, Pathophysiology, and Assessment for Advanced Practice Nursing** 3, 6 s.h.
Interrelationships between anatomic structure and physiological function in health and disease; clinical assessment of functional integrity of organ systems; implications of pathophysiology for anesthesia. Prerequisite: admission to anesthesia nursing program or consent of instructor. Same as 060:270.
- 096:271 Chemical and Physical Principles of Anesthesia Practice** 3 s.h.
Chemistry and physics, as applied to anesthesia. Prerequisite: admission to anesthesia nursing program or consent of instructor. Same as 116:271.
- 096:272 Pharmacology of Anesthesia Practice I** 3 s.h.
Mechanism and action of drugs; focus on pharmacotherapeutic principles, including pharmacokinetics, pharmacodynamics, receptor binding, cell signaling; principles of uptake, distribution, elimination of anesthetic and adjunctive agents. Prerequisites: grade of 2.67 or higher in 096:271 and admission to anesthesia nursing program, or consent of instructor. Same as 116:272.
- 096:273 Pharmacology of Anesthesia Practice II** 1 s.h.
Continuation of 096:272; vascular, renal, GI, endocrine aspects; cellular mechanisms, electrolyte alterations. Prerequisites: grade of 2.67 or higher in 096:272 and admission to anesthesia nursing program, or consent of instructor. Same as 116:273.
- 096:274 Basic Principles of Anesthesia Practice** 3 s.h.
Overview of anesthesia as a nursing specialty; patient assessment, anesthetic planning and management, pertinent regulations; principles of general and regional anesthesia for surgical specialties. Prerequisite: grade of 2.67 or higher in 096:272, or concurrent enrollment in 096:273, or consent of instructor. Same as 116:274.
- 096:275 Advanced Principles of Anesthesia Practice I** 2 s.h.
Special needs and intraoperative management of obstetric, pediatric, and neurological patients; emphasis on pathophysiology, monitoring, ancillary requirements. Prerequisites: grade of 2.67 or higher in 096:273 and 096:274, or consent of instructor. Same as 116:275.
- 096:276 Advanced Principles of Anesthesia Practice II** 2 s.h.
Special needs and intraoperative management of patients in cardiac, vascular, thoracic, and other surgical specialties; focus on altered pathophysiology, anesthetic requirements; strategies for special surgical situations. Prerequisites: grade of 2.67 or higher in 096:273 and 096:274, or consent of instructor. Same as 116:276.
- 096:277 Advanced Principles of Anesthesia Practice III** 1 s.h.
Acute and chronic pain management; anesthetic problems with concurrent multisystem disease, advanced age, altered physical and/or mental status. Prerequisites: grade of 2.67 or higher in 096:273 and 096:274, or consent of instructor. Same as 116:277.
- 096:278 Professional Aspects of Anesthesia Nursing Practice** 2 s.h.
Issues in contemporary anesthesia nursing practice: historical development; ethical, legal, and political aspects; evaluation; quality management; responsibilities; career expectations and development; role of professional organization. Prerequisite: anesthesia nursing program enrollment. Same as 116:278.
- 096:279 Equipment and Technological Principles of Anesthesia Practice** 1 s.h.
Anesthesia delivery systems, ancillary equipment, monitoring devices; correlation of applicable chemical and physical principles for use, safe operation, care, and cleaning of anesthesia-related equipment. Prerequisites: 116:271 and anesthesia nursing program enrollment. Same as 116:279.
- 096:280 Primary Care: Adults and Older Individuals I** 3 s.h.
Pathophysiologic alterations and clinical management of associated health care problems in adults, the elderly. Prerequisites: 096:213, 096:214, 096:222, and 096:224.
- 096:281 Primary Care: PNP Clinical Applications I** 3 s.h.
Integration of advanced assessment skills, health promotion, and knowledge of pathophysiological alterations in development and application of advanced practice competencies, including clinical decision making and critical thinking for care of infants, children, adolescents. Prerequisite: 096:223. Corequisite: 096:219.

096:282 Primary Care: Family Nurse Practitioner Clinical Applications I 3 s.h.
Integration of advanced assessment skills, health promotion, knowledge of pathophysiological alterations to develop and apply advanced practice competencies, including clinical decision making, critical thinking. Prerequisite: 096:223. Corequisite: 096:280.

096:283 Health Informatics I 3 s.h.
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 021:275, 050:283, 051:187, 056:186, 074:191, 174:226.

096:284 Primary Care: Adults and Older Individuals II 3 s.h.
Continuation of 096:280. Prerequisite: 096:280.

096:285 Primary Care: PNP Clinical Applications II 3 s.h.
Continuation of 096:281. Prerequisite: 096:281. Corequisite: 096:220.

096:286 Primary Care: Family Nurse Practitioner Clinical Applications II 3 s.h.
Continuation of 096:282. Prerequisite: 096:282. Corequisite: 096:284.

096:287 Pharmacology of Anesthesia Practice III 1 s.h.
Drugs specific to various specialty areas: tocolytics, vasoactive and cardioactive agents, drugs that alter clotting, chronic pain therapy agents. Prerequisites: grade of 2.67 or higher in 096:273 or consent of instructor, and anesthesia nursing program enrollment. Same as 116:287.

096:288 Primary Care: FNP Intensive Practicum 4 s.h.
In-depth practicum experience synthesizing clinical management and role enactment; seminar on practice and role issues. Prerequisite: 096:286.

096:289 Health Informatics II 3 s.h.
Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Prerequisite: graduate standing or consent of instructor. Same as 021:280, 051:189, 056:287, 074:192.

096:290 Introductory Clinical Anesthesia 1 s.h.
Initial anesthesia preceptorship; development of basic clinical skills for work as a nurse anesthetist. Prerequisites: basic science core courses and anesthesia nursing program enrollment. Same as 116:290.

096:291 Clinical Anesthesia I 1 s.h.
Supervised anesthesia clinical experience for general, orthopedic, gynecologic, pediatric, urologic, dental, EENT, ambulatory surgery, or invasive diagnostic procedures. Prerequisites: 096:290 and anesthesia nursing program enrollment. Same as 116:291.

096:292 Clinical Anesthesia II 1 s.h.
Clinical anesthesia experience under faculty supervision at University Hospitals and Clinics, in surgical subspecialty rotations not completed in 096:291. Prerequisites: 096:291 and anesthesia nursing program enrollment. Same as 116:292.

096:293 Advanced Clinical Anesthesia 1 s.h.
Clinical anesthesia experiences in neurologic surgery, cardiovascular/thoracic surgery; experience providing anesthesia for patients with complex pathophysiology in varied surgical settings. Prerequisites: anesthesia nursing concentration courses, anesthesia nursing program senior standing, and g.p.a. of 2.67 or higher. Same as 116:293.

096:294 Obstetrical Anesthesia 1 s.h.
Experience providing anesthesia for the parturient, initial neonatal care; two one-month rotations off campus. Prerequisite: anesthesia nursing program enrollment. Same as 116:294.

096:295 Rural Anesthesia 1 s.h.
Anesthesia experience in community hospitals; three one-month rotations at UI-affiliated clinical sites in rural Iowa. Prerequisite: anesthesia nursing program enrollment. Same as 116:295.

096:296 Independent Study arr.
Supervised study and/or clinical practice adjusted to needs of master's degree students. Prerequisite: M.S.N. enrollment.

096:297 Primary Care: Neonatal Nurse Practitioner Intensive Practicum 3 s.h.
In-depth practicum synthesizing clinical management and role enactment; opportunity to discuss and analyze practice and role issues; incorporates national guidelines for neonatal nurse practitioner content. Offered summer sessions. Prerequisites: 096:284 and 096:286.

096:298 Master's Project arr.

096:299 Thesis arr.

For Ph.D. Students

Open to doctoral students or to others with consent of instructor.

096:300 Classics in the Social Evolution of Modern American Nursing 3 s.h.
From 1870 to present; writings, classic books, documents; influence of societal conditions on expansion of nursing services, education.

096:309 Data Mining and Machine Learning 3 s.h.

096:310 Advanced Nursing Informatics 3 s.h.
Management and processing of data and information, evaluation of information systems; related informatics research methods that support knowledge development. Prerequisite: graduate-level informatics course or consent of instructor.

096:312 Advanced Practice in Clinical Information Systems 3 s.h.
Nursing informatics theory applied to design, modification, implementation, and evaluation of nursing and health information systems; supervised clinical preceptorship. Prerequisites: 096:263 and 096:310, or consent of instructor.

096:313 Computational Intelligence 3 s.h.
Same as 056:235.

096:314 Integrated Seminar in Nursing Informatics 3 s.h.
Topics focused on problems related to nursing and health informatics theory, measurement, methodology, ethics, and policy issues. Prerequisites: Ph.D. enrollment and consent of instructor.

096:320 Economics of Health Care and Nursing 3 s.h.
Economic principles: demand, supply for health manpower; insurance; costs, financing of health care services; contemporary hospital structures, organization; role of government.

096:330 Nursing's Role in Health Care Policy 3 s.h.
Impact of federal health policy on nurses, nurse manpower projections, trends in hospital nursing, challenges of long-term care, frontiers of nursing practice, strategies for increasing nurses' autonomy, federal nursing priorities.

096:340 Nursing Theory Construction I 3 s.h.
Foundation of theory for professional practice; history, philosophy, sociology of science; development of a scientific community in nursing; relationship between theory construction, research; methods for generating specific theories.

096:342 Qualitative Research 3 s.h.
Overview of qualitative research; ethnography, grounded theory, historiography, phenomenology, and variations within each approach; philosophical underpinnings and research design across

traditions; participant recruitment and selection, modes of data collection, management, and analysis, and evaluation criteria; issues in qualitative research, including integrated methods, metasynthesis, work with vulnerable populations. Prerequisite: 096:340 or consent of instructor.

096:344 Quantitative Research 3 s.h.

Refinement of students' understanding of the application of scientific logic; criteria for causality, its application in health-related research; quantitative research designs and corresponding methods of analysis, sampling theory, approaches to sample selection and recruitment, methods to avoid bias; instrument selection, reliability and validity, management of large data sets and maintenance of data integrity. Prerequisite: 096:340 or consent of instructor.

096:405 Family Nursing Research 3 s.h.

Family theories and empirical research from nursing and related disciplines; mid-range family theories; issues in research methodology.

096:410 Nursing Research of Biological Phenomena and Interventions for the Elderly 3 s.h.

Analysis, evaluation of research on health of elderly, aging process; emphasis on methodological issues, instrumentation appropriate for study of biological phenomena. Same as 153:410.

096:415 Genetic Nursing Research 3 s.h.

Concepts in human genetics integrated with nursing research; methodological issues in study of populations with specific genetic problems; generation of testable hypotheses.

096:420 Geriatric Mental Health Research 3 s.h.

Analysis, evaluation; emphasis on program evaluation, geriatric mental health services research, methodological issues. Same as 153:420.

096:425 Research in Sociocultural Perspectives for Family and Women's Health 3 s.h.

Health experiences of U.S. women and families from oppressed, marginalized cultural and social groups; approaches to developing and testing interventions, outcomes promoting and enhancing health of women and families; mid-range theory related to health care access and utilization.

096:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.

Sociocultural issues for aging clients, corresponding nursing interventions; theoretical orientations to dynamics of aging, transitions and role changes, social/environmental issues. Same as 153:430.

096:435 Research in Cognitive and Behavioral Interventions for Children 3 s.h.

Research on cognitive and behavioral problems in children, research designs and data analysis, evaluation of instruments, areas that need further development, development of testable research questions.

096:440 Research Utilization Residency in Care of the Elderly 3 s.h.

Project based on relevant gerontological nursing research. Prerequisites: two courses from 096:410, 096:420, or 096:430.

096:445 Research Residency in Child and Family Nursing 3 s.h.

Research or research utilization project based on relevant child and/or family nursing research; guided by preceptor.

096:450 Research Seminar in Nursing Administration I: Organizational Systems Concepts 3 s.h.

Health care organization, nurses in the organization; data collection instruments; directions for further research, implications for model building, research methods, practice.

096:451 Research Seminar in Nursing

Administration II: Health Care System Concepts 3 s.h.
Management concepts, health care factors that influence delivery of care systems; patient outcomes; measurement of quality nursing care. Prerequisite: 096:450 or consent of instructor.

096:460 Innovations in Nursing Management 3 s.h.

Current and emerging issues that affect functions, responsibilities of nurse administrator; research base for recent innovations in nursing management; delivery of care systems for high-risk populations.

096:462 Research in Nursing Informatics I 3 s.h.

Fundamental theoretical research regarding study of symbolic representation (text, image, voice), comprehending and communicating nursing phenomena, developing methods to build databases, and developing prototypes of decision support systems and workstations. Prerequisites: 096:310 and Ph.D. enrollment.

096:463 Research in Nursing Informatics II 3 s.h.

Builds on 096:462; clinical applications, related research. Prerequisite: 096:462.

096:464 Nursing and Health Representation and Knowledge Building 3 s.h.

Structure and content of health and nursing representation schemes, knowledge retrieval, and knowledge building; strategies for implementing and evaluating representation schemes in health delivery and knowledge development contexts. Pre- or corequisite: 096:463.

096:465 Residency in Nursing Informatics 3 s.h.

Application of nursing informatics in a practice setting.

096:470 Methods and Issues in Nursing Interventions Effectiveness Research 3 s.h.

Issues in conducting research on nursing management and on clinical interventions cost effectiveness; methods and issues in classification of nursing, health, health systems phenomena. Prerequisite: Ph.D. enrollment or postdoctoral standing or consent of instructor.

096:475 Leadership Institute and Career Development 3 s.h.

Four demands of leadership: purpose, direction, and meaning; trust and accuracy; optimism; action and results. Ten-day course. Prerequisite: Ph.D. enrollment or postdoctoral standing or consent of instructor.

096:480 Residency in Nursing Service Administration 3 s.h.

Application of administrative skills in a practice setting.

096:485 Research Residency for Individualized Option 3 s.h.

Participation in a research project based on an individualized plan of study, under guidance of a preceptor.

096:490 Research Practicum 0 s.h.

Participation in ongoing investigative team as research assistant; followed by 096:491. Prerequisite: consent of advisor.

096:491 Research Practicum 0 s.h.

Continuation of 096:490. Prerequisite: consent of advisor.

096:496 Independent Study arr.

Supervised study adjusted to needs of doctoral degree students. Prerequisite: Ph.D. enrollment.

096:497 Dissertation Research Seminar I: Scholarship Development 1 s.h.

Preparation for successful completion of doctoral course work and dissertation, establishment of career research direction. Corequisite: 096:499.

096:498 Dissertation Research Seminar II 0 s.h.

Research methods, analysis procedures.

096:499 Dissertation Research arr.

Electives

ISIS lists nursing electives being offered during a particular semester. Not all courses are offered each semester.

096:108 Basic Aspects of Aging 3 s.h.

Social, psychological, and biological aspects of aging; demographics of aging, health, economic issues, primary relationships, social services. Same as 042:108, 153:108, 169:108.

096:112 Human Sexuality 1-3 s.h.

Physiological, psychological aspects. Same as 07C:112, 042:112.

096:118 Pathophysiology 3 s.h.

Abnormal physiological health transitions; disorders in cells, organs; systems involved in vegetative functioning and biological defense of the human organism. Prerequisites: one course each in anatomy, chemistry, microbiology, physics, physiology, and psychology; or consent of instructor.

096:119 Neurological and Behavioral Pathology 1-2 s.h.

Abnormal physiological and psychological health transitions that have well-documented physiological and/or behavioral bases; focus on neurological and behavioral disorders. Pre- or corequisite: 096:118.

096:137 Nursing Care of the Patient in Pain 3 s.h.

Assessment, pharmacological and nonpharmacological nursing intervention, evaluation of acute, chronic-benign, and chronic-malignant pain. Prerequisite: RN license.

096:138 Nursing Care of the Patient with Cancer 3 s.h.

Basic understanding of the physiology of cancer and various treatment modalities, nursing interventions commonly used with cancer patients and their families, and psychosocial issues in cancer. Prerequisites: 096:124 and 096:135, or RN/B.S.N. enrollment.

096:162 Nursing in Faith Communities:

Introduction to Role and Practice 3-4 s.h.

Parish nursing and nursing roles in a faith community; foundation for development of programs of holistic health care in community-based settings of diverse religions and cultures.

Prerequisites: 096:127 and 096:153 for B.S.N. students; 096:191, 096:192, and 096:193, or consent of instructor for RN students.

096:165 Applied Genetics for Health Care

Professionals 2-3 s.h.

Genetics in health, illness; human genetic principles, their clinical application, their application to health care policy. Prerequisite: RN license or consent of instructor.

096:175 Issues in International Nursing and Health

Care 3 s.h.

Same as 152:175.

096:179 Selected Topics in Nursing 1-2 s.h.

In-depth study of topics in professional nursing practice and health care; workshop format.

096:182 Alternative and Complementary Medicine arr.

Same as 046:105, 078:210.

096:216 Group Leadership in Human Sexuality 0-3 s.h.

Emphasis on role of group leader; method of teaching-didactic presentation, discussion; group experience, practice application. Same as 07C:216, 042:216.

College of Pharmacy

Dean: Jordan L. Cohen

Associate dean, academic affairs: Michael W. Kelly

Associate dean, research and graduate affairs:

Michael W. Duffel

Assistant dean, curriculum and assessment:

Hazel H. Seaba

Assistant dean, University of Iowa Hospitals and

Clinics: Paul W. Abramowitz

Assistant to the dean: Michael T. Sullivan

Director, Division of Pharmaceutical Service:

Rolland I. Poust

Director, Division of Drug Information Service:

Kevin G. Moores

Laboratory director, Center for Advanced Drug

Development: Alta Botha

Head, medicinal and natural products chemistry:

Kevin G. Rice

Head, pharmaceuticals: Craig K. Svensson

Head, clinical and administrative pharmacy:

Bernard A. Sorofofan

Professors: Paul W. Abramowitz, Barry L. Carter, Elizabeth Chrischilles, Jordan L. Cohen, Michael W. Duffel, Douglas R. Flanagan, Lawrence L. Fleckenstein, William A. Miller, Rolland I. Poust, Kevin G. Rice, Andrew Robertson, Bernard A. Sorofofan, Craig K. Svensson, Peter Veng-Pedersen, Dale Eric Wurster

Professors emeriti: Gilbert S. Banker, Charles F. Barfknecht, Joseph G. Cannon, David P. Carew, J. Keith Guillery, Paul J. Perry, John P. Rosazza, Ronald D. Schoenwald, Robert A. Wiley, Dale E. Wurster

Professors (clinical) : Jay D. Currie, James A. Ponto, Hazel H. Seaba

Professor (clinical) emeritus: Bruce Alexander

Adjunct professors: Douglas Geraets, Robert Linhardt, Mary Teresi

Associate professors: Karen A. Baker, John M. Brooks, Maureen D. Donovan, William R. Doucette, Erika J. Ernst, Karen Bell Farris, Zhendong Jin, Lee E. Kirsch, Vijay Kumar, Gary Milavetz, D.J. Murry, Horacio Olivo, Bradley G. Phillips, Vicki Ellingrod Ringold

Associate professors emeriti: Ting-Fong Chin, Lloyd E. Matheson

Associate professors (clinical): Lucinda Buys, Michael Ernst, Ronald A. Herman, James D. Hoehns, Michael W. Kelly, Randal P. McDonough, Cindy Marek

Adjunct associate professors: Helen Eddy, William Fisher, Mickey Jerome, Mark Jones, Holli Kautzman, Craig Logemann, Warren Narducci, Mary Ross, Dorothy Smith, Patti Trenkamp

Assistant professors: Erik Edens, Robert Kerns, Thomas Prisinzano, Aliasger K. Salem, Julie M. Urmie

Assistant professors (clinical): Nancy E. Bonthuis, Christine Catney, Vernon K. Duba, Vicki R. Kee, Deanna L. McDanel, Erin N. Newkirk, Beth B. Phillips, John Swegle

Assistant professor (clinical) emerita:

Ruth A. Calloway

Adjunct assistant professors: Molly Adams, Megan Alderton, Doris Anderson, William Baer, Kenneth Baker, Amy Becker, Elizabeth Beltz, Gabe Billiet, David Blaha, Kimberly Bloedel, Dave Boblenz, Edward Bottei, Greg Brosius, Tammy Bullock, Kim Burton, David Carlson, Pedro Carrillo, Kara Carruthers, Michael Case Haub, Stephanie Chambers, Christopher Clayton, Jennifer Clayton, Amy Cobb, Matthew Conklin, Joe Connolly, Kyra Corbett, Ryan Corell, Thomas Crabb, Carol Crabtree, Jessica Curran, John Daniel III, Roy Davis, Justin Dawson, Cory DeBuhr, Michael Deninger, Peter Diak, Christine Donner-Tiernan, Benjamin Dreesman, Tracy Farnham, Chandra Farrey, Jacquie Fitzgerald, Lisa Flaherty, Barbara Folkmann, Angela Fouts, Sam Frances, Michael Fuller, Lisa Garner, Michelle Glasz, Jenny Go, Nicole Groetken, Tom Halterman, John Hamiel, Jessica Havel, Kelly Herbert, Danielle Hess, Amy Hetrick, Ryan Hobbs, Tom Horeis, Angela Hoth, Steve Hoyman, Yen Hua, Amy Jackson, Ryan Jacobsen, Laurel Janney, Sarah Johnson, Shella Johnson, John Jordan, Thane Kading, Holli Kautzman, Martha Kemp, Kelly Kent, Jeffrey Killeen, Marty Kluesner, Yvonne Koch, Lee Kral, David Kuhl, Patty Kumbera, Thang La, Timothy Lape, Nicholas Lehman, Carissa Lewellyn, Dale Lewis, Susan Lutz, Joseph Mac, Kim Malichky, Steven Martens, Lisa Mascardo, Tracy McVey, Amy Moet, Dawn Moore, Joseph Moore, Douglas Morgan, Joan Murhammer, Jennifer Musick, Johnna Neary, John Ness, Garret Newkirk, Ellen Nickel, Patrick O'Neill, Craig Osland, Robert Osterhaus, Michael Padomek, Eric Peterson, Karen Peterson, Stewart Peterson, Steven Pinneke, Lisa Ploehn, Armand Potestio, Michelle Prull, Kate Puetz, Angela Ramspott, Sharon Rickertsen, Kathy Rinehart, Robert Ripley, Cheri Rockhold Schmidt, Shawn Roe, Margie Ruedy, Linsey Schuldt, Laicy Shiels, Nalinth Sithpe, Scott Sitzman, Michelle Smith, Trisha Smith, Mark Sorenson, Rebecca Stahle, Sheri Sutherland, Amy Taylor, Thomas Temple, Patrick Thies, Scott Thompson, Cristi Turney, Kimberly Van Schepien, James Van Winkle, Sharon Vanek, Sheila Wagner, Nancee Waterbury, Ryan Waterbury, David Weetman, David Wegman, Melissa Wessels, Eric Whitaker, Amber Wilson, Gregory Yeakel

Instructors (clinical): Lucinda M. Harms, Jeff Reist

Adjunct instructors: Gary Albers, Laurie Allbaugh, Brett Anderson, Bruce Babcock, William Baker, Patrick Barnes, Lori Barton, Keven Bebout, Timothy Becker, Jane Beitzel, Michele Birdsell, John Bohلمان, Dennis Boussetlot, Gary Brammer, Heather Bream-Rouwenhorst, David Buresh, Michael Calhoun, Matthew Cantrell, Kevin Cassatt, Robert Chabal, Carl Chalstrom, Kevin Christians, Craig Clark, Ruth Clark, Cheryl Clarke, Connie Connolly, Allen Conrad, Bernard Cremers, Neal

Daley, John Daniel Jr., James DeMong, Tom Devaney, Judi Devine, Kelli DeVore, Jim Dignan, Cynthia Dorr-Harthan, William Drilling, John Drzycimski, Rhonda Emry, Hal Ensrud, Allen Fann, Michelle Farrell, Joshua Feldmann, J.R. Fikuart, Laura Fitzpatrick, Barbara Fjordbak, John Forbes, Laura Gansen, Michelle George, Danette Gibbs, Robert Greco, Dennis Green, Bob Greenwood, Thomas Haas, William Haigh, Jolene Henning, Dave Hester, Kathleen Horner, Sue Horton, Jeff Houseman, Gregory Hoyman, Tracy Hughes, Bryce Jackman, Robyn Jahlas, Kerry Jessen, Darin Johnson, Terry Johnson, Linda Kalin, David Kallsen, Thomas Kruse, Brian Kuehl, Molly Kurpius, Donna Lampe, Terry Lauritsen, Larry Lee, Yvonne Levetzow, Elizabeth Loutspeich, David Lundberg, Gene Lutz, Glen Madsen, Edward Maier, Stephen Martin, Ryan McClellan, Kevin McClimmon, James McEnany, Rex McKee, Jon McKenna, Mark McMullen, Nancy McMullen, Joe Meese, Marsha Meisinger, James Mennen, Jeff Merideth, Dan Mikesh, Melanie Millard, Dana Miller, Diane Miller, James Miller, Dianne Morrison, Jennifer Moulton, John Mulert, Daniel Murphy, Michael Murray, Marilyn Osterhaus, Matthew Osterhaus, Karen Parcher, Susan Phillips, Dan Pomeroy, Susan Purcell, Bruce Rademacher, Patricia Randel, Rebecca Reinhart, Diane Reist, David Reutzel, Jennifer Rode, John Rode, Suzette Rolling, Roger Rose, Gary Roseman, Roger Rossetti, Timothy Schmidt, Dacia Schoning, Scott Schroeder, Karen Schultz, Sharon Scott, Sohila Sepehri, Alan Shepley, Todd Shields, Matthew Shivers, Chris Simpson, Angie Slickers, Thomas Snyder, Susan Sorenson, Kim Spading, Mikayla Spangler, Laura Spicer, Mary Starry, Lindsey Stephens, Sheri Strathman, David Streng, George Sullivan, Nicole Sullivan, Michael Swank, Kristin Sweat, Tina Telander, Don TeRonde, Jerry Thein, Jean Theobald, Michael Theobald, Brenda Thies, Jon Thompson, David Thomsen, Marla Tonn, Lisa Tortora, Michael Tortora, Karen Truesdell, Brandon Vakiner, Patrick Walter, Jill Weetman, James Wester, Doug Wetrich, LuDel Livingston White, Dean Willis, Joseph Wolf, Shari Wood, Douglas Wrenn, Arlene Wright, Kaye Wright, Laurie Wurster, Kay Zepeski, Sara Ziegenfuss

Degrees: Pharm.D.; M.S., Ph.D. in Pharmacy

Web site: <http://pharmacy.uiowa.edu>

The pharmacy profession is concerned with a wide variety of activities, from developing new drug products to caring for patients. A recent concept in the delivery of pharmaceutical services is pharmaceutical care—the responsible provision of drug therapy to achieve defined outcomes that improve patients' quality of life. These outcomes include preventing, arresting, or curing a disease, and/or eliminating or reducing its symptoms.

Pharmaceutical care can enhance health care in rural settings and in primary care among the elderly, who are by far the heaviest users of drug therapy. In order to carry out these responsibilities, pharmacists specialize in the science of drugs and drug information.

Work as a pharmacist dispensing medications and information at the corner pharmacy is just one aspect of the profession. Pharmacists are active in research, clinical practice, teaching, and counseling. Along with their training in science and drug preparation, they learn the business and communication skills necessary for their multifaceted careers.

Demand for qualified pharmacists is high. Iowa's graduates enjoy a 100 percent placement rate. Iowa's pharmacy students study with professors who, in many cases, are pioneering the development of new drugs to solve chronic health problems. They also enjoy advanced research facilities, including those of Iowa's drug research and manufacturing area, where experimental drugs are produced for testing and licensing by manufacturers before being introduced worldwide.

The College of Pharmacy's faculty and programs are organized in divisions defined by three major content areas: clinical and administrative pharmacy, medicinal and natural products chemistry, and pharmaceuticals. These divisions provide course work for both the Doctor of Pharmacy curriculum and specialized graduate programs.

CLINICAL AND ADMINISTRATIVE PHARMACY DIVISION

Faculty in the Clinical and Administrative Pharmacy Division provide expertise and education in the professional practice of pharmacy. Many are practitioners in a wide variety of settings; they provide instruction in the professional role of the pharmacist and the safe and effective use of medications. Course work in this division is related to pharmacotherapy, communication and practice, ethics and law, the organization and administration of the health care system, and patient care. Faculty serve as

role models, providing closely supervised practice experiences.

The division's Master of Science and Doctor of Philosophy programs are based in two areas: clinical pharmaceutical sciences, and pharmaceutical socioeconomics (behavioral, economic, social, and administrative sciences).

MEDICINAL AND NATURAL PRODUCTS CHEMISTRY DIVISION

The Medicinal and Natural Products Chemistry Division provides course work in areas related to understanding the chemistry of drugs and their action on human systems. Additional content areas include principles of drug discovery and drug design, natural product chemistry, and biotechnology/genomic strategies for producing new drug molecules.

The division's Master of Science and Doctor of Philosophy programs provide abundant opportunities for interface with researchers in other areas, including medicine, pharmacology, biochemistry, chemistry, and pharmaceuticals.

PHARMACEUTICS DIVISION

The Pharmaceutics Division focuses on physical pharmacy, dosage form development and performance, industrial and manufacturing pharmacy, and the pharmacokinetics and pharmacodynamics of drugs and biological molecules. The division's Master of Science and Doctor of Philosophy programs parallel the research in the division with specialization in formulation and preformulation sciences, biopharmaceutics, pharmacokinetics, pharmacodynamics, novel drug delivery systems, and tissue engineering. Multidisciplinary program opportunities also exist with faculty in chemistry, engineering, dentistry, and other departments.

Accreditation

The University of Iowa College of Pharmacy is accredited by the American Council on Pharmaceutical Education. Graduates of the Doctor of Pharmacy (Pharm.D.) program are qualified to take the national licensure examination required by the Iowa Board of Pharmacy Examiners.

Doctor of Pharmacy (Pharm.D.)

The Doctor of Pharmacy program prepares students for work as pharmacists. It provides professional education in a number of areas, including pharmaceutical technology,

biopharmaceutics, medicinal chemistry and natural products, pharmaceutical socioeconomics, clinical and hospital pharmacy, and aspects of Biotechnology.

The Tippie College of Business, the Carver College of Medicine, the College of Dentistry, and the College of Liberal Arts and Sciences contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, the humanities, and social sciences.

The Pharm.D. program consists of at least two years of prepharmacy study in the College of Liberal Arts and Sciences at The University of Iowa or at any accredited community or liberal arts college, and four years of pharmacy studies in the College of Pharmacy. Admission deadline is January 1.

The Pharm.D. program requires satisfactory completion of required courses, including at least 12 s.h. of general education electives, a cumulative g.p.a. of at least 2.00, and a pharmacy g.p.a. of at least 2.00. The pharmacy grade-point average is computed from grades earned in all required courses that students have completed while enrolled in the College of Pharmacy, excluding general education electives and professional electives.

Rules and regulations concerning academic probation, pass/nonpass, credit by examination, maximum schedule, second-grade-only option, waiver or substitution of courses, cancellation of registration, drop date, and correspondence study are provided in the College of Pharmacy section of the ISIS Student Handbook, and in the College of Pharmacy Student Handbook.

Admission Acceptance Fee

Students admitted to the College of Pharmacy are required to submit a \$250 admission acceptance fee. The fee is applied to tuition for the student's first semester of enrollment in the college. The deposit is not refunded to applicants who do not enroll in the College of Pharmacy.

Professional Curriculum

Students must be enrolled in the College of Pharmacy to take the college's courses. Graduate students in other majors must have the instructor's consent to take College of Pharmacy courses.

In addition to the specific courses listed here, students must complete 20 s.h. of general education courses chosen from behavioral, social, humanistic, and business disciplines.

FIRST YEAR

First Semester

046:050 Pharmacy Practice I	2 s.h.
046:103 Introduction to Pharmacy Literature	1 s.h.
046:123 Pharmaceutics I: Solutions	4 s.h.
069:133 Introduction to Human Pathology	3 s.h.
099:162 Biochemistry for Pharmacy Students	4 s.h.

Second Semester

046:001 Community Service: Introductory Practice Experience I (if not taken first semester)	1 s.h.
046:051 Pharmacy Practice II	2 s.h.
046:104 Pharmacy Law and Ethics	2 s.h.
046:124 Pharmaceutics II: Solids and Semisolids	4 s.h.
046:128 Medicinal and Natural Products Chemistry I: Biotechnology and Chemotherapy	4 s.h.
071:180 Pharmacology for Pharmacy Students I	3 s.h.

SECOND YEAR

First Semester

046:116 Pharmacy Practice Lab III	2 s.h.
046:131 Medicinal and Natural Products Chemistry II: Pharmacodynamic Agents	4 s.h.
046:138 Pharmacokinetics and Biopharmaceutics	3 s.h.
046:149 Introduction to Therapeutics	2 s.h.
046:154 Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics	2 s.h.
071:181 Pharmacology for Pharmacy Students II	4 s.h.

Second Semester

046:002 Basics of Community Pharmacy: Introductory Practice Experience II (if not taken first semester)	1 s.h.
046:106 Clinical Practice Skills I: Theory and Application	2 s.h.
046:117 Pharmacy Practice Lab IV	2 s.h.
046:132 Medicinal and Natural Products Chemistry III: Medicinal Neurochemistry	4 s.h.
046:155 Respiratory Therapeutics	2 s.h.
046:156 Cardiovascular Therapeutics	2 s.h.
046:170 Clinical Pharmacokinetics	3 s.h.
Professional electives	3 s.h.

THIRD YEAR

Students must complete one semester of 046:003 Introductory Practice Experience III during the third professional year.

First Semester

046:003 Introductory Practice Experience III	1 s.h.
046:107 Clinical Practice Skills II: Critical Patient Analysis	2 s.h.
046:115 Clinical Pharmacy: Drug Literature Review and Evaluation	2 s.h.
046:118 Pharmacy Practice Lab V	2 s.h.
046:130 Core Principles in Pharmaceutical Socioeconomics	3 s.h.
046:158 FEN, GI, and Renal Therapeutics	2 s.h.
046:159 Rheumatology, Immunology, Hematology, Oncology, and Transplantation Therapeutics	2 s.h.
Professional electives	4 s.h.

Second Semester

046:003 Introductory Practice Experience III (if not taken first semester)	1 s.h.
046:108 Clinical Practice Skills III: Applied Patient Management	2 s.h.
046:119 Pharmacy Practice Lab VI	2 s.h.
046:164 Neurology/Psychiatry Therapeutics	2 s.h.
046:165 Infectious Disease Therapeutics	2 s.h.
*Pharmacy socioeconomic selectives (two courses)	4 s.h.
Professional electives	5 s.h.
*Students choose pharmacy socioeconomic selectives from 06E:113, 046:344, 046:355, 046:356, 046:398, and 173:291.	

FOURTH YEAR: ADVANCED PRACTICE EXPERIENCES

During the fourth year, students are required to complete nine advanced-practice rotations. Each rotation is four or five weeks long. Five of the rotations are required, the other four are elective. Students choose elective rotations from a list of professional experiences; see "Rotations" below.

Students earn a total of 36 s.h., as follows.

046:178 Hospital Pharmacy Rotation	4 s.h.
046:179 Community Pharmaceutical Care Rotation	4 s.h.
046:180 Medicine Rotation	4 s.h.
046:181 Family Practice Rotation	4 s.h.
046:183 Community Pharmacy Rotation	4 s.h.
Four elective rotations (4 s.h. each)	16 s.h.

ROTATIONS

046:161 Drug Information Rotation	4 s.h.
046:179 Community Pharmaceutical Care Rotation	4 s.h.
046:180 Medicine Rotation	4 s.h.
046:181 Family Practice Rotation	4 s.h.
046:182 Pediatrics Rotation	4 s.h.
046:184 Psychiatry Rotation	4 s.h.
046:185 Neurology Rotation	4 s.h.
046:186 Surgery Rotation	4 s.h.
046:187 Clinical Nuclear Pharmacy Rotation	4 s.h.
046:189 Pharm.D. Elective Rotation	4 s.h.
046:192 Long Term Care Rotation	4 s.h.
046:193 Home Health Care Rotation	4 s.h.
046:194 Managed Care Rotation	4 s.h.
046:196 Ambulatory Care Rotation	4 s.h.
046:197 Hematology/Oncology Rotation	4 s.h.
046:199 Research Rotation	4 s.h.

PROFESSIONAL ELECTIVES

046:005 Dean's Pharmacy Forum I	1-2 s.h.
046:006 Dean's Pharmacy Forum II	1-2 s.h.
046:011 PDAs and Electronic Drug Information Sources	3 s.h.
046:066 Pharmacy Computer Systems	2 s.h.
046:101 Pharmacy Projects	1-3 s.h.
046:105 Alternative and Complementary Medicine	arr.
046:120 Advanced Compounding	3 s.h.
046:121 Substance Abuse	3 s.h.
046:125 Forensic Toxicology	3 s.h.
046:135 Perspectives in MCNP Research	1 s.h.
046:136 Medicinal Chemistry of CNS Active Agents	3 s.h.
046:142 Contemporary Issues in Pharmacy Practice	2 s.h.
046:144 Elective: Insurance and Reimbursement	2-3 s.h.
046:147 Introduction to Research Methods	3 s.h.
046:157 Quantitative Research Methods in Pharmacy	4 s.h.
046:171 Nonprescription Pharmacotherapy	2 s.h.
046:172 Pharmastatistics	2 s.h.
046:173 Parenteral Products and Technology	2 s.h.
046:174 Pharmacy Service Development	3 s.h.
046:176 Immunization Theory and Practice	2 s.h.
046:177 Emerging Issues in Infectious Diseases	2-3 s.h.
046:198 Elective: Hospital Pharmacy Practice Management	2 s.h.
046:203 Advanced Psychopharmacotherapeutics I	2 s.h.

046:204 Advanced Psychopharmacotherapeutics II	2 s.h.
046:211 Total Synthesis of Natural Products	3 s.h.
046:215 Current Medicinal Chemistry	3 s.h.
046:219 Analytical Biochemistry	3 s.h.
046:227 Medicinal and Natural Product Chemistry Seminar	1-2 s.h.
046:253 Elective: Economics and Treatment Choice	2 s.h.
046:255 Elective: Social Pharmacy	2-3 s.h.
046:256 Elective: Marketing and Healthcare	2 s.h.
046:257 Foundation Literature in Pharmaceutical Socioeconomics	arr.

Joint Pharm.D./M.P.H. Program

The College of Pharmacy and the College of Public Health offer the joint Doctor of Pharmacy/Master of Public Health. The joint Pharm.D./M.P.H. requires 39 s.h. Students who complete the program are granted both degrees.

The Pharm.D./M.P.H. program helps students develop expertise in public health related to pharmacotherapy, health promotion, disease prevention, and medication safety. Its graduates may work in areas of interest common to pharmacy and public health, such as spread and treatment of disease, community health, and immunology; bioterrorism, terrorism, and preparedness; genetics; insurance; managed care; family and juvenile health; and protection of special populations. Employment opportunities are available in hospitals and clinics and with health care providers; private practice; insurance and managed care organizations; local, county, state, and federal government; public health governmental agencies; and colleges and universities.

Separate admission to both programs is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

Admission requirements include a bachelor's degree or a minimum of 120 s.h. of undergraduate course work; an undergraduate cumulative g.p.a. of at least 3.00; one semester each of college algebra and biology; transcripts of all college course work; scores (preferably at or above the national median) on the Graduate Record Exam or the Pharmacy College Admission Test (PCAT); and three professional recommendations (University of Iowa recommendation forms are required).

Contact the College of Pharmacy and the College of Public Health for details.

Requirements

Students in the Pharm.D./M.P.H. program must complete M.P.H. core courses, practicum, and public health electives in addition to courses required for the Pharm.D.

M.P.H. CORE COURSES

Students must earn a B-minus or higher on each core course and a cumulative g.p.a. of at least 3.00 on all core courses. Students may repeat core courses to achieve this standard.

All of these:

170:101 Introduction to Public Health	3 s.h.
171:161 Introduction to Biostatistics	3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.
175:197 Environmental Health	3 s.h.

One of these:

174:102 Introduction to the U.S. Health Care System	3 s.h.
174:200 Introduction to Health Care Organization and Policy	3 s.h.

M.P.H. PRACTICUM

The practicum is a fieldwork experience in which students show proficiency in applying academic principles in community settings. Students must have completed or be enrolled in all six M.P.H. core courses before registering for the practicum. A poster presentation or a final written report with oral presentation or a poster presentation is required. The practicum constitutes the final examination for the M.P.H.

The setting for the 200-hour Pharm.D./M.P.H. practicum must have both public health and pharmacy components.

170:299 M.P.H. Practicum Experience	3 s.h.
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M.P.H. ELECTIVES

Students select electives totaling 9 s.h. from one of the following public health areas: biostatistics, community and behavioral health, public health epidemiology, health communication, occupational and environmental health, public health genetics, health administration and policy, or an approved M.P.H. focus area (aging studies; global health; maternal, child, and family health; or nutrition and exercise). Electives are chosen in consultation with the student's pharmacy and public health advisors.

COURSES THAT COUNT TOWARD BOTH DEGREES

The following required courses from the Pharm.D. curriculum (9 s.h.) also count as credit toward the M.P.H.: 046:130 Core Principles in Pharmaceutical Socioeconomics, 046:154 Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics, 046:156 Cardiovascular Therapeutics, and 046:165 Infectious Disease Therapeutics.

PHARM.D. REQUIREMENTS

The joint Pharm.D./M.P.H. program requires students to complete the professional curriculum of the Pharm.D. program (see "Doctor of Pharmacy" earlier in this section).

Students must be enrolled in the College of Pharmacy in order to take College of Pharmacy courses.

Admission

The college-level course work outlined below is the minimum academic requirement for admission to the College of Pharmacy. The Pharmacy College Admission Test (PCAT), a personal statement, personal interviews, and letters of recommendation are required for admission. Students must have an overall cumulative g.p.a. of at least 2.50 to be considered for admission.

Fulfillment of these requirements does not ensure admission to the college; the admission committee selects the best qualified applicants. Questions concerning satisfaction of degree requirements should be directed to the College of Pharmacy Office of Academic Affairs.

Preprofessional Course Work

Rhetoric: 8 s.h., or 6 s.h. of transfer credit in English composition and rhetoric, and 2-3 s.h. in speech (010:001 and 010:002, or 010:003)

Human anatomy: 3 s.h. (060:110)

General biology: 8 s.h. (002:010-002:011 Principles of Biology I-II)

General chemistry: 8 s.h. (004:011-004:012)

Organic chemistry: 6 s.h. (004:121-004:122)

Mathematics: 3-4 s.h. of a satisfactory differential and integral calculus course (22M:016)

Microbiology: 4 s.h. (061:164)

Microeconomics: 3-4 s.h. (06E:001)

Physics: one year of high school physics or one semester of college-level physics with a lab (029:008)

Human physiology: 3 s.h. (027:130)

Statistics: 3 s.h.

General education electives: at least 12 s.h.

Each student must complete 20 s.h. of general education courses in order to graduate. Courses in moral reasoning or ethics, communications, computer science, and business are recommended. Courses in the behavioral and social sciences and the humanities are acceptable. Courses in physical education skills, applied music, and studio art are not acceptable.

Transfer Students

A grade of C or higher is required for transfer work applied toward the pharmacy degree.

Financial Support

All P2-P4 students are encouraged to apply for College of Pharmacy scholarships. Applications are available each April from the Pharmacy Office of Academic Affairs. Students complete a single application form in order to be considered for all scholarships. Award amounts vary. The Awards and Recognition Committee selects the best-qualified applicant for each scholarship.

Courtney Adam Scholarship: based on financial need.

Seymour M. Blaug Memorial Award: for a pharmacy student with above-average academic achievement.

Ilse O. Buckner Scholarship: for a pharmacy student who maintains satisfactory academic progress; nonrenewable, financial need is considered.

Burroughs Wellcome Scholarship: for selected pharmacy students; financial need is considered.

David and James Carlson Scholarship for pharmacy students interested in clinical or hospital practice; financial need is considered.

Vernon Conzemius Scholarship: for selected pharmacy students.

Ben M. Cooper Memorial Award: for an academically outstanding undergraduate student; preference is given to students from Scott County, Iowa; financial need is considered.

CVS Scholarship: for a student in good academic standing who is interested in community pharmacy.

Max Eggleston Scholarship: for a student who has completed one year; preference is given to students from Iowa; based on financial need.

Alice Coxon Gates Scholarship: for an Iowa resident with a commitment to pharmacy.

Lori A. Grimes Memorial Scholarship: based on financial need.

Dick and Brenda Hartig Scholarship: preference is given to students from Dubuque, Waukon, Dyersville, Iowa City, Galena, or Stockton, Iowa; based on financial need.

Thomas D. Hill Scholarship: for any pharmacy student in good academic standing.

Frances T. and Charles Holub Memorial Award: for selected third-year pharmacy students; financial need is considered.

Iowa Pharmacy Foundation Scholarship: for selected pharmacy students who are residents of Iowa and who demonstrate outstanding academic ability; financial need is considered.

Johnson County Pharmacists Association Scholarship: for any student member of JCPS with a grade-point average of at least 3.00.

Kuever Scholarship Fund: for a pharmacy student from Iowa who is in good academic standing.

Ernest Kyle Memorial Scholarship: for a pharmacy student from Iowa who is in good academic standing.

J.M. Long Foundation Scholarship: for a P2 or P3 student interested in community pharmacy practice.

Ronald Madden Scholarship: for an Iowa high school graduate with a B or higher average in high school.

Charles J. Malecek Pharmacy Scholarship: for a selected pharmacy student.

McQueary Brothers Scholarship: for a selected pharmacy student.

Carleton Mikkelsen Scholarship: for the top P4 student based on final P3 grade-point average.

Miller-Ruegnitz Scholarships: based on financial need.

NACDS Scholarship: for a student who is interested in community pharmacy.

Osco Scholarship: for students currently employed in a community pharmacy setting who are residents of a state with Osco pharmacies.

Petersen Linder Scholarship: for a pharmacy student in excellent academic standing who has

outstanding leadership skills; based on financial need.

Pharmacists Mutual Scholarship: for a student who intends to become a community practitioner and who is from a midwestern state where Pharmacists Mutual operates; based on academic achievement and need.

Gordon H. Sheffield Scholarships: for P3 or P4 students who are residents of Iowa; who have demonstrated outstanding academic ability, leadership, and financial need; and who have contributed service to the University community.

ShopKo Scholarship: preference is given to students from Iowa who are interested in a career with ShopKo and who are from Burlington, Dubuque, Fort Madison, Mason City, Sioux City, or Pamida; financial need is considered.

Shutt Pharmacy Scholarship: preference is given to Iowa residents; based on financial need.

H. Curtis Snyder Award: for a pharmacy student in good standing.

Target Award: based on Target experience, community leadership, and service.

Wilbur J. Teeters Scholarship: for a pharmacy student who has completed at least one year in the college; financial need is considered.

Teeters/Wahl Scholarship: for pharmacy students based on outstanding academic ability, U.S. citizenship, and financial need.

John Stanley Thor Memorial Award: for a pharmacy student in good standing.

Wal-Mart Scholarship: for a P3 or P4 student with high scholastic standing who demonstrates strong leadership, desire to enter a community pharmacy practice, and financial need.

Walgreen's Scholarship: for a P4 student with a grade-point average of at least 2.00, outstanding leadership, and excellent communication skills.

Louis C. Zopf Memorial Award: for a pharmacy student who is academically qualified; financial need is considered.

John D. Zuelke Scholarship: preference given to a P3 or P4 student from Wapello County, Iowa.

Graduate Programs

The college has four graduate programs. Master of Science and/or Doctor of Philosophy programs are available in clinical pharmaceutical science,

medicinal and natural products chemistry, pharmaceutical socioeconomics, and pharmaceuticals.

Advanced study in the pharmaceutical sciences prepares students for research, teaching, and administrative positions in the pharmaceutical industry, in colleges and universities, in government agencies, and in health-related institutions and organizations.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Academic requirements for maintaining graduate registration are determined by the Graduate College and by the individual divisions of the College of Pharmacy.

For more information about graduate study, visit the College of Pharmacy web site.

Facilities

The Pharmacy Building is located on the University's Health Science Campus, in close proximity to the Carver College of Medicine, College of Dentistry, College of Nursing, and College of Public Health. Also nearby are University of Iowa Hospitals and Clinics, the Bowen Science Building, and the Hardin Library for the Health Sciences.

The Pharmacy Building is a five-story structure designed to provide modern facilities for a comprehensive program of pharmacy education. In addition to classrooms and auditoriums, there are well-equipped separate laboratories for instruction at the professional and graduate levels.

The college operates small and large classrooms with state-of-the-art technology. The student practice lab is a technologically advanced licensed pharmacy that provides real and simulated practice experiences. The Banker Student Activity Center provides quiet individual and small-group study environments and houses College of Pharmacy Student Organizations offices.

The building also houses a fully supported Instructional Technology Center (Pharmacy ITC) in the Learning Resource Center. The ITC provides state-of-the-art desktop workstations and laptop computers available for student checkout. Both desktop and laptop computers have secure connections to the University network for online drug information searching and printing.

The Center for Advanced Drug Development can engage in the full range of the drug development

process through the resources of The University of Iowa's Division of Pharmaceutical Service, the Iowa Drug Information Network, and the Center for Biocatalysis and Bioprocessing.

The Division of Pharmaceutical Service, a pharmaceutical manufacturing facility registered with the U.S. Food and Drug Administration, develops pharmaceutical dosage forms and manufactures clinical supplies in compliance with Good Manufacturing Practices for clinical trials in humans. Its staff works closely with clients and pharmaceuticals faculty members to produce virtually every type of pharmaceutical dosage form.

The Division of Drug Information Service, a service division of the college located on the University's Oakdale Campus, publishes the IDIS (Iowa Drug Information Service), a bibliographical database that provides full-text access to specialized information related to drugs and drug therapy. IDIS reaches subscribers throughout the world. The division also is home to the Iowa Drug Information Network, which serves a network of community pharmacies and family practice sites with drug information resources, educational programs, and direct-response consultations that support the pharmaceutical care initiatives at the network's sites. The division plays an important educational role for pharmacy students by providing both didactic and experiential teaching in drug information.

The College of Pharmacy provides students with the highest possible quality in the professional experiential program. College faculty members and adjunct faculty members serve as preceptors, and varied institutions and pharmacies in Iowa and nationwide provide advanced-practice experience.

Courses

For Doctor of Pharmacy Students

Clinical and Administrative Pharmacy

046:001 Community Service: Introductory Practice Experience I 1 s.h.
Fundamental elements of communication, teamwork, and caring in the health professional role. Repeatable. Prerequisite: P1 standing.

046:002 Basics of Community Pharmacy: Introductory Practice Experience II 1 s.h.
Fundamental activities of community-based ambulatory pharmacy practice; short period of intensive practice. Repeatable. Prerequisite: 046:050.

046:003 Introductory Practice Experience III 1 s.h.
Experience observing and exploring fundamental elements of pharmacist's role, including patient care, communication, decision making, critical thinking, teamwork; one semester part-time. Repeatable. Prerequisite: 046:051.

046:005 Dean's Pharmacy Forum I 1-2 s.h.
Contemporary issues in pharmacy practice, pharmacy education, and health care.

046:006 Dean's Pharmacy Forum II 1-2 s.h.
Contemporary issues in pharmacy practice, pharmacy education, and health care.

046:011 PDAs and Electronic Drug Information Sources 3 s.h.
Introduction to Palm OS PDA and web-based drug information sources for pharmacy students.

046:012 Survey of Basic Pharmaceutical Sciences 1-2 s.h.
Aspects of drug discovery and development; seminar with guest speakers from industry. Prerequisite: admission to Pharm.D. program.

046:018 Journey through Illness 1 s.h.
Chronic illness from a patient's perspective; discussion with patients.

046:050 Pharmacy Practice Lab I 2 s.h.
Prescription interpretation, aseptic technique in the preparation of parenteral products, patient counseling, applications of drug information and law. Prerequisite: P1 standing.

046:051 Pharmacy Practice Lab II 2 s.h.
Continuation of 046:050. Prerequisites: 046:050 and P1 standing.

046:066 Pharmacy Computer Systems 2 s.h.
Fundamentals of data storage and retrieval for pharmacy information systems.

046:103 Fundamentals of Evaluating Clinical Research 1 s.h.
Basic concepts for evaluation of clinical trials published in primary biomedical and pharmacy literature; design, methods, outcomes, statistical analysis, and generalizability of results. Prerequisite: P1 standing.

046:104 Pharmacy Law and Ethics 2 s.h.
Legal and moral aspects involved in the practice of pharmacy. Prerequisite: P1 standing.

046:105 Alternative and Complementary Medicine arr.
Prerequisite: P4 standing. Same as 078:210, 096:182.

046:106 Clinical Practice Skills I: Theory and Application 2 s.h.
Exploration and development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork. Corequisite: 046:155.

046:107 Clinical Practice Skills II: Critical Patient Analysis 2 s.h.
Continuation of 046:106; development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork. Prerequisite: P2 standing. Corequisite: 046:158.

- 046:108 Clinical Practice Skills III: Applied Patient Management** 2 s.h.
Continuation of 046:107; development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork. Prerequisite: P3 standing. Corequisite: 046:164.
- 046:115 Drug Literature Evaluation** 2 s.h.
Study design methods, drug information techniques and skills; skill development in critical analysis and evaluation of published reports of drug use and drug trials, assessment of validity of reports, trials and studies, assessment of generalizability of results to individual patients and patient groups; laboratory experience in biomedical literature analysis, evaluation.
- 046:116 Pharmacy Practice Lab III** 2 s.h.
Pre- or corequisites: 046:149 and 046:154.
- 046:117 Pharmacy Practice Lab IV** 2 s.h.
Continuation of 046:116. Pre- or corequisites: 046:155 and 046:156.
- 046:118 Pharmacy Practice Lab V** 2 s.h.
Continuation of 046:117. Pre- or corequisites: 046:158 and 046:159.
- 046:119 Pharmacy Practice Lab VI** 2 s.h.
Continuation of 046:118. Pre- or corequisites: 046:164 and 046:165.
- 046:121 Substance Abuse** 3 s.h.
Themes and concepts in substance abuse and treatment; stimulants, depressants, alcohol, opiates, hallucinogenics, steroids; drug abuse prevention and treatment, including dual diagnosis, from cradle to the grave.
- 046:125 Forensic Toxicology** 3 s.h.
Pharmacology, pharmacokinetics, and pharmacodynamics of drugs of abuse, toxic drugs, and chemicals applied to the needs of the law. Prerequisites: 046:138, 071:181, and P3 standing.
- 046:130 Core Principles in Pharmaceutical Socioeconomics** 3 s.h.
Organization and financing of the U.S. health care system, role of pharmaceuticals in health care, role of pharmacists in health care, patient influence on health care decisions. Prerequisite: a microeconomics course.
- 046:144 Elective: Insurance and Reimbursement** 2-3 s.h.
Insurance and reimbursement for prescription drugs and pharmacist services; related policy issues.
- 046:146 End of Life Care for Adults and Families** 2-4 s.h.
Same as 050:147, 096:147, 153:147.
- 046:149 Introduction to Therapeutics** 2 s.h.
Treatment modalities that promote health and treat common diseases; common laboratory and diagnostic procedures used to diagnose and monitor diseases; basic types of adverse drug reactions. Prerequisite: P2 standing.
- 046:154 Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics** 2 s.h.
Pharmacotherapy for endocrine and ophthalmologic disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P2 standing.
- 046:155 Respiratory and Dermatologic Therapeutics** 2 s.h.
Pharmacotherapy for respiratory and dermatology disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P2 standing.
- 046:156 Cardiovascular Therapeutics** 2 s.h.
Pharmacotherapy for cardiovascular disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P2 standing.
- 046:158 FEN, GI, and Renal Therapeutics** 2 s.h.
Pharmacotherapy for fluid/electrolyte/nutrition disorders; gastrointestinal and renal diseases; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P3 standing.
- 046:159 Rheumatology, Immunology, Hematology, Oncology, and Transplantation Therapeutics** 2 s.h.
Pharmacotherapy for rheumatology, immunology, hematology, oncology, and transplantation; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P3 standing.
- 046:164 Neurology/Psychiatry Therapeutics** 2 s.h.
Pharmacotherapy for psychiatric and neurologic disorders; review of disorders, therapeutic goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P3 standing.
- 046:165 Infectious Disease Therapeutics** 2 s.h.
Pharmacotherapy for infectious disorders; review of disease, therapeutic goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P3 standing.
- 046:169 Introduction to Pharmacogenomics** 2 s.h.
Introduction to pharmacogenetics in pharmacy; laboratory techniques, application of pharmacogenetics to clinical pharmacy.
- 046:170 Clinical Pharmacokinetics** 3 s.h.
Application of pharmacokinetics to the clinical setting. Prerequisite: P3 standing.
- 046:171 Nonprescription Pharmacotherapy** 2 s.h.
Introduction to nonprescription medications; development of patient assessment and consultation skills; understanding of pharmacist's role in patient self-care.
- 046:174 Pharmacy Service Development** 3 s.h.
Issues and approaches used to develop pharmacy services; planning, service design, payment, promotion, quality improvement. Prerequisite: P3 standing or consent of instructor.
- 046:176 Immunization Theory and Practice** 2 s.h.
Preparation for administering routine immunizations safely and responsibly under specific order of a prescriber; preparation for administering vaccinations under protocol according to rules of the Iowa Boards of Pharmacy and Medical Examiners. Prerequisites: 046:159 and P3 standing.
- 046:177 Emerging Issues in Infectious Diseases** 2-3 s.h.
Contemporary issues related to infectious diseases; unusual pathogens such as Ebola, tropical medicine, bioterrorism, resistance, travel medicine, epidemiology.
- 046:198 Elective: Hospital Pharmacy Practice Management** 2 s.h.
Practice management issues; organizational structure, service delivery models, drug policy, drug and pharmacy costs, use of technology and informatics, supervision, quality improvement.
- 046:214 Pharmaceutical and Chemical Toxicology** 3 s.h.
Principles and mechanisms of chemical toxicology related to drugs and environmental agents; modern toxicological research methods. Prerequisite: consent of instructor.
- 046:253 Elective: Economics and Treatment Choice** 2 s.h.
Introduction to patient and population pharmacoeconomic modeling; clinical decision, cost-minimization, cost-effectiveness, cost-utility, and cost-benefit analysis.
- 046:344 PSE Selective: Insurance and Reimbursement** 2 s.h.
Insurance and reimbursement for prescription drugs and pharmacist services; related policy issues. Prerequisite: P3 standing.

046:353 PSE Selective: Economics and Treatment Choice 2 s.h.

Patient and population pharmacoeconomic modeling; clinical decision analysis, cost-minimization analysis, cost-effectiveness analysis, cost-utility analysis, cost-benefit analysis. Prerequisite: P3 standing.

046:355 PSE Selective: Social Pharmacy 2 s.h.

Behavioral and social aspects of drug use in society; therapeutic uses of medications, pharmaceutical care systems, pharmacy-related health behaviors. Prerequisite: P3 standing.

046:356 PSE Selective: Marketing and Healthcare 2 s.h.

Marketing concepts and principles applied to health care, especially pharmacy and pharmaceuticals; marketing management, patient behavior, marketing plan, marketing mix, promotion. Prerequisite: P3 standing.

046:377 Introduction to Health Disparities and Culturally Competent Care 2-4 s.h.

Characteristics, causes, and effects of health disparities in the U.S. health care system; foundation for development of knowledge, attitudes, and skills required of culturally competent health care providers; definitions and models of cultural competence, characteristics of culturally effective practitioners and workplaces; health disparities among specific populations, evidence for cultural competence as a remedy; taking a culturally appropriate history; working with interpreters; legal and professional imperatives for cultural competence.

046:398 PSE Selective: Hospital Pharmacy Practice Management 2 s.h.

Organizational structure of pharmacy departments in hospitals and health care systems; models for delivery of pharmaceutical care; pharmacy's role in drug-policy decision making; provision of drug information; clinical and distributive pharmacy services; control of pharmacy and pharmacy costs; use of information technology and automation for service delivery; supervisory management; quality improvement. Prerequisite: P3 standing.

Clinical and Administrative Pharmacy Professional Experience

046:161 Drug Information Rotation arr.
Drug information knowledge applied to service and research projects. Prerequisites: P4 standing and consent of instructor.

046:175 Clinical Investigation 1-4 s.h.
Development of research skills through completion of a research project.

046:178 Hospital Pharmacy Rotation 4 s.h.
Practicum experience in components of hospital pharmacy; emphasis on hospital organization, inpatient and outpatient services, IV additives, unit dose, clinical services; many sites available. Prerequisites: P4 standing and consent of instructor.

046:179 Community Pharmaceutical Care Rotation 4 s.h.
Delivery of pharmaceutical care in the community pharmacy and ambulatory primary care environment. Prerequisite: P4 standing.

046:180 Medicine Rotation arr.
Advanced application of therapeutic skills necessary for the pharmacotherapeutic management of patients in general medicine or other subspecialties. Prerequisite: P4 standing.

046:181 Family Practice Rotation arr.
Advanced clinical experience in primary care environment involving drug therapy management of a wide variety of acute and chronic medical problems in patients of all ages. Prerequisite: P4 standing.

046:182 Pediatrics Rotation arr.
Advanced application of clinical pharmacology/toxicology principles to optimize disease management in the inpatient and outpatient pediatric population. Prerequisite: P4 standing.

046:183 Community Pharmacy Rotation 4 s.h.
Practicum experience in community pharmacy; drug distribution, communication with patients, management functions. Prerequisites: P4 standing and consent of instructor.

046:184 Psychiatry Rotation arr.
Advanced application of clinical pharmacotherapeutics and pharmacokinetic psychopharmacology to the care of inpatient and outpatient psychiatric patients using a consultant role model. Prerequisite: P4 standing.

046:185 Neurology Rotation arr.
Lecture and advanced clinical practice of pharmacotherapeutics related to neurological diseases. Prerequisite: P4 standing.

046:186 Surgery Rotation arr.
Advanced application of therapeutic skills necessary for the pharmacotherapeutic management of general surgery patients. Prerequisite: P4 standing.

046:187 Clinical Nuclear Pharmacy Rotation arr.
Advanced clinical instruction in the uses of radiopharmaceuticals, radiopharmaceutical drug interactions, pharmacological intervention in nuclear medicine studies, radiopharmaceutical drug information. Prerequisite: P4 standing.

046:189 Pharm.D. Elective Rotation arr.
Advanced practice experience in a nontraditional setting. Prerequisite: P4 standing.

046:192 Long Term Care Rotation 4 s.h.
Practice in consulting and providing services to varied long-term patient care environments. Prerequisite: P4 standing.

046:193 Home Health Care Rotation 4 s.h.
Team approach to delivery of health care in home health care setting; total parenteral nutrition, chemotherapy, intravenous antibiotics, lab analysis, hospice care, pain management. Prerequisite: P4 standing.

046:194 Managed Care Rotation 4 s.h.
Practice experience in providing pharmaceutical care in managed care settings. Prerequisite: P4 standing.

046:196 Ambulatory Care Rotation 4 s.h.
Pharmaceutical care in outpatient settings such as internal medicine clinics, diabetes education centers, other specialty clinics. Prerequisite: P4 standing.

046:197 Hematology/Oncology Rotation 4 s.h.
Drug therapy management of adult oncology patients and patients with hematologic malignancies, aplastic anemia, sickle cell disease, hemophilia. Prerequisite: P4 standing.

046:199 Research Rotation 4 s.h.
Practice experience in basic pharmaceutical or clinical research; proposal, study design, data collection and analysis, presentation of results. Prerequisite: P4 standing.

Medicinal and Natural Products Chemistry

046:128 Medicinal and Natural Products Chemistry I: Biotechnology and Chemotherapy 4 s.h.
Organic and inorganic medicinal and therapeutic agents of natural and synthetic origin; physical, chemical, biological, and biochemical properties as they relate to medicinal and therapeutic effects; comparative biological activity and toxicity; detoxication mechanisms; functional group chemistry; nomenclature; chemistry of radiodiagnostic and therapeutic agents; introduction

to biopharmaceutical analysis; first of a three-course sequence. Prerequisites: 004:122, 061:112, and 099:162 or equivalents, and P1 standing.

046:131 Medicinal and Natural Products Chemistry II: Pharmacodynamic Agents 4 s.h.
Medicinal chemistry of pharmacodynamic agents; introduction to peptides and proteins, thyroid hormone, diabetes, vaccines, gene therapeutics, NSAIDs, cardiovascular drugs, antihistamines, anticancer drugs; second of a three-course sequence. Prerequisites: 046:128 and P2 standing.

046:132 Medicinal and Natural Products Chemistry III: Medicinal Neurochemistry 4 s.h.
Receptor site theory; steroids, lipids, and prostaglandins; sedatives and hypnotics; drugs of abuse; cholinergics; excitatory amino acids and anticonvulsants; major analgesics; adrenergics; psychotherapeutics; third of a three-course sequence. Prerequisites: 046:128, 046:131, and P2 standing.

Pharmaceutics

046:101 Pharmacy Projects 1-3 s.h.
Basic and applied research problems of pharmaceutical interest.

046:120 Advanced Compounding 3 s.h.
Conceptual and practical framework for resolving therapeutic issues in compounding pharmacy practice; design and preparation of compounded medicaments using current quality assurance methods, legal aspects of compounding, development and marketing of a compounding practice. Prerequisites: 046:051 and 046:124.

046:123 Pharmaceutics I: Solutions 4 s.h.
Application of physical and chemical principles to formulation, preparation of liquid dosage forms, including solution, colloids, ointments, emulsions. Prerequisite: P1 standing.

046:124 Pharmaceutics II: Solids and Semi-solids 4 s.h.
Properties of solids; formulation, preparation, evaluation of solid dosage forms. Prerequisite: P1 standing.

046:138 Pharmacokinetics and Biopharmaceutics 3 s.h.
Qualitative and quantitative description of kinetics of drug absorption, distribution, and elimination, including physiological factors that influence each process; adjustment of dosing regimens for optimizing therapeutic drug levels in the body. Prerequisites: 046:123 and 046:124.

046:172 PharmaStatistics 2 s.h.
Introduction to the use of statistics.

046:173 Parenteral Products and Technology 2 s.h.
Knowledge and application of parenteral products and the technology used to compound and administer them. Prerequisites: 046:051 and 046:123.

046:290 Tissue Engineering 3 s.h.
Introduction to tissue engineering; scaffolds, fundamentals, principles. Same as 051:175, 052:227.

For Graduate Students

Clinical and Administrative Pharmacy

046:147 Introduction to Research Methods 3 s.h.
Scientific inquiry, experimental design, data collection, statistical methods used in the study of health services and clinical investigations; focus on understanding the research process and evaluating published studies. Prerequisite: consent of instructor. Recommended: introductory statistics.

046:213 Pharmaceutical Socioeconomics: Seminar 1-2 s.h.
Recent research in pharmacy administration. Repeatable.

046:243 Clinical Pharmacy Sciences Research arr.

046:245 Analytical Techniques in Therapeutics 3 s.h.
Basic concepts and techniques of HPLC, Elisa/RIA, PCR, in vitro pharmacodynamic models, cell culture, animal models; identification of problems, solutions.

046:251 Pharmaceutical Socioeconomics: Research arr.

046:255 Elective: Social Pharmacy 2-3 s.h.
Behavioral and social aspects of drug use in society; emphasis on therapeutic uses of medications, pharmaceutical care systems, pharmacy-related health behaviors.

046:256 Elective: Marketing and Healthcare 2 s.h.
Research on marketing's impact on delivery and consumption of health care, and on changes in marketing that result from evolution of health care systems. Prerequisite: graduate standing.

046:257 Foundation Literature in Pharmaceutical Socioeconomics arr.
Issues related to pharmacy administration, social and behavioral pharmacy, pharmacy education.

046:261 Analytic Issues in Health Services Research I 3 s.h.
Same as 174:261.

046:262 Analytic Issues in Health Services Research II 3 s.h.
Same as 174:262.

046:263 Models of Patient Behavior and Choice 3 s.h.
Theoretical models used to describe behavior and choice in pharmaceutical socioeconomic research; models from economics, health services research, health behavior, clinical decision making.

046:264 Models of Provider Behavior and Choice 3 s.h.
Theoretical background for study of provider decision making and behavior; models based on a classic economic approach, models used to study provider behavior.

046:269 Introduction to Clinical Pharmacogenomics 3 s.h.
Basic pharmacogenetic techniques; use of pharmacogenomics in clinical pharmacy. Prerequisite: 002:128.

046:280 Clinical Pharmacy Sciences Seminar 1-2 s.h.
Research by faculty, graduate students.

046:282 Advanced Pharmacokinetic/ Pharmacodynamic Topics 2 s.h.
Basic concepts, computer fitting. Prerequisite: 046:170.

046:284 Introduction to Pharmaceutical Sciences Research 2 s.h.
Key principles and methods in pharmaceutical sciences research. Prerequisite: consent of instructor.

046:378 Translation Research and Clinical Drug Development 3 s.h.
Clinical drug development; preclinical studies and clinical trials; phase I, II, and III clinical trials, including regulatory considerations.

046:379 Principles of Experimental Therapeutics 3 s.h.
Introduction to key principles and concepts for research in experimental therapeutics; basic principles related to drug disposition, toxicity, and efficacy.

046:380 Applied Clinical and Translational Science 3 s.h.
Application of clinical and translational science in a multidisciplinary collaborative environment to develop, conduct, and report research.

Medicinal and Natural Products Chemistry

046:135 Perspectives in MCNP Research 1 s.h.
Contemporary research in medicinal chemistry and natural products.

046:136 Medicinal Chemistry of CNS Active Agents 3 s.h.
Concepts for understanding the chemistry and pharmacology of agents on the central nervous system. Prerequisite: second-semester organic chemistry.

046:137 Enzymatic Basis of Drug Metabolism 3 s.h.
Current literature on catalytic and physical properties, distribution, and substrate specificity of enzymes involved in mammalian drug metabolism. Prerequisites: 004:122 and 099:162, or consent of instructor.

046:150 Synthetic Strategies in Medicinal Chemistry 3 s.h.
Modern chemical methods for construction of carbon-carbon bonds commonly used in synthesis of natural products; strategic disconnections for the syntheses of these molecules. Prerequisites: 004:122 and 046:132.

046:211 Total Synthesis of Natural Products 3 s.h.
Total synthesis of natural products; use of strategies, tactics, efficiency, selectivity, synthetic maneuvering. Prerequisite: consent of instructor.

046:215 Current Medicinal Chemistry 3 s.h.
Modern techniques used in drug discovery; important drug classes, their chemical mechanism of action. Prerequisite: 046:132 or consent of instructor.

046:217 Medicinal and Natural Products Chemistry Research arr.

046:219 Analytical Biochemistry 3 s.h.
Application of modern chromatographic and detection methods used to isolate, characterize, and quantify drugs and macromolecules.

046:227 Medicinal and Natural Products Chemistry Seminar 1-2 s.h.

046:275 Perspectives in Biocatalysis 1-3 s.h.
Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Repeatable. Same as 004:275, 052:275, 053:275, 061:275, 099:275.

Pharmaceutics

046:148 Pharmacokinetics and Pharmacodynamics 3 s.h.
Kinetics of drug absorption, distribution, and elimination, including development of mathematical models. Prerequisites: two semesters of calculus and one semester of statistics, or consent of instructor.

046:157 Quantitative Research Methods in Pharmacy 4 s.h.
Lecture and laboratory; collection and interpretation of analytical data; instrumental analysis as applied to pharmaceutical quality control; separation techniques.

046:202 Pharmacy: Selected Topics 1-4 s.h.
Recent advances and contemporary research in pharmaceutics. Repeatable.

046:203 Advanced Psychopharmacotherapeutics I 2 s.h.
Drug treatment of psychiatric disorders involving psychosis and depression. Prerequisite: 071:105 or 096:124, or 071:180 and 071:181.

046:204 Advanced Psychopharmacotherapeutics II 2 s.h.
Drug treatment of psychiatric disorders involving mania, anxiety disorders, drug-induced psychosis, substance abuse treatment, childhood depression, attention-deficit hyperactivity disorder. Prerequisite: 071:105 or 096:124, or 071:180 and 071:181.

046:206 Stability of Pharmaceuticals 3 s.h.
Mechanisms of degradation of pharmaceuticals; prediction of shelf life of pharmaceuticals, stabilization. Prerequisite: 004:132.

046:207 Polymers in Pharmaceutics 3 s.h.
Polymer science, its implications in pharmaceutics; polymers useful as excipients in design of controlled and/or sustained release products.

046:225 Product Development 3 s.h.
Application of physico-chemical principles to formulation and design of pharmaceutical dosage forms.

046:229 Advanced Pharmacokinetics and Pharmacodynamics 3 s.h.
Selected topics, including nonlinear curve fittings. Prerequisite: 046:148.

046:231 Pharmacy Seminar 1-2 s.h.
Repeatable.

046:232 Drug Delivery: Principles and Applications 3 s.h.
Design and development of drug delivery systems; mathematical analysis of dosage form performance; applications of advanced technology in emerging systems. Prerequisite: 046:237 or consent of instructor.

046:233 Pharmacy: Research arr.

046:235 Equilibria Processes 3 s.h.
Equilibria pertaining to ionic systems, complexation, partitioning, solubility. Prerequisite: 004:131.

046:236 Surface Phenomena arr.
Behavior of matter in phase boundaries, especially adsorptive processes at liquid-solid and vapor-solid interfaces. Prerequisite: 004:131.

046:237 Transport Phenomena 3 s.h.
Diffusion and mass transport phenomena related to pharmaceutical systems. Prerequisite: 004:131.

College of Public Health

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Dean: James A. Merchant

Associate dean, faculty affairs and research:

Leon F. Burmeister

Associate dean, education and student affairs:

Tanya Uden-Holman

Associate dean, public health practice:

Christopher G. Atchison

Interim associate dean, external relations:

John B. Lowe

Associate dean, diversity: Joe Dan Coulter

Assistant dean and director, M.P.H. program:

Mary Lober Aquilino

Graduate degrees: M.H.A., M.P.H., M.S., Ph.D.

Graduate nondegree program: Certificate in Public Health

Web site: <http://www.public-health.uiowa.edu>

The College of Public Health, established in 1999, is a partner with the Carver College of Medicine and the Colleges of Dentistry, Nursing, and Pharmacy in striving to improve human health and well-being. Consistent with the interdisciplinary traditions of public health, the college also collaborates with non-health science colleges across the University and with other Board of Regents, State of Iowa institutions, state and local agencies, and the private sector.

A population-based approach to health is a distinguishing feature of public health and of the college. For public health practitioners—a wide range of professionals including physicians, nurses, dentists, pharmacists, social workers, nutritionists, environmental scientists, health educators, and health service administrators—the primary focus is on the health of entire communities rather than individual patients. Tools commonly used by public health professionals to improve and enhance quality of life include analytical methods to identify, describe, and monitor the health of communities and populations at risk; education and prevention programs, methods of assuring access to appropriate and cost-effective care; and formulation of sound public policies.

The public health approach has led to many important health improvements over the past century. Vaccination campaigns, improved sanitation, fluoridation of drinking water, and efforts to reduce tobacco use are among the most recognizable public health initiatives. Public health programs also have led to safer workplaces, reduction of deaths from coronary heart disease and stroke, improved motor vehicle safety, and creation of effective health systems to provide care to those who need it. In the future, public health professionals will play an important role worldwide in seeking better approaches to complex issues such as quality of life for the elderly, drug and alcohol abuse, teen pregnancy, new and emerging infectious diseases, food safety, effects of bioterrorism, and nutrition.

The College of Public Health provides educational opportunities to students

campuswide. In addition to training and educating public health students, the college welcomes students from the Tippie College of Business, the Carver College of Medicine, and the Colleges of Dentistry, Education, Engineering, Law, Nursing, and Pharmacy who enroll in public health classes. Undergraduate students in the College of Liberal Arts and Sciences and graduate students from programs such as anthropology, microbiology, and statistics also register for public health courses. Collegiate faculty and staff members as well as graduate and postdoctoral students contribute to teaching and research activities throughout the health sciences campus and provide services to Iowa and the nation. Partnerships for teaching and research extend across the campus. This background provides a rich array of educational opportunities.

The college includes the Departments of Biostatistics, Community and Behavioral Health, Epidemiology, Health Management and Policy, and Occupational and Environmental Health, and the Program in Public Health Genetics. It offers four graduate degrees: Master of Health Administration (M.H.A.), Master of Public Health (M.P.H.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.).

The college is accredited by the Council on Education for Public Health (CEPH), the accrediting body for the nation's schools and colleges of public health. Two programs in the college currently are accredited: The industrial hygiene program is accredited by the Accreditation Board for Engineering and Technology (ABET) and the American Board of Industrial Hygiene (ABIH), and the Master of Health Administration and the Ph.D. in health management and policy are accredited by the Accrediting Commission on Education for Health Services Administration (ACEHSA).

Certificate in Public Health

The college offers a certificate program via distance education to improve public health practice and public health workforce capacity in Iowa and the upper Midwest. The Certificate in Public Health is designed primarily for individuals in public health practice, those in the workforce, and those interested in acquiring a basic knowledge of public health practice.

All certificate courses are offered on the Internet. Some also are offered on the University of Iowa campus and in the College of Public Health Summer Institute. Certificate students must successfully complete the program's 12 s.h. of required course work within five years and must

maintain a cumulative g.p.a. of at least 2.75 throughout the program. Students must have access to a computer and the Internet.

The following courses are required.

Both of these:

170:009 Evidence-Based Public Health Methods	3 s.h.
170:101 Introduction to Public Health	3 s.h.

Two of these:

172:101 Introduction to Health Promotion and Disease Prevention	3 s.h.
174:102 Introduction to the U.S. Health Care System	3 s.h.
175:197 Environmental Health	3 s.h.

Applicants to the certificate program must have completed at least 60 s.h. of postsecondary education course work and have a cumulative g.p.a. of at least 2.50. They should submit a statement of their career goals and their reasons for applying to the program and two letters of reference.

Application deadlines are March 15 for summer session, July 1 for fall semester, and December 1 for spring semester.

Students who have graduate standing when they complete the certificate course work, and are admitted to the M.P.H. program after earning the certificate, may apply 9 s.h. of credit from the certificate program toward the M.P.H.

Admission

For detailed information about Graduate College policies, including application requirements and procedures, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Each department in the College of Public Health has an admissions committee. Admission criteria usually include a satisfactory cumulative grade-point average; Graduate Record Examination scores; references; résumés; and for international applicants, scores on the Test of English as a Foreign Language (TOEFL). Other evaluation criteria may include oral and on-campus interviews, written statements, special emphasis on science and math courses, and a match of available faculty mentors with student interests. Application deadlines vary by department.

Faculty

The college's faculty includes members with single appointments in the College of Public Health as well as those with joint appointments in other University of Iowa colleges, including the Carver College of Medicine and the Colleges of Dentistry, Engineering, Law, Liberal Arts and Sciences, Nursing, and Pharmacy. In addition, the college's faculty includes adjunct members from Drake University, Iowa State University, the University of Northern Iowa, the Iowa State Department of Public Health, the Iowa State Hygienic Laboratory, the Iowa Heart Center (in Des Moines), University of Iowa Hospitals and Clinics, and the National Institutes of Health.

Research Centers and Institutes

The College of Public Health is home to 28 centers and institutes that conduct research and provide public service. These multidisciplinary centers and institutes—most of which are supported by federal grants—focus their investigative efforts on important public health topics. They conduct an array of outreach, service, and policy activities through which the College of Public Health engages with agencies, communities, and organizations throughout Iowa, the Midwest, the nation, and the world. Students are encouraged to explore opportunities for involvement with any of the college's centers and institutes.

For more information, see College of Public Health Based Centers (<http://www.public-health.uiowa.edu/research/centers.html>) on the college's web site.

Facilities

The college's administrative offices are housed in the General Hospital, on the University's Health Sciences Campus. Faculty offices are located on the Health Sciences Campus in the College of Medicine Administration Building, General Hospital, John Colloton Pavilion, the Medical Education Building, Medical Laboratories, and Westlawn; on the Main Campus in the Jefferson Building, MacLean Hall, and Schaeffer Hall; and on the Oakdale Research Campus in Oakdale Hall and the Institute for Rural and Environmental Health. Specialized laboratories also are located on the Oakdale Campus.

Eight student computer laboratories are housed at the college. More than 55 software packages

are available for student use, most without charge. Software includes Microsoft Office products, SAS, and S+. Some specialty labs are equipped with RedHat Linux and are loaded with R, Macanova, Xlispstat, Mathematica, and other software.

Students, faculty, and staff draw on extensive library resources available across campus. Hardin Library for the Health Sciences serves as a central resource for all of the health sciences colleges. Hardin Library's Information Commons, a state-of-the-art health sciences educational technology facility, provides central support and delivery for courseware development, classroom instruction, health-related research, and independent learning. It offers high-end multimedia development workstations, networked electronic classrooms, a case-based learning and conference room, and information research workstations for searching health-related databases and the Internet.

Master of Public Health Program

Director: Mary L. Aquilino

Graduate degree: M.P.H.

Web site: <http://www.public-health.uiowa.edu/mph/>

The Master of Public Health is recognized as the primary professional degree in public health. The objective of Iowa's M.P.H. program is to provide education and practical training in public health to students who will be leaders in their respective communities. The program is appropriate for individuals who already have professional experience and/or training in public health as well as for those whose expertise lies outside of public health.

The M.P.H. is awarded by the University of Iowa Graduate College. Combined degree programs for medical, nursing, and pharmacy students are available; see "Joint M.D./M.P.H. Program," "Joint M.S.N./M.P.H. Program," and "Joint Pharm.D./M.P.H. Program" in this section. A combined program for veterinary students is offered in conjunction with the College of Veterinary Medicine at Iowa State University; see "Joint D.V.M./M.P.H. Program" in this section.

Master of Public Health

The M.P.H. is offered with seven subtracks: biostatistics, community and behavioral health, ergonomics, health communication, occupational and environmental health, policy and administration, and public health epidemiology. Students also may pursue a general M.P.H., for which they must define a focused area of study: aging studies; global health; maternal, child, and family health; or nutrition and exercise.

The degree requires 39-48 s.h., depending on the student's choice of specialization.

Degree requirements include a core course in public health practice and in each of the five core disciplines of public health (epidemiology, biostatistics, environmental health, health administration, and social and behavioral sciences); a bioscience course (or an additional elective course); a practicum; a set of content-specific required courses; and a set of content-specific electives. A final written report with oral presentation or a poster presentation related to the practicum constitutes the final examination.

All M.P.H. students complete the course work listed under "Common Requirements." In addition, each student completes the course work listed for his or her chosen subtrack.

Common Requirements

The following course work is required for all M.P.H. students. Students must earn a B-minus or higher on each core course and a cumulative g.p.a. of at least 3.00 on all core courses. Students may repeat courses to achieve this standard.

CORE COURSES

All of these:

170:101 Introduction to Public Health	3 s.h.
171:161 Introduction to Biostatistics (biostatistics subtrack students must substitute 171:201 for 4 s.h.)	3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.
175:197 Environmental Health	3 s.h.

One of these:

174:102 Introduction to the U.S. Health Care System	3 s.h.
174:200 Introduction to Health Care Organization and Policy	3 s.h.

BIOSCIENCE REQUIREMENT

All students, except those in the biostatistics, policy and administration, ergonomics, or community and behavioral health subtracks, take one of the following. Students who already have completed equivalent course work may substitute an additional elective course for the bioscience requirement. Contact the Master of Public Health program for current information about this requirement.

069:133 Introduction to Human Pathology	4 s.h.
096:114 Human Pathophysiology: Organ Systems	3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology	3 s.h.
096:118 Pathophysiology (a GIS course)	3 s.h.

Students in the epidemiology subtrack may meet the bioscience requirement by enrolling in 069:270 Pathogenesis of Major Human Diseases (3 s.h.).

PRACTICUM

The practicum is a fieldwork experience in which students show proficiency in applying academic principles in community settings. There are many practicum opportunities for M.P.H. students in Iowa and surrounding states; the college’s Institute for Public Health Practice coordinates placements. The practicum is the culmination of the M.P.H. program.

Students must choose an approved topic and complete at least five of the six core courses before registering for the practicum. A final written report with an oral presentation or a poster presentation is required. The practicum constitutes the final examination for the M.P.H.

170:299 M.P.H. Practicum Experience 3 s.h.

Biostatistics Subtrack

The M.P.H. with subtrack in biostatistics requires 44 s.h. It focuses on application of biostatistical methods to public health and biomedical sciences, and applications of methodology for design and analysis of research investigations in the health sciences. It provides fundamental training in the public health sciences, core biostatistical theory, and core biostatistical methods vital for health science investigations. Graduates of the program are prepared for work as statistical consultants and data analysts for public health projects.

Applicants to the biostatistics subtrack should have a bachelor’s degree or equivalent in the biological, mathematical, or physical sciences. Applicants should have mathematics training in methods and techniques of single variable and multivariable differential and integral calculus, and in linear algebra. They also should be competent in at least one computer language, preferably FORTRAN, Pascal, or C.

Applicants with deficiencies in any of these areas may apply for admission and make up the deficiencies during the first year of graduate study. The following University of Iowa courses provide training at the required level.

22M:025 Calculus I 4 s.h.
 22M:026 Calculus II 4 s.h.
 22M:027 Introduction to Linear Algebra 4 s.h.
 22M:028 Calculus III 4 s.h.

In addition to the M.P.H. course work listed under “Common Requirements,” the biostatistics subtrack requires the following courses.

REQUIRED COURSES

All of these (20 s.h.):
 22S:153-22S:154 Mathematical Statistics I-II 6 s.h.
 171:173 Intermediate Design of Sample Surveys 3 s.h.
 171:201-171:202 Biostatistical Methods I-II (171:201 is a core course for the biostatistics track) 8 s.h.
 171:241 Applied Categorical Data Analysis 3 s.h.

ELECTIVES

Students choose 6 s.h. from the following (or 9 s.h. if they substitute an elective for the bioscience requirement).

22S:138 Bayesian Statistics 3 s.h.
 22S:161 Applied Multivariate Analysis 3 s.h.
 22S:255 Linear Models 4 s.h.
 171:164 Research Data Management 3 s.h.
 171:242 Applied Survival and Cohort Data Analysis 3 s.h.
 171:261 Survival Data Analysis 3 s.h.
 171:262 Analysis of Categorical Data 3 s.h.
 171:264 Longitudinal Data Analysis 3 s.h.
 171:266 Statistical Methods in Clinical Trials 3 s.h.
 171:271 Advanced Survival Analysis 3 s.h.
 173:290 Intervention and Clinical Trials 3 s.h.

Community and Behavioral Health Subtrack

The M.P.H. with subtrack in community and behavioral health requires 41 s.h.

It prepares public health practitioners for a variety of positions related to community development, health program implementation, and health education. Students learn how to design, implement, and evaluate evidence-based interventions directed toward identified public health problems in populations. A bachelor’s degree in the social and behavioral sciences is good preparation for this program, but students come from a variety of educational backgrounds. Preference is given to applicants who have professional experience or clinical background.

In addition to the M.P.H. course work listed under “Common Requirements,” the community and behavioral health subtrack requires the following courses.

REQUIRED COURSES

At least 12 s.h. from these:
 172:106 Designing and Implementing Interventions 3 s.h.

172:130 Social Determinants of Health	3 s.h.
172:150 Health Behavior and Health Education	3 s.h.
172:181 Evaluation I: Theory and Application	3 s.h.
172:183 Qualitative Research for Public Health	3 s.h.
172:240 Health Communication	3 s.h.

ELECTIVES

At least 8 s.h. from these:

172:110 Community Development in Public Health	3 s.h.
172:115 Community Preventive Programs and Services	2 s.h.
172:122 Maternal, Child, and Family Health	3 s.h.
172:131 Anthropology and International Health	3 s.h.
172:133 The Anthropology of Women’s Health	3 s.h.
172:144 Physician-Patient Communication	3 s.h.
172:160 Substance Use and Misuse in America	3 s.h.
172:170 Special Topics	arr.
172:185 Communicating With the Community	3 s.h.
172:242 Persuasion and Health	3 s.h.
172:246 Health Communication Campaigns	3 s.h.
172:270 Independent Study in Community and Behavioral Health	arr.
172:282 Evaluation II: Design and Methods	3 s.h.
172:285 Research Methods in Community and Behavioral Health	3 s.h.

Ergonomics Subtrack

The M.P.H. with subtrack in ergonomics requires 40 s.h. It takes advantage of interdisciplinary faculty strengths in the Colleges of Public Health and Engineering and the Carver College of Medicine. Ergonomics students gain a thorough understanding of workplace physical environments that contribute to musculoskeletal injuries and illness. They also acquire knowledge of engineering and administrative methods to control workplace risk factors. The program prepares students for work in industry and government agencies, as well as for further academic training.

In addition to the M.P.H. course work listed under “Common Requirements,” the ergonomics subtrack requires the following courses.

REQUIRED COURSES

All of these (16 s.h.):

050:270 Responsible Conduct in Research	0 s.h.
056:144 Human Factors	3 s.h.
056:147 Ergonomics	3 s.h.
175:180 Occupational and Environmental Health Seminar	1 s.h.
175:190 Occupational Ergonomics I	3 s.h.
175:230 Occupational Health	3 s.h.
175:295 Clinical Ergonomics	3 s.h.

ELECTIVES

Ergonomics subtrack students must earn 3 s.h. in elective course work. Electives may be chosen from the following list or may include a related course approved by the student’s advisor.

175:192 Occupational Safety	3 s.h.
175:231 Industrial Hygiene Fundamentals	3 s.h.
175:251 Injury Epidemiology	3 s.h.
175:253 Epidemiology of Occupational Injuries	3 s.h.

Health Communication Subtrack

The M.P.H. with subtrack in health communication requires 42 s.h. It provides opportunities for students to develop knowledge and skill in designing, evaluating, and implementing effective communication strategies and messages that speak to the health needs of diverse audiences. The program addresses clinician-patient interaction, family communication, group and organizational communication, and mass media and web-based campaigns. The M.P.H. may be of interest to clinicians, such as physicians, nurses, pharmacists, and dentists as well as other professionals who do not wish to earn a Ph.D.

Graduates of the M.P.H. subtrack in health communication will:

- know and understand basic concepts and theories of social and behavioral science related to public health;
- understand appropriate social and behavioral science research design and methodology, and analytical strategies in relation to public health;
- evaluate and interpret qualitative and quantitative scientific literature;
- understand how to affect individual, organizational, and systems change through communication; and

- recognize and implement effective evidence-based public health interventions including communication campaigns.

In addition to the M.P.H. course work listed under “Common Requirements,” the health communications subtrack requires the following courses.

HEALTH COMMUNICATION CORE

All of these (12 s.h.):

036:371 Communication Theory	3 s.h.
172:240/036:270 Health Communication	3 s.h.
172:242 Persuasion and Health	3 s.h.
172:246/036:379 Health Communication Campaigns	3 s.h.

COMMUNITY AND BEHAVIORAL HEALTH CORE

Three of these (9 s.h.):

172:106 Designing and Implementing Interventions	3 s.h.
172:130 Social Determinants of Health	3 s.h.
172:150 Health Behavior and Health Education	3 s.h.
172:181 Evaluation I: Theory and Applications	3 s.h.
172:183 Qualitative Research for Public Health	3 s.h.

Occupational and Environmental Health Subtrack

The M.P.H. with subtrack in occupational and environmental health requires 39 s.h. It provides students with a broad perspective on public health and career preparation for a variety of professional positions in occupational and environmental health. Public health experience provides desirable background for this subtrack.

In addition to the M.P.H. course work listed under “Common Requirements,” the occupational and environmental health subtrack requires the following courses.

REQUIRED COURSES

050:270 Responsible Conduct in Research	0 s.h.
175:180 Occupational and Environmental Health Seminar	1 s.h.
Occupational and environmental health courses not already listed, or other approved courses	14-17 s.h.

Policy and Administration Subtrack

The M.P.H. with subtrack in policy and administration requires 46 s.h. It focuses on

planning administration and program evaluation skills with emphasis on public sector organizations. Graduates of the program find positions in federal and state government, professional associations, and health agencies. A variety of academic backgrounds are appropriate preparation for this program, including business, liberal arts and sciences, and the health professions.

In addition to the M.P.H. course work listed under “Common Requirements,” the policy and administration subtrack requires the following courses.

REQUIRED COURSES

One of these:

174:201 Health Care Management	3 s.h.
174:203 Strategic Planning and Marketing (if 174:201 is waived)	3 s.h.

One of these:

07P:165 Introduction to Program Evaluation	3 s.h.
172:181 Evaluation I: Theory and Applications	3 s.h.

One of these:

174:212 Health Economics I	3 s.h.
174:228 Cost Effectiveness and Decision Analysis	3 s.h.

All of these:

174:214 Financial Accounting for Health Care Organizations	3 s.h.
174:223 Seminar in Health Care Ethics	2 s.h.
174:243 Health Policy	3 s.h.

ELECTIVES

Students earn a minimum of 8 s.h., selecting at least one course from each of the following categories.

Administration

06N:215 Corporate Financial Reporting	3 s.h.
06N:225 Managerial Finance	3 s.h.
174:203 Strategic Planning and Marketing	3 s.h.
174:206 Leadership in Healthcare Organizations	3 s.h.
174:208 Health Services Information Systems	2-3 s.h.
174:212 Health Economics I	3 s.h.
174:213 Health Economics II	3 s.h.
174:220 Advanced Topics in Managed Care	3 s.h.
174:224 Human Resources for Health Organizations	2-3 s.h.
174:228 Cost Effectiveness and Decision Analysis	3 s.h.

Policy

030:210 American Politics	4 s.h.
091:261 Health Law	3 s.h.
102:221 Poverty, Planning, and Public Policy	3 s.h.
174:140 Mental Health Services and Policy I	3 s.h.
174:144 Medicare and Medicaid Policy	3 s.h.
174:217 Health Insurance and Managed Care	3 s.h.
174:242 Federalism and Health Policy	3 s.h.
175:252 Environmental Health Policy	3 s.h.

Public Health Epidemiology Subtrack

The M.P.H. with subtrack in public health epidemiology requires 39 s.h. It focuses on fundamental epidemiological concepts and methods and provides training in the use of public health data and methods for disease assessment and in methods for evaluating the need and outcome of programs and interventions. Graduates of the program work in public health departments and other health care settings.

In addition to the M.P.H. course work listed under “Common Requirements,” the public health epidemiology subtrack requires the following courses.

REQUIRED COURSES

All of these (11 s.h.):

171:162 Design and Analysis of Biomedical Studies	3 s.h.
173:145 Public Health Data	2 s.h.
173:160 Introduction to Epidemiologic Data Analysis with Computers	2 s.h.
173:240 Epidemiology II: Advanced Methods	4 s.h.

Public health epidemiology subtrack students are required to attend departmental seminars and journal club. They also must present one scientific poster at an international, national, regional, state, university, or departmental poster session.

ELECTIVES

Students must earn at least 3 s.h. in elective course work (or 7 s.h. if an elective is substituted for the bioscience requirement). At least 3 s.h. of this must be earned in courses offered by the Department of Epidemiology (prefix 173) or from the following biostatistics courses.

171:163 Introduction to the Design of Sample Surveys	3 s.h.
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171:241 Applied Categorical Data Analysis	3 s.h.
171:242 Applied Survival and Cohort Data Analysis	3 s.h.

Joint M.D./M.P.H. Program

The Carver College of Medicine and the College of Public Health offer the joint Doctor of Medicine/Master of Public Health. The joint M.D./M.P.H. requires a minimum of 39 s.h. Students who complete the program are granted both degrees. They enjoy expanded career opportunities and are well prepared to apply the principles of medicine and public health in their work.

Separate admission to each program is required. Applicants must be admitted to both programs before they can be admitted to the joint program.

Contact the Carver College of Medicine and the College of Public Health for details.

The joint M.D./M.P.H. requires the following course work.

M.P.H. CORE COURSES

Students must earn a B-minus or higher on each core course and a cumulative g.p.a. of at least 3.00 on all core courses. Students may repeat courses to achieve this standard.

All of these:

170:101 Introduction to Public Health	3 s.h.
171:161 Introduction to Biostatistics	3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.
175:197 Environmental Health	3 s.h.

One of these:

174:102 Introduction to the U.S. Health Care System	3 s.h.
174:200 Introduction to Health Care Organization and Policy	3 s.h.

M.P.H. PRACTICUM

170:299 M.P.H. Practicum Experience (may be used as an M.D. elective)	3 s.h.
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ADDITIONAL M.P.H. COURSE WORK

Focus area	18 s.h.
Required College of Public Health courses	9 s.h.

All 9 s.h. in the required College of Public Health course work must be in one of these areas: biostatistics, community and behavioral health, health communication, health policy and administration, occupational and environmental

health, public health epidemiology, or an approved M.P.H. focus area (e.g., aging studies; global health; maternal, child, and family health; nutrition and exercise).

REQUIRED M.D. COURSES

Biomedical ethics course	2 s.h.
Health law course	1 s.h.
Generalist core clerkships	6 s.h.

TYPICAL M.D./M.P.H. SCHEDULE

The M.P.H. year is a two- or three-semester sequence during which students complete any remaining M.P.H. core courses, the M.P.H. 9 s.h. focus area, and the practicum.

Before starting the M.P.H. year, students take two core courses and a summer symposium (9 s.h.). During the second year in medical school, they take a course in health law (1 s.h.). During the M.P.H. year, which typically falls between the second and third or the third and fourth years of medical school, M.D./M.P.H. students complete the balance of their M.P.H. core, public health focus courses, and their M.P.H. practicum (21 s.h.). During the third year of medical school, they complete the generalist core and bioethics elective (8 s.h.).

Joint M.S.N./M.P.H. Program

The College of Nursing and the College of Public Health offer the joint Master of Science in Nursing/Master of Public Health. The joint M.S.N./M.P.H. requires a minimum of 60 s.h. Students who complete the program are granted both degrees. The program prepares students for positions such as director of a public or community health agency, director of occupational health for a company or corporation, case manager for specific populations, information systems specialist for a public health agency or organization, or advanced nurse practitioner in a school, occupational, or public health organization.

Separate admission to the M.S.N. and the M.P.H. programs is required. Applicants must be admitted to each program before they can be admitted to the joint degree program. Each college's admission committee reviews each candidate independently.

Applicants must hold a baccalaureate degree in nursing from an accredited program and have an undergraduate g.p.a. of at least 3.00 and satisfactory Graduate Record Exam (GRE) General Test scores. They must submit a formal application, complete transcripts from each

undergraduate and graduate school they have attended, and three professional recommendations (University of Iowa recommendations forms are required).

Contact the College of Nursing and the College of Public Health for details.

To meet the M.S.N./M.P.H. degree requirement of 60 s.h., students earn 30 s.h. in core courses from both disciplines, 9-12 s.h. in a nursing focus, and 3 s.h. in an M.P.H. capstone project. A master's project or nursing portfolio is required. The remaining semester hours are earned in elective courses. Areas of emphasis are informatics, nursing administration, community health, and occupational health/ergonomics.

M.P.H. CORE COURSES

Students must earn a grade of B-minus or higher for each core course and a cumulative g.p.a. of at least 3.00 for all core courses. Students may repeat courses to achieve this standard.

170:101 Introduction to Public Health	3 s.h.
171:161 Introduction to Biostatistics	3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.
175:197 Environmental Health	3 s.h.

One of these:

174:102 Introduction to the U.S. Health Care System	3 s.h.
174:200 Introduction to Health Care Organization and Policy	3 s.h.

M.S.N. CORE COURSES

096:206 Nursing Science and Inquiry	3 s.h.
096:208 Leadership for Advanced Nursing Practice	3 s.h.
096:209 Health Systems, Economics, and Policy	3 s.h.
096:263 Informatics in Nursing and Health Care	3 s.h.

Joint Pharm.D./M.P.H. Program

The College of Pharmacy and the College of Public Health offer the joint Doctor of Pharmacy/Master of Public Health. The joint Pharm.D./M.P.H. requires 39 s.h. Students who complete the program are granted both degrees.

The Pharm.D./M.P.H. program helps students develop expertise in public health related to pharmacotherapy, health promotion, disease prevention, and medication safety. Its graduates may work in areas of interest common to

pharmacy and public health, such as spread and treatment of disease, community health, and immunology; bioterrorism, terrorism, and preparedness; genetics; insurance; managed care; family and juvenile health; and protection of special populations. Employment opportunities are available in hospitals and clinics and with health care providers; private practice; insurance and managed care organizations; local, county, state, and federal government; public health governmental agencies; and colleges and universities.

Separate admission to both programs is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

Admission requirements include a bachelor's degree or a minimum of 120 s.h. of undergraduate course work; an undergraduate cumulative g.p.a. of at least 3.00; one semester each of college algebra and biology; transcripts of all college course work; scores (preferably at or above the national median) on the Graduate Record Exam or the Pharmacy College Admission Test (PCAT); and three professional recommendations (University of Iowa recommendation forms are required).

Contact the College of Pharmacy and the College of Public Health for details.

Requirements

Students in the Pharm.D./M.P.H. program must complete M.P.H. core courses, practicum, and public health electives in addition to courses required for the Pharm.D.

M.P.H. CORE COURSES

Students must earn a B-minus or higher on each core course and a cumulative g.p.a. of at least 3.00 on all core courses. Students may repeat courses to achieve this standard.

All of these:

170:101 Introduction to Public Health	3 s.h.
171:161 Introduction to Biostatistics	3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.
175:197 Environmental Health	3 s.h.

One of these:

174:102 Introduction to the U.S. Health Care System	3 s.h.
174:200 Introduction to Health Care Organization and Policy	3 s.h.

M.P.H. PRACTICUM

The practicum is a fieldwork experience in which students show proficiency in applying academic principles in community settings. Students must have completed or be enrolled in all six M.P.H. core courses before registering for the practicum. A final written report with oral presentation or a poster presentation is required. The practicum constitutes the final examination for the M.P.H.

The setting for the 200-hour Pharm.D./M.P.H. practicum must have both public health and pharmacy components.

170:299 M.P.H. Practicum Experience 3 s.h.

M.P.H. ELECTIVES

Students select electives totaling 9 s.h. from one of the following public health areas: biostatistics, community and behavioral health, health communication, health policy and administration, occupational and environmental health, public health epidemiology, public health genetics, or an approved M.P.H. focus area (aging studies; global health; maternal, child, and family health; or nutrition and exercise). Electives are chosen in consultation with the student's advisors in the Colleges of Pharmacy and Public Health.

COURSES THAT COUNT TOWARD BOTH DEGREES

The following required courses from the Pharm.D. curriculum (9 s.h.) also count as credit toward the M.P.H.: 046:130 Core Principles in Pharmaceutical Socioeconomics, 046:154 Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics, 046:156 Cardiovascular Therapeutics, and 046:165 Infectious Disease Therapeutics.

PHARM.D. REQUIREMENTS

The joint Pharm.D./M.P.H. program requires students to complete the professional curriculum of the Pharm.D. program (see "Doctor of Pharmacy" in the College of Pharmacy section of the Catalog).

Students must be enrolled in the College of Pharmacy in order to take College of Pharmacy courses.

Joint D.V.M./M.P.H. Program

The College of Veterinary Medicine at Iowa State University (ISU) and the College of Public Health at The University of Iowa offer the joint Doctor of Veterinary Medicine/Master of Public Health. The joint D.V.M./M.P.H. requires a minimum of 39 s.h. Students who complete the program are

granted both degrees. The program prepares students for work as state veterinarians, as college and university faculty members, in local and state departments of public health, in the Public Health Commissions Corp., in state agricultural departments, and for public health positions in the military.

Separate admission to each program is required. Applicants must be admitted to both programs before they can be admitted to the joint program. For M.P.H. admission requirements, see "Admission" later in this section.

The joint D.V.M./M.P.H. requires the following course work.

M.P.H. CORE COURSES

Students must earn a B-minus or higher for each core course and a cumulative g.p.a. of at least 3.00 for all core courses. Students may repeat courses to achieve this standard.

All of these:

- 170:101 Introduction to Public Health 3 s.h.
- 171:161 Introduction to Biostatistics 3 s.h.
- 172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.
- 175:197 Environmental Health 3 s.h.

One of these:

- 174:102 Introduction to the U.S. Healthcare System 3 s.h.
- 174:200 Introduction to Health Care Organization and Policy 3 s.h.

M.P.H. PRACTICUM

- 170:299 M.P.H. Practicum Experience 3 s.h.

M.P.H. ELECTIVES

Students must earn at least 9 s.h. from the following courses. Courses marked with asterisks are offered through distance education.

- 173:111/175:111 International Health 3 s.h.
- 173:150 Introduction to Clinical Epidemiology 2 s.h.
- *173:155 Diagnostic Microbiology for Epidemiology 3 s.h.
- 173:157 Zoonotic Diseases (one-week course) 2 s.h.
- 173:225 Genetics and Epidemiology 4 s.h.
- 173:240 Epidemiology II: Advanced Methods 4 s.h.
- 173:241 Epidemiology II: Advanced Methods Lab 2 s.h.
- *173:251/175:251 Injury Epidemiology 3 s.h.
- 173:253/175:253 Epidemiology of Occupational Injuries 3 s.h.

- *173:255 Epidemiology of Infectious Diseases 3 s.h.
- 173:263 Epidemiology of Reproductive Diseases 2 s.h.
- *175:170 Injury and Violence Prevention 3 s.h.
- *175:175 Research Methods in Disaster Studies 3 s.h.
- *175:196 Agricultural Safety: Theories and Practice 2 s.h.
- *175:209 Rural Health and Agricultural Medicine 3 s.h.
- *175:210 Current Topics in Agricultural Health 2 s.h.
- 175:260 Environmental Toxicology 3 s.h.

REQUIRED D.V.M. COURSES

All of these (ISU courses):

- Infectious Diseases and Preventive Medicine (VMPP 436) 2 s.h.
- Infectious Diseases and Preventive Medicine (VMPP 437) 3 s.h.
- Pharmacology and Therapeutics (VPP 443) 3 s.h.
- Laboratories in Public Health (VMPP 486) 1 s.h.

Admission

For detailed information about Graduate College policies, including application requirements and procedures, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants to the M.P.H. program must have successfully completed one semester each of college algebra and biology.

All M.P.H. applicants must submit a Graduate College application form, three letters of reference, a statement of purpose that describes their interest in public health and identifies a specialty area, and a résumé highlighting professional experience in public health or in nursing. They also must submit scores on the Graduate Record Exam (GRE) General Test, LSAT, DAT, VCAT, GMAT, or another professional placement exam; scores must be at or above the median scores for test takers applying to similar programs.

International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based) or 250 (computer-based) on the Test of English as a Foreign Language (TOEFL). International applicants who score 550-599 (paper-based) or 213-249 (computer-based) are

required to take English fluency courses. Applicants who score below those ranges are not considered for admission.

APPLICATION DEADLINES

Fall entrance: May 1 (or until the class is filled) for U.S. citizens and permanent residents; April 1 for international applicants

Spring entrance: November 1 for U.S. citizens and permanent residents; October 1 for international applicants

Summer entrance: April 1 for U.S. citizens and permanent residents; March 15 for international applicants

Financial Support

A limited number of modest tuition awards are available each year for M.P.H. students. For information on financing education through jobs, grants, and loans, contact the University's Office of Student Financial Aid.

Courses

170:099 Evidence-Based Public Health Methods 3 s.h.
How to choose, conduct, and evaluate evidence-based programs and policies in public health; finding and using scientific evidence, implementing and evaluating interventions that produce new evidence. Offered summer sessions. Prerequisite: Certificate in Public Health enrollment.

170:101 Introduction to Public Health 3 s.h.
Concepts, structures, and activities in public health practice. Offered fall semesters and summer sessions.

170:171 Problems in Public Health arr.
Didactic material in public health, including tutorial, seminar, faculty-directed independent work (e.g., literature search, project, short research project).

170:172 Independent Study in Public Health arr.
In-depth pursuit of an area of special interest in public health.

170:299 M.P.H. Practicum Experience 3-6 s.h.
Comprehensive and integrated application of knowledge acquired in the M.P.H. program in a practice setting; demonstration of professional competence in public health practice. Prerequisites: 170:101, 171:161, 172:101, 173:140, 174:102 or 174:200, 175:197, and an approved practicum proposal.

Biostatistics

Head: Kathryn Chaloner

Deputy head: William R. Clarke

Professors: Stephan Arndt (Psychiatry), Leon Burmeister, Kathryn Chaloner (Statistics and Actuarial Science), William Clarke, Deborah Dawson (Preventive and Community Dentistry), Jian Huang (Statistics and Actuarial Science), Michael Jones (Statistics and Actuarial Science/Public Health Genetics), Jane Pendergast, Bruce Pfohl (Psychiatry), George Woodworth (Statistics and Actuarial Science), Dale Zimmerman (Statistics and Actuarial Science)

Professor emeritus: Robert Woolson (Statistics and Actuarial Science)

Associate professors: Joseph Cavanaugh (Statistics and Actuarial Science), M. Kathryn Cowles (Statistics and Actuarial Science), Jeffrey Dawson, Douglas Langbehn (Psychiatry), Ying Zhang

Adjunct associate professor: Daniel Sargent

Clinical associate professor: M. Bridget Zimmerman

Assistant professors: Hyonggin An, Jacob Oleson, Brian Smith, Gideon Zamba

Graduate degrees: M.S., Ph.D. in Biostatistics

Web site: <http://www.public-health.uiowa.edu/biostat>

The Department of Biostatistics prepares students for professional and academic careers in biostatistics. Graduates find positions in pharmaceutical, health care, and research companies and institutions; in universities and government agencies; and as consultants. The department also provides training for non-biostatistics students.

Current research interests in the Department of Biostatistics include computer intensive statistics, Bayesian methods, design and analysis of clinical trials, longitudinal data analysis, survival analysis, spatial modeling, analysis of data subject to missingness, time series, model selection, quality control, survey sampling, and public health statistics. Biostatistics faculty members work closely with both clinical and basic science investigators on the University of Iowa Health Sciences Campus in the design and analysis of research projects.

Graduate Programs

The department offers two graduate degrees: Master of Science and Doctor of Philosophy. In addition, a biostatistics subtrack is available in the M.P.H.; see Master of Public Health (M.P.H.) in the Catalog.

Master of Science

The M.S. program provides training in the design of experiments and in analysis of data related to biomedical or public health problems. It emphasizes mathematical, statistical, and computer methods for dealing with quantitative information, and provides opportunities for students to gain statistical consulting experience with a variety of problems.

Graduates find career opportunities in many areas, including pharmaceuticals, health care, research companies and institutions, consulting firms, universities, and government agencies.

The M.S. requires a minimum of 38 s.h. of course work. Students must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. or more of course work may be dismissed from the program.

All M.S. students are required to complete an in-depth preceptorship under the direction of a departmental faculty member and a final comprehensive-style examination.

REQUIRED COURSES

All of these:

171:173 Intermediate Design of Sample Surveys	3 s.h.
171:201-171:202 Biostatistical Methods I-II	8 s.h.
171:241 Applied Categorical Data Analysis	3 s.h.
171:266 Statistical Methods in Clinical Trials	3 s.h.
171:280 Preceptorship in Biostatistics	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.

One of these sequences:

22S:153-22S:154 Mathematical Statistics I-II	6 s.h.
22S:193-22S:194 Statistical Inference I-II	6 s.h.

One of these:

061:157 General Microbiology	5 s.h.
069:133 Introduction to Human Pathology	4 s.h.
096:114 Human Pathophysiology: Organ Systems	3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology	3 s.h.
127:191 Human Molecular Genetics	3 s.h.
170:101 Introduction to Public Health	3 s.h.

172:101 Introduction to Health Promotion and Disease Prevention	3 s.h.
174:102 Introduction to the U.S. Health Care System	3 s.h.
175:197 Environmental Health	3 s.h.

ELECTIVES

Two of these (at least 6 s.h.):

22S:138 Bayesian Statistics	3 s.h.
22S:161 Applied Multivariate Analysis	3 s.h.
22S:248 Computer Intensive Statistics	3 s.h.
22S:255 Linear Models	4 s.h.
171:164 Research Data Management	3 s.h.
171:168 Introduction to Biostatistical Computing	1 s.h.
171:242 Applied Survival and Cohort Data Analysis	3 s.h.
171:251 Theory of Biostatistics I	4 s.h.
171:252 Theory of Biostatistics II	4 s.h.
171:261 Survival Data Analysis	3 s.h.
171:262 Analysis of Categorical Data	3 s.h.
171:264 Longitudinal Data Analysis	3 s.h.
185:103 Microarray Analysis and Statistics in Bioinformatics	3 s.h.
185:270 Genetics and Epidemiology	4 s.h.
185:272 Population and Quantitative Genetics	3 s.h.
185:274 Theory of Statistical Genetics	3 s.h.

Doctor of Philosophy

The Ph.D. program prepares students for professional and academic careers in biostatistics, especially for positions that emphasize developing and applying statistical methodology to solve important biological and public health problems.

The Ph.D. requires a minimum of 79 s.h. of course work. Doctoral students must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. or more of course work may be dismissed from the program.

All Ph.D. students must successfully complete a qualifying examination, a comprehensive examination, and a dissertation—a substantial scholarly treatise. The research topic and content, which vary depending on the program of study, must be approved by the student's dissertation committee. Other degree requirements include approved electives chosen from Department of Biostatistics and other University of Iowa courses.

Requirements for the Ph.D. are as follows.

REQUIRED COURSES

Courses in this list also are required for the department's M.S. degree. Students who have not completed these courses, or their equivalents, before entering the Ph.D. program are required to complete them during Ph.D. study.

All of these:

171:173 Intermediate Design of Sample Surveys	3 s.h.
171:201-171:202 Biostatistical Methods I-II	8 s.h.
171:241 Applied Categorical Data Analysis	3 s.h.
171:266 Statistical Methods in Clinical Trials	3 s.h.
171:280 Preceptorship in Biostatistics	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.

One of these sequences:

22S:153-22S:154 Mathematical Statistics I-II	6 s.h.
22S:193-22S:194 Statistical Inference I-II	6 s.h.

One of these:

069:133 Introduction to Human Pathology	4 s.h.
096:114 Human Pathophysiology: Organ Systems	3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology	3 s.h.
127:191 Human Molecular Genetics	3 s.h.
170:101 Introduction to Public Health	3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention	3 s.h.
174:102 Introduction to the U.S. Health Care System	3 s.h.
175:197 Environmental Health	3 s.h.

In addition, Ph.D. students take the following courses.

List A

All of these:

22S:255 Linear Models	4 s.h.
171:251-171:252 Theory of Biostatistics I-II	8 s.h.
171:290 Advanced Biostatistics Seminar	2 s.h.

List B

Three of these:

22S:256 Multivariate Analysis	3 s.h.
171:261 Survival Data Analysis	3 s.h.
171:262 Analysis of Categorical Data	3 s.h.
171:264 Longitudinal Data Analysis	3 s.h.

List C

Two of these:

22S:138 Bayesian Statistics	3 s.h.
22S:161 Applied Multivariate Analysis	3 s.h.

22S:248 Computer Intensive Statistics 3 s.h.
 185:274 Theory of Statistical Genetics 3 s.h.

List D

At least 3 s.h. from these:

22S:156 Applied Time Series Analysis 3 s.h.
 22S:195 Probability and Stochastic Processes I 3 s.h.
 171:243 Cohort Data Analysis 1 s.h.
 171:280 Preceptorship in Biostatistics (in addition to preceptorship required for M.S.) 3 s.h.
 171:290 Advanced Biostatistics Seminar Any course not already taken from List B or C 1-3 s.h. 3 s.h.

ELECTIVES

Students must complete at least 5 s.h. of electives chosen from the following list or from other graduate-level health science courses, in consultation with their advisors.

Bioinformatics

002:128 Fundamental Genetics 4 s.h.
 002:170 Bioinformatics 3 s.h.
 070:110 Medical Genetics 2 s.h.

Community and Behavioral Health

172:150 Health Behavior and Health Education 3 s.h.

Environmental Health

175:197 Environmental Health 3 s.h.
 175:209 Rural Health and Agricultural Medicine 3 s.h.
 175:230 Occupational Health 3 s.h.
 175:252 Environmental Health Policy 3 s.h.
 175:260 Environmental Toxicology 3 s.h.

Epidemiology

173:155 Diagnostic Microbiology for Epidemiology 3 s.h.
 173:225 Genetics and Epidemiology 4 s.h.
 173:235 Nutritional Epidemiology 2 s.h.
 173:240 Epidemiology II: Advanced Methods 3 s.h.
 173:251 Injury Epidemiology 3 s.h.
 173:255 Epidemiology of Infectious Disease 3 s.h.
 173:256 Hospital Epidemiology 2 s.h.
 173:260 Epidemiology of Chronic Diseases 3 s.h.
 173:261 Epidemiology of Aging 1 s.h.
 173:262 Neuroepidemiology 1 s.h.
 173:263 Epidemiology of Reproductive Diseases 2 s.h.

173:265 Cardiovascular Disease Epidemiology 3 s.h.
 173:267 Psychiatric Epidemiology 3 s.h.
 173:270 Cancer Epidemiology and Control 3 s.h.
 173:290 Intervention and Clinical Trials 3 s.h.
 173:291 Pharmacoepidemiology 3 s.h.

Microbiology

061:147 Survey of Immunology 4 s.h.
 061:157 General Microbiology 5 s.h.
 061:159 Pathogenic Bacteriology 5 s.h.
 061:264 Directed Study in Microbiology arr.

DISSERTATION

171:300 Thesis/Dissertation (at least two semesters in residence) 10 s.h.

Admission

For detailed information about Graduate College policies, including application requirements and procedures, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

The biostatistics faculty considers several factors when evaluating applications for admission, including GRE scores, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All M.S. and Ph.D. program applicants must hold a baccalaureate degree, have a cumulative g.p.a. of at least 3.00, and have taken the Graduate Record Examination (GRE) General Test. International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). International applicants who score 550-599 (paper-based), 213-249 (computer-based), or 81-99 (Internet-based) are required to take English fluency courses. Applicants who score below those ranges are not considered for admission.

All biostatistics applicants and students are required to have strong written and oral communication skills.

All M.S. applicants must be competent in at least one computer programming language, preferably Fortran, C, or C++. They also must have

mathematical sciences training in methods and techniques of single variable and multivariable differential and integral calculus, and in linear algebra.

Completion of an M.S. program in statistics or biostatistics generally is required for admission to the Ph.D. program.

APPLICATION DEADLINES

M.S. (fall entrance): January 15 (early),
March 15 (late)

Ph.D. (fall entrance): January 15 (early),
March 15 (late)

Financial Support

A limited number of teaching and research assistantships are available. Assistantships offer financial support and resident tuition with a partial tuition scholarship, and provide valuable on-the-job training experiences.

For information on financing education through jobs, grants, and loans, contact the Office of Student Financial Aid.

Resources

Department of Biostatistics resources and activities include the Biostatistical Consulting Center, the Clinical Trials Statistical and Data Management Center, and the Center for Public Health Statistics. The Biostatistics Consulting Center provides opportunities for students to gain valuable experience working with faculty and staff in the health sciences at The University of Iowa. The Clinical Trials Statistical and Data Management Center serves the statistical design, data management, and analysis needs of a variety of multicenter clinical trials, including studies of new treatments for acute ischemic stroke and studies of islet transportation. The Center for Public Health Statistics facilitates the collection, statistical analyses, and dissemination of health data in support of the University's research, teaching, and service missions and in partnership with the Iowa Department of Public Health.

Courses

171:161 Introduction to Biostatistics 3 s.h.
Application of statistical techniques to biological data, including descriptive statistics; probability; normal, binomial, and Poisson distributions; sampling distributions; tests of significance; confidence intervals; analysis of frequency data; simple linear regression. Prerequisite: college algebra.

171:162 Design and Analysis of Biomedical Studies 3 s.h.
Simple and multiple linear regression and correlation; one- and two-way layout considerations in planning experiments; factorial experiments; multiple comparison techniques; orthogonal contrasts. Offered spring semesters. Prerequisite: 171:161 or equivalent. Same as 22S:140.

171:163 Introduction to the Design of Sample Surveys 3 s.h.
Techniques of constructing and analyzing sample surveys, including general methods of estimation, properties of estimators, simple random sampling, stratified sampling, ratio and regression estimators, systematic sampling, cluster sampling. Offered fall semesters of even years. Prerequisite: 171:161 or equivalent.

171:164 Research Data Management 3 s.h.
Overview of problems encountered in gathering and processing data from biomedical investigations; introduction to data management techniques useful in biomedical studies; introduction to Microsoft Access. Offered fall semesters of odd years. Prerequisite: Fortran or C programming capability.

171:168 Introduction to Biostatistical Computing 1 s.h.
Introduces R, as well as using R for writing functions, database management, high level graphics, and extending R with C or Fortran; dynamic graphics and symbolic manipulation. Pre- or corequisite: 171:201.

171:171 Statistical Methods in Oncology 1 s.h.
Statistical methods used in oncology, hematology, and cancer.

171:173 Intermediate Design of Sample Surveys 3 s.h.
Challenges in designing sample surveys; emphasis on construction and number of strata, unbiased ratio estimators, multistaged sampling, estimation of variance in complex surveys, double sampling, sampling frame construction problems, panel studies, and problems due to nonresponse. Offered spring semesters of even years. Prerequisite: 171:162 or 171:202.

171:174 Introductory Longitudinal Data Analysis 3 s.h.
Statistical models and estimation methods used to analyze correlated data (e.g., the same subject measured repeatedly); focus on use of statistical software. Pre- or corequisite: 171:161 or 171:162 or 22S:152. Same as 22S:160.

171:178 Biostatistical Computing 3 s.h.
Groundwork in SAS and R programming; emphasis on data management, Monte Carlo simulations, and expectation maximization techniques; C and C++ skills recommended. Corequisite: 171:201 or consent of instructor.

171:201 Biostatistical Methods I 4 s.h.
Problem-oriented probability distributions, moments, estimation, parametric and nonparametric inference for one-sample and two-sample problems, analysis of frequency data, linear regression, and correlation analysis, with emphasis on use of computers. Offered fall semesters. Prerequisites: two semesters of calculus and consent of instructor.

171:202 Biostatistical Methods II 4 s.h.
Continuation of 171:201, which is prerequisite; linear regression and correlation, multiple linear regression, multiple factor experiments, multiple comparisons, orthogonal contrasts, block and split-plot designs, confounding interactions, and mixed models. Offered spring semesters. Prerequisite: 171:201.

171:211 Grant Writing for Clinical Investigators 1 s.h.
Opportunity to develop writing skills for scientifically sound, effective applications for external research grant funding; for students who have completed their literature review section. Prerequisites: 173:140 and 171:161.

171:230 Statistical Data Mining in Public Health 3 s.h.
Introduction to supervised statistical methods (e.g., regression, decision tree, neural network) and unsupervised methods (e.g., association rules and clustering) for data analysis in health-related applications. Prerequisites: 171:202, and 22S:153 or 22S:193; or consent of instructor.

171:241 Applied Categorical Data Analysis 3 s.h.

Overview of methods to analyze categorical data from health science investigations; estimation of rates and risks, measures of relative risk, stratified analysis, logistic regression analysis. Offered fall semesters. Prerequisites: 171:161 and 173:140. Recommended: 171:162.

171:242 Applied Survival and Cohort Data Analysis 3 s.h.

Nonparametric and semiparametric methods for survival data; methods of directly comparing standardized rates and standardization mortality ratios; Poisson regression for cohort data. Offered spring semesters of odd years. Prerequisites: 171:162 and 171:241.

171:243 Cohort Data Analysis 1 s.h.

Methods of comparing direct standardized rates and standardized mortality ratios; Poisson regression for cohort data. Offered spring semesters of odd years. Prerequisites: 171:162 or 171:241, and consent of instructor.

171:251 Theory of Biostatistics I 4 s.h.

Intermediate study of sufficiency, exponential families, methods of estimation, uniform minimum variance unbiasedness, information, likelihood theory, confidence intervals, the Neyman-Pearson lemma, asymptotic theory and its applications. Offered fall semesters of even years. Prerequisites: 22S:153 and 22S:154.

171:252 Theory of Biostatistics II 4 s.h.

Nonparametric hypothesis tests, semiparametric estimation, generalized linear models, generalized estimation equations, generalized linear mixed models, EM algorithm, computer-intensive methods; application of theory learned in 171:251 to classical and new methods in biostatistics. Offered spring semesters of odd years. Prerequisites: 22S:153, 22S:154, and 171:251.

171:261 Survival Data Analysis 3 s.h.

Types of censoring and truncation; survival function estimation; life tables; parametric inference using exponential, Weibull, and accelerated failure time models; nonparametric tests; sample size calculation; Cox regression with stratification and time-dependent covariates; regression diagnostics; competing risks; analysis of correlated survival data. Offered fall semesters of odd years. Prerequisites: 22S:153, 22S:154, and 171:202 or equivalent. Same as 22S:225.

171:262 Analysis of Categorical Data 3 s.h.

Models for discrete data, distribution theory, maximum likelihood and weighted least squares estimation for categorical data, tests of fit, models selection. Offered spring semesters. Prerequisites: 22S:164 and 22S:194, or consent of instructor. Same as 22S:220.

171:264 Longitudinal Data Analysis 3 s.h.

Introduction to statistical methodology for analyzing data from observational and experimental studies in which the response variable from each subject is measured repeatedly; emphasis on use of statistical software packages and specialized programs. Offered spring semesters of odd years. Prerequisites: 22S:154 and 171:202.

171:266 Statistical Methods in Clinical Trials 3 s.h.

Survey of statistical methods commonly used in clinical trials; methodologic perspective on the design, conduct, and analysis of trials; emphasis on Phase III randomized controlled clinical trials. Offered spring semesters. Prerequisites: 22S:154 or 22S:194, and 171:162 or 171:202.

171:271 Advanced Survival Analysis 3 s.h.

Counting process/martingale theory leading to asymptotic results of survival methods; semiparametric regression of accelerated failure time and additive hazard models; multivariate survival models for clustered, multiple event, and recurrent event data; special topics. Prerequisite: 171:261.

171:280 Preceptorship in Biostatistics arr.

Work experience using knowledge and skill acquired in classroom; arranged in conjunction with ongoing departmental or collegiate activities or with governmental agencies or private industry; preparation of prospectus and presentation of research results in a department seminar. Repeatable.

171:281 Independent Study in Biostatistics arr.

In-depth pursuit of an area of special interest in biostatistics requiring substantial creativity and independence. Repeatable.

171:282 Problems/Special Topics in Biostatistics arr.

Didactic material in biostatistics; may include tutorials, seminars, faculty-directed independent work (e.g. literature search, project, short research project). Repeatable.

171:290 Advanced Biostatistics Seminar 1-3 s.h.

Current topics; supervised experience in reading and interpreting biostatistical literature. Offered spring semesters. Prerequisite: consent of instructor.

171:295 Research in Biostatistics arr.

Research that may lead to a dissertation. Repeatable.

171:300 Thesis/Dissertation arr.

Repeatable.

Community and Behavioral Health

Head: John B. Lowe

Professors: Elizabeth Altmaier (Psychological and Quantitative Foundations), Leslie Baxter (Communication Studies), Joe D. Coulter, Melanie Dreher (Nursing), Jennifer Glass (Sociology), Paul Greenough (History), John B. Lowe, Ann Marie McCarthy (Nursing), Peter Nathan (Psychology), Michael Teague (Leisure Studies)

Adjunct professors: Frank Boster, Gene Lutz

Associate professors: Julie Andsager (Journalism and Mass Communication), Mary Aquilino, Karen Farris (Pharmacy), Kristi Ferguson (Internal Medicine), James Hall (Pediatrics), Jeffrey Lobas (Pediatrics), Salome Raheim (Social Work), Nancy Thompson

Adjunct associate professors: Mary Hansen, Kevin Kelly, Mary Losch

Assistant professors: Nanette Barkey (Anthropology), Shelly Campo, Faryle Nothwehr, Andrew Peterson, Anne-Helene Skinstad, Anne Baber Wallis, Jingzhen Ginger Yang

Adjunct assistant professor: Ralph Wilmoth

Adjunct lecturers: Dennis Affholter, Ro Foege, Dawn Raetsch, Kevin Teale, Laurie Walkner

Graduate degrees: M.S., Ph.D. in Community and Behavioral Health

Web site: <http://www.public-health.uiowa.edu/cbh>

The Department of Community and Behavioral Health examines the relationship between human behavior and community health and focuses on creating effective strategies for change. Its faculty members come from a variety of disciplines within the social and health sciences, drawn together by an interest in health behavior and promoting healthy communities.

Community and behavioral health students learn how to design, implement, and evaluate interventions directed toward identified public health problems in communities. They learn how public and institutional policy, the media, and community organizations can promote healthy behavior and effect positive change.

Graduate Programs

The department offers two graduate degrees: Master of Science and Doctor of Philosophy. It also offers a doctoral subtrack in addiction studies and a community and behavioral health subtrack in the Master of Public Health; see Master of Public Health (M.P.H.) in the Catalog.

Master of Science

The M.S. program prepares students for research and professional positions in community and behavioral health or for Ph.D. study in community and behavioral health.

The M.S. requires 35 s.h., including a thesis. During the first semester, students work with their academic advisor to develop a plan of study that satisfies their interests and professional goals as well as the program's requirements. Students are required to attend departmental seminars and to complete the following courses.

COLLEGE OF PUBLIC HEALTH CORE

All of these (9 s.h.):

171:161 Introduction to Biostatistics	3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.

BEHAVIORAL AND SOCIAL SCIENCES CORE

Three of these (9 s.h.):

113:185 Medical Anthropology	3 s.h.
172:106 Designing and Implementing Interventions	3 s.h.
172:110 Community Development in Public Health	3 s.h.
172:130 Social Determinants of Health	3 s.h.
172:150 Health Behavior and Health Education	3 s.h.
172:240 Health Communication	3 s.h.
172:242 Persuasion and Health	3 s.h.
172:246 Health Communication Campaigns	3 s.h.

RESEARCH METHODS CORE

Two of these (6 s.h.):

07P:249 Factor Analysis and Structural Equation Models	3 s.h.
07P:252 Introduction to Multivariate Statistical Methods	3 s.h.
171:162 Design and Analysis of Biomedical Studies	3 s.h.
172:181 Evaluation I: Theory and Applications	3 s.h.
172:183 Qualitative Research for Public Health	3 s.h.
172:282 Evaluation II: Design and Methods	3 s.h.
172:285 Research Methods in Community and Behavioral Health	3 s.h.

CONTENT AREA ELECTIVES

Students work with their advisor to select at least 5 s.h. of course work appropriate to their educational goals and emphasis area. They may choose from any community and behavioral health courses not already taken, other College of Public Health courses, or other University of Iowa graduate-level courses.

THESIS

The thesis requirement is 6 s.h.

M.S. Subtrack in Health Communication

The M.S. subtrack in health communication is designed for students who wish to gain skill in designing, evaluating, and implementing effective communication strategies and messages that speak to the health needs of diverse audiences. The program addresses clinician-patient interaction, family communication, group and organizational communication, and mass media and web-based campaigns.

The health communication subtrack combines the M.S. core course work with additional concentrated learning opportunities. Students fulfill the regular M.S. requirements, using the health communication core to satisfy the content area electives requirement.

HEALTH COMMUNICATION CORE

- All of these (12 s.h.):
- 036:371 Communication Theory 3 s.h.
- 172:240/036:270 Health Communication 3 s.h.
- 172:242 Persuasion and Health 3 s.h.
- 172:246/036:379 Health Communication Campaigns 3 s.h.

M.P.H. Subtrack in Health Communication

The M.P.H. subtrack in health communication prepares public health practitioners for a variety of employment opportunities in health communication strategies, health communication in groups and organizations, and mass media/web-based campaigns in health promotion. See Master of Public Health (M.P.H.) in the Catalog.

M.P.H. Subtrack in Community and Behavioral Health

The M.P.H. subtrack in community and behavioral health prepares public health

practitioners for a variety of positions in community development, health program implementation, and health education. See Master of Public Health (M.P.H.) in the Catalog.

Doctor of Philosophy

The Ph.D. program prepares individuals for academic, research, and policy-making work in the social and behavioral health sciences. This fast-growing academic specialty offers many career opportunities in academic and research institutions.

The Ph.D. requires at least 75 s.h. of course work beyond the baccalaureate degree, including transfer credit from a master's degree. Students must successfully complete a qualifying exam, a comprehensive exam, and a dissertation—a substantial scholarly treatise. The research topic must be approved by the student's dissertation committee.

During the first semester, students work with their academic advisor to develop a plan of study that satisfies their interests and professional goals as well as the program's requirements. Students are required to attend departmental seminars and to complete the following courses.

COLLEGE OF PUBLIC HEALTH CORE

- All of these (9 s.h.):
- 171:161 Introduction to Biostatistics 3 s.h.
- 172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.

BEHAVIORAL AND SOCIAL SCIENCES CORE

- Seven of these (21 s.h.):
- 113:185 Medical Anthropology 3 s.h.
- 172:106 Designing and Implementing Interventions 3 s.h.
- 172:110 Community Development in Public Health 3 s.h.
- 172:130 Social Determinants of Health 3 s.h.
- 172:150 Health Behavior and Health Education 3 s.h.
- 172:240 Health Communication 3 s.h.
- 172:242 Persuasion and Health 3 s.h.
- 172:246 Health Communication Campaigns 3 s.h.

RESEARCH METHODS CORE

- Five of these (15 s.h.):
- 07P:249 Factor Analysis and Structural Equation Models 3 s.h.
- 07P:252 Introduction to Multivariate Statistical Methods 3 s.h.

171:162 Design and Analysis of Biomedical Studies	3 s.h.
172:181 Evaluation I: Theory and Applications	3 s.h.
172:183 Qualitative Research for Public Health	3 s.h.
172:282 Evaluation II: Design and Methods	3 s.h.
172:285 Research Methods in Community and Behavioral Health	3 s.h.

CONTENT AREA ELECTIVES

Students work with their advisor to select at least 18 s.h. of course work appropriate to their educational goals and emphasis area. They may choose from any Department of Community and Behavioral Health courses not already taken, other College of Public Health courses, or other University of Iowa graduate-level courses.

DISSERTATION

The dissertation requirement is 12 s.h.

Ph.D. Subtrack in Addiction Studies

The Ph.D. subtrack in addiction studies is designed for students who wish to gain skill in developing and evaluating addiction prevention and intervention programs. This area of study and practice examines addiction prevention and treatment from both a public health and a biopsychosocial perspective.

The addiction studies subtrack combines core course work from the Ph.D. curriculum with additional specialized training. Students fulfill the regular Ph.D. requirements, using the addiction studies core to satisfy the content area electives requirement.

ADDICTION STUDIES CORE

Students work with their advisor to select 18 s.h. of addictions studies course work offered by the department. Courses focusing on treatment of substance abuse and comorbid psychopathology, prevention of substance abuse and comorbid psychopathology, and assessment and diagnosis of addiction and comorbid psychopathology are under development.

Ph.D. Subtrack in Health Communication

The Ph.D. subtrack in health communication is designed for students who wish to prepare for academic, research, and policy-making careers in the area of health communication.

The health communication subtrack combines the core course work from the Ph.D. curriculum with additional specialized training. Students fulfill the regular Ph.D. requirements, using the health communication core to satisfy the content area electives requirement.

HEALTH COMMUNICATION CORE

All of these (12 s.h.):	
036:371 Communication Theory	3 s.h.
172:240/036:270 Health Communication	3 s.h.
172:242 Persuasion and Health	3 s.h.
172:246/036:379 Health Communication Campaigns	3 s.h.

Admission

For detailed information about Graduate College policies, including application requirements and procedures, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

The community and behavioral health faculty considers several factors when evaluating applications for admission, including scores on the Graduate Record Exam, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All applicants must submit academic transcripts, three letters of recommendation, and a statement of purpose. Forms are available from the Department of Community and Behavioral Health or on its web site (see “Prospective Students”).

Applicants to the M.S. program must have a cumulative grade-point average of at least 3.00 and should hold a bachelor’s degree from an accredited college or university. No specific undergraduate major is required. Preference is given to applicants with Graduate Record Exam verbal scores of at least 520, quantitative scores of at least 600, and analytical writing scores of at least 4.0.

Applicants to the Ph.D. program must have a graduate grade-point average of at least 3.40 and should hold a graduate degree from an accredited college or university—ideally, an M.S. in community and behavioral health, or another public health degree, or a related social science degree, or a clinical health degree. Applicants who do not hold a graduate degree should apply to the M.S. program. Preference is given to

applicants with Graduate Record Exam verbal scores of at least 520, quantitative scores of at least 620, and analytical writing scores of at least 4.0. Ph.D. program applicants also must submit their masters thesis, or if no thesis is available, a sample of their scholarly writing.

International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based) or 250 (computer-based) on the Test of English as a Foreign Language (TOEFL). International applicants who score 550-599 (paper-based) or 213-249 (computer-based) are required to take English fluency courses. Applicants who score below those ranges are not considered for admission.

APPLICATION DEADLINES

Fall entry: June 1 for U.S. citizens, April 1 for international applicants

Spring entry: November 1 for U.S. citizens, October 1 for international applicants

Applications received by January 20 receive maximum consideration for financial aid.

Financial Support

Several forms of financial support are available, including scholarships and awards, student loans, and graduate assistantships.

Graduate assistantships provide a stipend and entitle students to resident tuition and reduced health insurance costs. Research assistantships are competitive and are awarded according to department need and student merit. Most graduate students do not receive assistantships until their second year in the program.

Scholarships and fellowships are available through federal agencies, such as the Centers for Disease Control and the National Institutes of Health, and from private foundations.

Resources

The department houses the Iowa Tobacco Research Center, Prairielands Addiction Technology Transfer Center, the Iowa Center for Evaluation Research, and the Prevention Research Center. M.S. and Ph.D. students may be asked to assist with ongoing research projects.

The Iowa Tobacco Research Center supports innovative research and education on tobacco use and prevention, as well as provision and

support of culturally competent and accessible smoking cessation services. The Prairielands Addiction Technology Transfer Center provides state-of-the-art training, curricula, and resources on substance use issues for counselors, health care professionals, and members of the community. The Iowa Center for Evaluation Research focuses on conducting evaluations of training, educational materials and procedures, workforce development, and community-based interventions. The Prevention Research Center focuses on improving the health of rural Iowans.

Courses

172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.

Basic concepts, strategies, and methods of health promotion and disease prevention; health promotion in the context of public health, theories and principles that underpin health promotion; overview of policy formation and health promotion planning, implementation, evaluation. Offered spring semesters. Prerequisite: graduate standing or consent of instructor.

172:106 Designing and Implementing Interventions 3 s.h.

Background and skills necessary to plan a public health intervention program; program planning models. Offered fall semesters. Prerequisites: 172:150, and admission to College of Public Health or consent of instructor.

172:110 Community Development in Public Health 3 s.h.

Concepts, strategies, and methods of community development as major approaches to creating healthy communities and promoting social change; role of public health practitioners as agents of change in organizations, communities. Offered fall semesters. Prerequisite: graduate standing or consent of instructor.

172:115 Community Preventive Programs and Services 2 s.h.

Current public health problems and associated community preventive interventions. Offered fall semesters.

172:122 Maternal, Child, and Family Health 3 s.h.

Major issues, policies, and programs for health of women, children, and families in the United States; social, political, and economic determinants. Offered spring semesters. Prerequisites: 096:030 and 173:140, or consent of instructor.

172:125 American Indian Health 3 s.h.

Native American Indian health issues; anthropological and historical perspectives, cultural aspects of traditional Indian medicine, governmental policies and the Indian Health Service. Same as 149:135.

172:130 Social Determinants of Health 3 s.h.

Relationship between social factors and health, with focus on family, neighborhood, community, and social group levels. Offered spring semesters. Prerequisite: graduate standing or consent of instructor.

172:131 Anthropology and International Health 3 s.h.

Medical anthropology's critical role in international health research and practice; political ecology of infectious disease, quest for culturally appropriate interventions. Offered spring semesters. Same as 113:184, 152:184.

172:133 The Anthropology of Women's Health 3 s.h.

How female gender intersects with culture, environment, and political economy to shape health and illness; reproductive health, violence, drug use, cancer; readings in anthropology and public health. Offered fall semesters. Prerequisite: 113:003 or 113:010 or 131:010 or graduate standing or consent of instructor. Same as 113:133, 131:133.

172:144 Physician-Patient Communication 3 s.h.

Research on characteristics and qualities of physician-patient talk and patient outcomes. Prerequisite: 036:060 or graduate standing or consent of instructor. Same as 036:161.

172:150 Health Behavior and Health Education 3 s.h.

Common theories of health behavior and health education and their application to varied public health problems and settings. Offered spring semesters. Prerequisite: graduate standing or consent of instructor.

172:160 Substance Use and Misuse in America 3 s.h.

Same as 031:173.

172:161 Substance Abuse and Mental Health 3 s.h.

Prevalence and defining characteristics of substance-related and mental health disorders; gender, cultural, ethnic, life-span, and socioeconomic differences, at individual and community levels; implication for primary and secondary prevention. Offered spring semesters. Prerequisites: graduate standing and substance abuse course, or consent of instructor.

172:163 Tobacco Use: Prevention and Control 3 s.h.

Tobacco use, particularly cigarette smoking, as a major public health concern; key factors contributing to tobacco; strategies to reduce smoking in communities.

172:170 Special Topics arr.

Didactic material in community and behavioral health that may include tutorial, seminar, or faculty-directed independent work (e.g., literature search, project, short research project). Prerequisite: consent of instructor.

172:181 Evaluation I: Theory and Applications 3 s.h.

Program evaluation methods in public health; overview of evaluation theory and models of program evaluation, examples of public health program evaluation, criteria for judging evaluation methods and products. Offered fall semesters. Prerequisite: public health student standing or consent of instructor.

172:183 Qualitative Research for Public Health 3 s.h.

Introduction to methods and theories of qualitative research that facilitate description and explanation of social phenomena related to health behavior, illness, prevention, and treatment in the public health domain. Offered fall semesters. Prerequisite: graduate standing or consent of instructor.

172:185 Communicating with the Community 3 s.h.

Communication skills for research and practice settings, taught from a cultural perspective with reference to gender, age, ethnicity; individual and constructive interviewing, public speaking, conducting focus groups. Offered fall semesters. Prerequisite: graduate standing or consent of instructor.

172:240 Health Communication 3 s.h.

Theories, concepts, research associated with health communication; interpersonal and mass communication approaches. Prerequisite: graduate standing or consent of instructor. Same as 036:270.

172:242 Persuasion and Health 3 s.h.

Theories of persuasion and social influence; attitude formation, the relationship between attitudes and behavior, persuasion theories and their applications across health topics. Prerequisite: graduate standing or consent of instructor.

172:246 Health Communication Campaigns 3 s.h.

Design and analysis of health campaigns; theory, practice, methods; mass media, community, organization, and interpersonal approaches. Same as 036:379.

172:270 Independent Study in Community and Behavioral Health arr.

Pursuit of an interest in community and behavioral health requiring substantial creativity and independence. Repeatable.

172:271 Research in Community and Behavioral Health arr.

Advanced research in community and behavioral health. Repeatable.

172:282 Evaluation II: Design and Methods 3 s.h.

Research design and methodology for evaluation of public health and related programs; causality, evaluation theory, threats to validity, selection and comparison of research designs, sample selection and size, survey and scale construction, quantitative and qualitative data collection and analysis, data management, reporting; based on case study of an infant mortality prevention program. Offered spring semesters. Prerequisites: 172:181 and a course in biostatistics or statistics.

172:285 Research Methods in Community and Behavioral Health 3 s.h.

Overview of quantitative research methods for community and behavioral health; major elements of behavioral and social science research, critical evaluation of research related to community and behavioral health, application of research methods in public health practice; opportunities for students to build skills for evaluation of research and application of quantitative research methods. Prerequisite: 171:161 or 173:140.

172:300 CBH Thesis/Dissertation arr.

Work on community and behavioral health M.S. thesis or Ph.D. dissertation with thesis/dissertation advisor.

Epidemiology

Head: James C. Torner

Professors: Trudy Burns (Biostatistics), Elizabeth Chrischilles (Pharmacy), Michael Cohen (Pathology/Urology), Gary Doern (Pathology), Claibourne Dungy (Pediatrics), Laurence Fuortes (Occupational and Environmental Health), Greg Gray (International Programs), William Hammonds (Anesthesiology), Herman Hein (Pediatrics), Lorean Herwaldt (Internal Medicine), Kathleen Janz (Health and Sport Studies), Susan Johnson (Obstetrics and Gynecology), Louis Kirchoff (Internal Medicine), Steve Levy (Preventive and Community Dentistry), Charles Lynch (Pathology), Larry Mahoney (Pediatrics), Jeffrey Murray (Pediatrics/Biological Sciences/Pediatric Dentistry), Corinne Peek-Asa (Occupational and Environmental Health), Gary Rosenthal (Internal Medicine), Audrey Saftlas, Elaine Smith (Preventive and Community Dentistry), Linda Snetselaar (Internal Medicine), James Torner (Surgery/Neurosurgery), Don VanDyke (Pediatrics), Robert Wallace (Internal Medicine), Mary Wilson (Internal Medicine), Craig Zwierling (Occupational and Environmental Health)

Professors emeriti: Ronald Lauer (Pediatrics), Michael Pfaller (Pathology), Helmut Schrott (Internal Medicine), Robert Woolson (Biostatistics)

Adjunct professors: James Cerhan, Bradley Doebbeling, Susan Joslyn, Paul Pomrehn, M. Patricia Quinlisk

Associate professors: John Brooks (Pharmacy), Leslie Dennis, R. William Field (Occupational and Environmental Health), David Katz (Internal Medicine), Neal Kohatsu, Jennifer Robinson, Wayne Sanderson (Occupational and Environmental Health)

Adjunct associate professors: Caroline Carney Doebbeling, Jose Sanchez

Assistant professors: Catherine Bradley (Obstetrics and Gynecology), Elizabeth Clark (Family Medicine), Valerie Forman Hoffman (Internal Medicine), Paul Romitti, Tara Smith

Adjunct assistant professors: Patrick Blair, Lucy DesJardin, James Gill, Badrinath Koney (Urology), Maureen McCue, Michael Pentella, Shannon Putnam, Sheila Riggs, Mario Schootman, Anne Tabor

Graduate degrees: M.S., Ph.D. in Epidemiology; M.S. in Clinical Investigation

Web site: <http://www.public-health.uiowa.edu/epi>

The Department of Epidemiology focuses on surveillance for disease, risk factors for disease in the general population, behavioral factors in disease, use and outcome of health interventions and care, and the establishment and evaluation of disease control measures in the community. Students are guided by faculty members whose research interests include epidemiology of communication disorders, pharmacoepidemiology, cancer epidemiology,

infectious disease epidemiology, adverse reproductive outcome epidemiology, anatomic pathology, cardiovascular disease, nutrition, smoking cessation, epidemiology of reproduction, dental epidemiology, clinical epidemiology, neuroepidemiology, meta-analysis, intervention trials, international health, and effects of aging.

Graduate Programs

The department offers three graduate degrees: Master of Science and Doctor of Philosophy in epidemiology, and Master of Science in clinical investigation. In addition, an epidemiology subtrack is available in the M.P.H.; see Master of Public Health (M.P.H.) in the Catalog.

Master of Science in Epidemiology

The Master of Science in epidemiology prepares graduate students for professional careers in which specialized knowledge of epidemiological methods and analytic techniques are essential. Graduates find employment in local, state, and federal health agencies, academic institutions, and private enterprise.

The M.S. in epidemiology requires 38 s.h. and is offered with or without thesis. Students must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. or more of course work may be dismissed from the program. Students who choose to complete the degree without thesis are required to pass a comprehensive examination.

Students are required to attend departmental seminars and journal club. They also must present one scientific poster at an international, national, regional, state, university, or department poster session.

The following courses are required.

REQUIRED COURSES

All of these:	
171:161 Introduction to Biostatistics	3 s.h.
171:162 Design and Analysis of Biomedical Studies	3 s.h.
171:241 Applied Categorical Data Analysis	3 s.h.
173:140 Epidemiology I: Principles (web-based course cannot be used)	3 s.h.

173:160 Introduction to Epidemiologic Data Analysis with Computers	2 s.h.
173:240 Epidemiology II: Advanced Methods	4 s.h.
One of these:	
069:133 Introduction to Human Pathology	4 s.h.
069:270 Pathogenesis of Major Human Diseases	3 s.h.
One of these:	
173:255 Epidemiology of Infectious Diseases	3 s.h.
173:260 Epidemiology of Chronic Diseases	3 s.h.
One of these:	
172:150 Health Behavior and Health Education	3 s.h.
173:280 Introduction to Health Care Organization and Policy	3 s.h.
175:197 Environmental Health	3 s.h.
One of these:	
173:195 Preceptorship in Epidemiology (for nonthesis students)	3 s.h.
173:300 Thesis/Dissertation (for thesis students, may be taken twice)	3 s.h.

ELECTIVES

Students must earn a minimum of 5 s.h. in electives, which must be selected from courses offered by the Department of Epidemiology (prefix 173).

Students also must earn at least 2 s.h. in course work pertinent to their educational goals and background. Students may choose an epidemiology course or another graduate course, with their advisor's approval. The following courses are recommended.

171:163 Introduction to Design of Sample Surveys	3 s.h.
171:164 Research Data Management	3 s.h.
171:174 Introductory Longitudinal Data Analysis	3 s.h.
171:242 Applied Survival and Cohort Data Analysis	3 s.h.

Master of Science in Clinical Investigation

The Master of Science in clinical investigation is offered by the Department of Epidemiology in cooperation with the interdisciplinary Iowa Scholars in Clinical Investigation program, which is coordinated by the Department of Internal Medicine, Carver College of Medicine. The

program is designed for clinicians interested in pursuing careers in clinical research.

The M.S. in clinical investigation requires 30 s.h. It includes in-depth training in biostatistics, epidemiology, research ethics, and academic survival skills as well as didactic training applicable to clinical research careers.

Graduates of the program will be able to critically evaluate clinical literature, write competitive grant proposals, design and conduct clinical research projects, work effectively with other researchers and support staff, and disseminate research results through manuscripts and presentations.

Applicants to the program must have completed at least 6 s.h. of pathology, physiology, and/or pharmacology. Those lacking this preparation are required to take courses that fill this requirement during their enrollment in the program.

The M.S. in clinical investigation requires the following course work.

REQUIRED COURSES

Students earn a minimum of 15 s.h. in the following.

All of these:

060:204 Survival Skills for a Research Career	1 s.h.
173:150 Introduction to Clinical Epidemiology	2 s.h.
173:152 Clinical Research Career Development	1 s.h.
173:163 Seminar in Clinical Research (four semesters, 1 s.h. each)	4 s.h.
173:295 Clinical Research Ethics	2 s.h.

One of these:

173:160 Introduction to Epidemiologic Data Analysis Using Computers	2 s.h.
173:161 Patient-Oriented Research-Data Analysis	3 s.h.

One of these:

173:195 Preceptorship in Epidemiology	3-6 s.h.
173:300 Thesis	3-6 s.h.

EPIDEMIOLOGY CORE

Students earn a minimum of 12 s.h. in the following.

Both of these:

171:241 Applied Categorical Data Analysis or approved substitute	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.

One of these:

171:161 Introduction to Biostatistics	3 s.h.
171:201 Biostatistical Methods I	4 s.h.

One of these:

171:162 Design and Analysis of Biomedical Studies	3 s.h.
171:202 Biostatistical Methods II	4 s.h.

FOCUS AREA ELECTIVES

Students earn a minimum of 3 s.h. from one focus area.

General (Applicable to More Than One Focus Area)

06j:269 Meta-Analysis in the Behavioral and Social Sciences	3 s.h.
171:242 Applied Survival & Cohort Data Analysis	3 s.h.
171:266 Statistical Methods in Clinical Trials	3 s.h.
172:183 Qualitative Research for Public Health	3 s.h.
173:210 Writing a Research Protocol	3 s.h.
173:285 Outcomes Research	2-3 s.h.
173:290 Intervention and Clinical Trials	3 s.h.
174:221 Evaluation and Outcomes in Health Care	2 s.h.

Patient-Oriented Research

031:270 Clinical Research Methods	3 s.h.
142:215 Molecular Biology of Gene Expression	3 s.h.
173:236 Nutrition Intervention in Clinical Trials Research	2 s.h.

Epidemiology and Behavioral Research

031:263 Psychological Appraisal I	3 s.h.
044:131 Geography of Health	1-3 s.h.
111:204 Principles of Oral Epidemiology	arr.
172:101 Introduction to Health Promotion and Disease Prevention	3 s.h.
172:150 Health Behavior and Health Education	3 s.h.
173:150 Introduction to Clinical Epidemiology	2 s.h.
173:225 Genetics and Epidemiology	4 s.h.
173:235 Nutritional Epidemiology	2 s.h.
173:240 Epidemiology II: Advanced Methods	4 s.h.
173:251 Injury Epidemiology	3 s.h.
173:253 Epidemiology of Occupational Injuries	3 s.h.
173:255 Epidemiology of Infectious Disease	3 s.h.
173:256 Hospital Epidemiology	2 s.h.
173:260 Epidemiology of Chronic Diseases	3 s.h.
173:261 Epidemiology of Aging	1-2 s.h.
173:262 Neuroepidemiology	2 s.h.
173:263 Epidemiology of Reproductive Diseases	2 s.h.

173:265 Cardiovascular Disease Epidemiology	3 s.h.
173:267 Psychiatric Epidemiology	3 s.h.
173:270 Cancer Epidemiology and Control	3 s.h.
173:291 Pharmacoepidemiology	3 s.h.

Outcomes and Health Services Research

06j:270 Research Methods in Management and Organization	3 s.h.
07B:222 Introduction to Policy Analysis and Evaluation	3 s.h.
07P:165 Introduction to Program Evaluation	3 s.h.
07P:265 Program Evaluation	3 s.h.
050:225 Translational Biomedical Research	arr.
050:283 Health Informatics I (or II)	3 s.h.
172:181 Evaluation I: Theory and Applications	3 s.h.
172:282 Evaluation II: Design and Methods	3 s.h.
173:276 Health Care Utilization Outcomes	3 s.h.
173:280 Introduction to Health Care Organization and Policy	3 s.h.
174:204 Quantitative Management in Health Care	2-3 s.h.
174:212 Health Economics I	3 s.h.
174:228 Cost Effectiveness and Decision Analysis	3 s.h.
174:261 Analytic Issues in Health Services Research I	3 s.h.
174:268 Health Care Utilization	3 s.h.

Doctor of Philosophy in Epidemiology

The Doctor of Philosophy in epidemiology prepares graduate students for careers as scientists, teachers, and practitioners of epidemiologic methods. Employment opportunities exist in academic institutions; local, state and federal health agencies; and in commercial enterprises.

The Ph.D. requires a minimum of 75 s.h. of course work. Doctoral students must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. or more of course work may be dismissed from the program.

All doctoral students must successfully complete a qualifying examination, a comprehensive examination, and a dissertation—a substantial scholarly treatise. The research topic and content, which vary depending on the program of study, must be approved by the student's dissertation committee. Other degree

requirements include approved electives chosen from Department of Epidemiology courses and other University of Iowa courses.

Students are required to attend departmental seminars and journal club. They also must present one scientific poster at an international, national, regional, state, university, or department poster session.

The following courses are required.

REQUIRED COURSES

171:161 Introduction to Biostatistics	3 s.h.
171:162 Design and Analysis of Biomedical Studies	3 s.h.
171:164 Research Data Management	3 s.h.
171:241 Applied Categorical Data Analysis	3 s.h.
171:242 Applied Survival and Cohort Data Analysis	3 s.h.
173:140 Epidemiology I: Principles (web-based course cannot be used)	3 s.h.
173:160 Introduction to Epidemiologic Data Analysis with Computers	2 s.h.
173:205 Research in Epidemiology	3 s.h.
173:210 Writing a Research Protocol	3 s.h.
173:240 Epidemiology II: Advanced Methods	4 s.h.
173:340 Epidemiology III: Theories	3 s.h.
One of these:	
069:133 Introduction to Human Pathology	4 s.h.
069:270 Pathogenesis of Major Human Diseases	3 s.h.
One of these:	
027:130 Human Physiology	3 s.h.
072:153 Graduate Physiology	4 s.h.

Ph.D. students also must earn 3 s.h. in epidemiology courses outside their emphasis area.

ELECTIVES

Each student must declare an emphasis area and, working with the emphasis area coordinator, develop a plan of study that ensures the student will develop knowledge in a specific area sufficient to support important original research. At the discretion of the emphasis area coordinator and study plan committee, the student may organize emphasis area course work into required emphasis area course and electives.

DISSERTATION

All doctoral students must successfully complete a Ph.D. thesis.

173:300 Thesis	10-18 s.h.
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Admission

For detailed information about Graduate College policies, including application requirements and procedures, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

M.S. and Ph.D. in Epidemiology

The epidemiology faculty considers several factors when evaluating applications for admission, including GRE scores, grade-point average, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All M.S. program applicants must hold a baccalaureate degree and have a cumulative g.p.a. of at least 3.00. Undergraduate preparation must include two semesters of biological sciences, and mathematics through algebra.

Ph.D. program applicants must hold a baccalaureate degree (an M.S. or M.P.H. usually is required), and must have a cumulative g.p.a. of at least 3.00. Courses in the biological, physical and mathematical sciences provide important background; one semester of calculus and two semesters of biological sciences are highly recommended. Computing skills also are desirable.

All applicants to the M.S. or Ph.D. program must have taken the Graduate Record Examination (GRE) General Test.

International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). International applicants who score 550-599 (paper-based), 213-249 (computer-based), or 81-99 (Internet-based) are required to take English fluency courses. Applicants who score below those ranges are not considered for admission.

All M.S. and Ph.D. applicants and students are required to have strong written and oral communication skills.

APPLICATION DEADLINES FOR THE M.S. IN EPIDEMIOLOGY

Fall entrance: July 1 for U.S. citizens; April 15 for international applicants

Summer entrance: April 15 for U.S. citizens; March 1 for international applicants

There is no spring entrance.

APPLICATION DEADLINES FOR THE PH.D. IN EPIDEMIOLOGY

Fall entrance: April 1

Spring entrance (not encouraged): October 1

M.S. in Clinical Investigation

M.S. in clinical investigation applicants must hold a doctoral-level degree in a clinical discipline (e.g., M.D., D.O., D.D.S., Ph.D., Pharm.D., D.V.M) or be enrolled in the Medical Scientist Training Program, Carver College of Medicine. They must hold a baccalaureate degree with a cumulative g.p.a. of at least 3.00; alternately, foreign-trained applicants must have an outstanding doctoral training record.

All applicants must have taken the Graduate Record Examination (GRE), Medical College Admission Test (MCAT), or Dental Admissions Test (DAT). International applicants who do not hold a degree from an accredited English-speaking college or university must have taken the Test of English as a Foreign Language (TOEFL).

Applicants are considered based on their credentials, prior training, and research training plans. An applicant with deficiencies in one area may be admitted if all other components of his or her application are strong.

APPLICATION DEADLINES FOR THE M.S. IN CLINICAL INVESTIGATION

The M.S. in clinical investigation accepts students only for summer entrance. Application deadlines are April 15 for U.S. citizens, March 1 for international applicants.

Financial Support

A limited number of graduate research assistantships are available for advanced M.S. and Ph.D. students; for information, consult the department. For information on financing education through jobs, grants, and loans, contact the Office of Student Financial Aid.

Opportunities for funded postdoctoral fellowships are available. Funded positions sponsored by federal agencies are available only to U.S. citizens.

Resources

Department of Epidemiology resources and activities include the State Health Registries of Iowa, the Preventive Intervention Center, the Lipid Research Clinic, the Health Effectiveness Research Center, the Center for Emerging Infectious Diseases, and the Nutrition Center.

The State Health Registries of Iowa, which encompasses the Iowa Cancer Registry and the Iowa Registry for Congenital and Inherited Disorders, works in cooperation with the Iowa Department of Public Health to collect medical data on Iowans. It is one of 10 registries nationwide that report data to the National Cancer Institute.

The Preventive Intervention Center conducts population-based intervention trials to prevent occurrence and recurrence of disease and to promote wellness, with a focus on the elderly. The Lipid Research Clinic specializes in research promoting prevention of cardiovascular disease and provides an interdisciplinary approach to risk factor interventions. The Health Effectiveness Research Center is a collaborative research enterprise with the College of Pharmacy that studies whether particular health care treatments or services are over- or underutilized. The Center for Emerging Infectious Diseases employs epidemiological methods, laboratory technologies, and clinical evaluations to achieve a better understanding of emerging infectious diseases. The Nutrition Center provides expertise in nutrition and dietary assessment, dietary interventions, and nutrition lifestyle change strategies.

Courses

173:111 International Health **arr.**
Urgent health problems in the developing world and among disadvantaged populations in developed countries; biological, social, cultural, political aspects of international health problems; applications of research methods from epidemiology, environmental health, social sciences. Offered fall semesters. Same as 152:111, 175:111.

173:140 Epidemiology I: Principles **3 s.h.**
Epidemiological concepts and methods; design of descriptive and analytic studies, such as aggregate, case series, cross-sectional, case-control, cohort studies; application of epidemiology to public health practice; communication and dissemination of epidemiological findings.

173:145 Public Health Data **2 s.h.**
Concepts and methods of obtaining and using public health data in community settings; how public health data are used for epidemiologic investigations and prevention programs. Offered spring semesters. Pre- or corequisites: 171:161 and 173:140.

173:150 Introduction to Clinical Epidemiology **2-3 s.h.**
Epidemiologic applications and methods used in clinical settings to evaluate clinical medicine and other health profession

disciplines, including health measurement, health outcome determination, diagnostic process, risk assessment and communication, prognosis, study design, patient surveys, clinical trials, decision analysis and meta-analysis, health services research. Offered fall semesters. Pre- or corequisites: 171:161 and 173:140.

173:151 Patient-Oriented Research Didactic 3 s.h.
Same as 050:220.

173:152 Clinical Research Career Development 1 s.h.

173:155 Diagnostic Microbiology for Epidemiology 3 s.h.
Introduction to microbiological culture, antigen detection, immunology, and molecular amplification laboratory techniques for bacteria, viruses, parasites, fungi. Offered spring semesters. Prerequisite: 061:103 or 061:112 or 061:157 or 061:164.

173:156 Introduction to Molecular Epidemiology 3 s.h.
Introduction to basic techniques of molecular biology (DNA, RNA, protein techniques) and their use in epidemiological research (e.g., diagnosis of disease, biomarker discovery and validation). Offered spring semesters. Pre- or corequisite: 173:140.

173:157 Zoonotic Diseases 2 s.h.
Introduces public health students to the epidemiology and control of zoonotic diseases; emphasizes zoonoses endemic to the midwestern United States. Offered summer sessions. Prerequisite: 061:103 or 061:112 or 061:157 or 061:164 or 173:155 or 173:255.

173:160 Introduction to Epidemiologic Data Analysis With Computers 2 s.h.
Organization, collection, management, and analysis of epidemiological data using computer programs. Offered fall semesters. Pre- or corequisites: 171:161 and 173:140.

173:161 Patient-Oriented Research Data Analysis 3 s.h.

173:163 Seminar in Clinical Research 1 s.h.
Presentation of ongoing clinical research projects, grant applications, and methodological articles, with emphasis on works in progress.

173:170 Injury and Violence Prevention 3 s.h.
Theory, research, and practice of injury control; unintentional and intentional injuries; local, national, international injury issues. Offered fall semesters. Same as 175:170.

173:175 Research Methods in Disaster Studies 3 s.h.
Epidemiologic study of disasters and their health consequences; research to identify and reduce health effects, research in context of response and preparedness. Offered spring semesters of odd years. Same as 175:175.

173:190 Problems and Special Topics in Epidemiology arr.
Didactic material in epidemiology; may include tutorial, seminar, faculty-directed independent work (e.g. literature search, project, short research project).

173:195 Preceptorship in Epidemiology arr.
Quantitative research-oriented project performed with a preceptor; preparation of prospectus, presentation of research results in a scientific poster session.

173:199 Practicing Evidence-Based Public Health 3 s.h.
How epidemiologic and other scientific studies underlie public health practice; relationship between evidence and action; controversies at interface of science and policy. Offered spring semesters.

173:200 Independent Study in Epidemiology arr.
In-depth pursuit of an area of special interest in epidemiology requiring substantial creativity and independence. Repeatable.

173:205 Research in Epidemiology arr.
Research that may lead to a dissertation. Repeatable.

173:210 Writing a Research Protocol 3 s.h.
Small group projects to develop research protocols using epidemiological study designs; presentation and defense of proposals before faculty site visitors. Offered fall semesters. Prerequisites: 171:161, 173:140, and 173:240.

173:211 Grant Writing for Clinical Investigators 1 s.h.
Development of skills for writing effective, scientifically sound applications for external research grants; for students who have completed the literature review section for their topic. Prerequisites: 171:161 and 173:140.

173:225 Genetics and Epidemiology 4 s.h.
Basic human genetic and population genetics principles; methods of integrating genetic principles into epidemiological studies; analytical methods for family data. Offered spring semesters. Prerequisites: 171:161 and 173:140, or consent of instructor. Same as 185:270.

173:230 Principles of Dietary Assessment 1 s.h.
Overview of current dietary assessment methods; evaluation of dietary records, dietary recall, food frequency questionnaires, brief dietary scanners, nutrient database, nutrient intakes standards. Offered spring semesters. Prerequisite: 3 s.h. of college nutrition courses.

173:235 Nutritional Epidemiology 2 s.h.
Application of epidemiology study designs to nutrition variables and chronic disease; analysis of nutrition epidemiology studies; research protocol design. Offered spring semesters. Recommended: a basic nutrition course.

173:236 Nutrition Intervention in Clinical Trials Research 2 s.h.
Nutrition interventions in clinical trials; disease related to nutrition variables; research that links effects of diet on chronic diseases. Offered fall semesters. Recommended: a basic nutrition course.

173:237 Nutrition Intervention in Research Lab 3 s.h.
Development, demonstration of group counseling skills in ongoing nutrition research projects at The University of Iowa. Offered fall semesters. Pre- or corequisite: 173:236 or consent of instructor.

173:240 Epidemiology II: Advanced Methods 4 s.h.
Epidemiologic study design and analysis; bias, confounding, effect modification; case-control studies; cohort studies; field methods; measurement principles; exposure and disease classification; acute and chronic disease examples. Offered spring semesters. Prerequisites: 171:161, 173:140, and 173:160.

173:241 Epidemiology II: Advanced Methods Lab 2 s.h.
Design of data collection tools, analysis of epidemiologic study data; descriptive analysis of variables; stratified analyses to examine confounding, effect modification; matching; use of logistic regression to examine confounding, effect modification. Offered spring semesters. Prerequisites: 173:140, 173:160, and 173:161. Corequisite: 173:240.

173:245 Epidemiology of Physical Activity 3 s.h.
Same as 028:249.

173:251 Injury Epidemiology 3 s.h.
How epidemiology can be applied to injury prevention and control: epidemiology literature, specific methodological problems involved in the epidemiology of injuries, critical evaluation of research articles. Offered spring semesters of odd years. Prerequisite: 173:140 or consent of instructor. Same as 175:251.

173:253 Epidemiology of Occupational Injuries 3 s.h.
Epidemiological literature on occupational injuries and their prevention; focus on research methods. Offered spring semesters of even years. Prerequisite: 173:140 or consent of instructor. Same as 175:253.

- 173:255 Epidemiology of Infectious Disease** 3 s.h.
Underlying epidemiological concepts of infection disease, including causation and surveillance; prevention and control; case studies. Offered fall semesters. Prerequisite: 173:140 or equivalent. Same as 152:257.
- 173:256 Hospital Epidemiology** 2 s.h.
Infectious and noninfectious adverse outcomes of medical care and appropriate investigative methods; surveillance, resistant organisms, molecular epidemiology, tuberculosis control, device-associated infections, latex allergies, isolation, construction, sterilization, regulatory agencies. Offered spring semesters of odd years. Prerequisite: 173:140 or equivalent.
- 173:260 Epidemiology of Chronic Diseases** 3 s.h.
Chronic disease epidemiology, survey and biological methods for exposure measurement in epidemiologic studies; leading chronic diseases, measurement of disease, lifestyle, nutrition, occupation, family history. Offered spring semesters. Prerequisite: 173:140 or consent of instructor.
- 173:261 Epidemiology of Aging** 1-2 s.h.
Epidemiologic methods for studying health and social problems of older persons; applications including research and public health practice and policy. Offered spring semesters. Prerequisite: 173:140. Same as 153:261.
- 173:262 Neuroepidemiology** 2 s.h.
Basic epidemiologic concepts applied to neurologic disease; concepts, methods, examples of neuroepidemiology; various diseases, methods. Offered spring semesters. Prerequisites: 173:140 and 173:160.
- 173:263 Epidemiology of Reproductive Diseases** 2 s.h.
Evaluation of methodological issues and current findings for reproductive diseases and conditions; etiological mechanisms, including behavioral and genetic. Offered fall semesters. Prerequisite: 173:140.
- 173:265 Cardiovascular Disease Epidemiology** 3 s.h.
Natural history of atherosclerotic disease and human factors affecting its development; atherosclerotic disease in varied populations worldwide and in men and women of varied ages; clinical trials to delay onset, reduce incidence, improve outcome of cardiovascular disease. Offered fall semesters of odd years. Prerequisites: 171:161 and 173:140.
- 173:267 Psychiatric Epidemiology** 3 s.h.
Population-based studies of psychiatric disorders and associated etiologic tools; diagnostic criteria used in psychiatric research, common structured interviews and rating scales; recent research relevant to common psychiatric disorders; experience writing a research idea using NIH PHS grant form. Offered spring semesters. Prerequisite: 173:140 or consent of instructor. Recommended: 173:240 or two years of resident training in psychiatry. Same as 073:255.
- 173:270 Cancer Epidemiology and Control** 3 s.h.
Incidence, mortality, survival; risk factors, cancer control options for major cancer sites; principles and methods of cancer registration in Iowa. Offered spring semesters of even years. Prerequisites: 171:161 and 173:140.
- 173:276 Health Care Utilization Outcomes** 3 s.h.
Research tools to assess changes in health care use and cost as outcomes of treatment; evidence-based medicine, meta-analysis, decision trees, cost-of-illness analysis, cost effectiveness models. Offered fall semesters. Same as 174:268.
- 173:280 Introduction to Health Care Organization and Policy** 3 s.h.
Basic arrangements of services in the United States; social, political, psychological, economic forces that shape health services; determinants of use, amounts, types of health resources available, financing methods, government regulation; current issues. Offered fall semesters. Same as 174:200.
- 173:285 Outcomes Research** 2-3 s.h.
Conceptual underpinnings and collection of valid outcomes and data, use of outcomes data in clinical care and population-based care management; intricacies of research methodology and health-related quality-of-life assessment. Offered spring semesters. Prerequisite: introductory research methods (e.g., 173:140).
- 173:290 Intervention and Clinical Trials** 3 s.h.
Methodologic introduction to rationale, design, conduct, analysis, and presentation of clinical trials; basics of clinical trial design, variety of designs, examples from clinical trials; biostatistical methods, including sample size determination. Offered fall semesters. Prerequisites: 171:161 and 173:140, or equivalents.
- 173:291 Pharmacoepidemiology** 3 s.h.
Drug approval process, methods for identification and attribution of adverse drug events, current understanding of the epidemiology of adverse drug events; study designs, data sources for pharmacoepidemiology, pharmacoepidemiology. Offered fall semesters of even years. Prerequisite: 173:140.
- 173:295 Clinical Research Ethics** 2 s.h.
Ethical and regulatory aspects of clinical research; historical background, current regulations, Institutional Review Board requirements related to human subjects protection issues. Prerequisite: K30 training grant or enrollment in degree program with clinical research project.
- 173:300 Thesis/Dissertation** arr.
Repeatable.
- 173:320 Teaching in Epidemiology** 3 s.h.
Teaching methods in epidemiology; guided practicum experience in teaching epidemiology, in preparation for academic careers. Prerequisites: 173:140, 173:160, 173:240, and 173:241.
- 173:340 Epidemiology III: Theories** 3 s.h.
How epidemiology fits into the wider context of scientific inquiry. Offered fall semesters of odd years. Prerequisites: 171:241, 173:140, and 173:240.

Health Management and Policy

Interim head: Barry R. Greene

Professors: Franklin Dexter (Anesthesiology), Joanne Dochterman (Nursing), Josephine Gittler (Law), Barry R. Greene, Dennis Harper (Pediatrics/Counseling, Rehabilitation, and Student Development), Arthur J. Hartz (Family Medicine), Charles Helms (Internal Medicine), Diane Huber (Nursing), Michael Kienzle (Medicine), Samuel Levey, James L. Price (Sociology), Gary E. Rosenthal (Internal Medicine), Gerard Rushton (Geography), Frederic D. Wolinsky

Adjunct professors: William W. Hesson, R. Edward Howell, Henri R. Manasse Jr., John H. Staley

Clinical professors: Christopher Atchison, Mary Gilchrist, Donna Katen-Bahensky, Lawrence D. Prybil

Associate professors: Rachel L. Anderson, John Brooks (Pharmacy), Thomas E. Vaughn, Marcia M. Ward

Associate professors (clinical): James Bahensky, Linda Everett (Nursing), Tanya Uden-Holman

Adjunct associate professors: Anthony DeFurio, Ellen Gaucher, Ann Madden Rice, Richard B. Murphy, William D. Petasnick, Peter Roberts, Peter Wallace

Adjunct associate professor (clinical): Michelle Robnett (Nursing)

Assistant professors: Brian Kaskie, John E. Schneider, Julie Urmie (Pharmacy)

Assistant professor (clinical): Jorg Westermann

Adjunct assistant professors: Lee Carmen, Shane Cerone, Mark Moser, Ralph Wilmoth

Adjunct lecturers: Scott R. Anderson, Richard C. Breon, Charles E. Brown, Jack Cameron, Eric T. Crowell, Stacey T. Cyphert, Donald W. Dunn, Mary L. Hensley, Patty S. Hession, Thomas D. Holets, Thomas W. Keel, James E. Killian, Richard S. Kowalski, Todd C. Linden, Steve Long, Kenneth C. Mace, Robert A. Miller, Michael E. Mohnsen, Michael W. Muenzberg, Ronald R. Reed, James H. Skogsbergh, George E. Soper, Julie A. Stark Manas, Thomas F. Tibbitts, James A. Tinker, Rodney J. Tokheim, Joe B. Tye III, Stephen L. Ummel, Samuel T. Wallace, John C. Wocher

Graduate degrees: M.H.A., Ph.D. in Health Services and Policy

Web site: <http://www.public-health.uiowa.edu/hmp>

The Department of Health Management and Policy educates health care executives to assume leadership roles in an increasingly complex and dynamic health care system. Graduates hold key positions in all areas of health management and policy, both in the United States and abroad.

The department's degree programs rank among the foremost in the field. They include the Master of Health Administration (M.H.A.), which is accredited by the Commission on Education of Healthcare Management Education, and a Doctor of Philosophy in health services and policy. The

Ph.D. program offers core training in health services research and specialization in a choice of four concentrations: health economics, health outcomes, health policy, or management and organizations.

The department's faculty also presents the policy and administration subtrack of the college's Master of Public Health (M.P.H.), which prepares students to lead public health organizations.

The department also offers joint degree programs with the Tippie College of Business (M.H.A./M.B.A.), the College of Law (M.H.A./J.D.), and the department of Urban and Regional Planning (M.H.A./M.A.). See "Joint Master's Degrees" in this section.

Master of Health Administration

The M.H.A. program prepares students for a wide variety of positions in health care management. The curriculum is designed to help students attain a comprehensive understanding of issues encountered by health care delivery organizations, and strong business skills.

The M.H.A. requires 60 s.h. of graduate credit (usually two academic years of full-time study). Transfer credit and course waivers may be accepted, but all students are expected to complete a minimum of 54 s.h. during their course of study.

Core courses in management, economics, law, managerial finance, and financial accounting provide students with necessary business skills. Students also may take course work in other areas, such as business, urban and regional planning, and aging studies.

Students work with their advisors to create a plan of study that incorporates required courses and elective course work that supports their career goals in areas such as operations management, managed care, or financial management.

During the first year, students are introduced to the social, political, economic, and financial environments of health care organizations. The concepts, tools, and techniques of effective managerial decision making, planning, and control also are presented.

During the second year, students pursue in-depth applications of management concepts and develop skills in areas relating to their special interests and career objectives.

REQUIRED COURSES

06N:215 Corporate Financial Reporting	3 s.h.
06N:216 Data and Decisions	3 s.h.
06N:225 Managerial Finance	3 s.h.
171:161 Introduction to Biostatistics	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.
174:100 Executive Seminar Series	0 s.h.
174:200 Introduction to Health Care Organization and Policy	3 s.h.
174:201 Health Care Management	3 s.h.
174:203 Strategic Planning and Marketing	3 s.h.
174:204 Quantitative Management in Health Care	2 s.h.
174:205 Issues in Health Management and Policy	3 s.h.
174:208 Health Services Information Systems	2 s.h.
174:212 Health Economics I	3 s.h.
174:216 Financial Management of Health Institutions	3 s.h.
174:221 Evaluation and Outcomes in Health Care	2 s.h.
174:223 Seminar in Health Care Ethics	2 s.h.
174:224 Human Resources for Health Organizations	2 s.h.
174:225 Topics in Health Care Information Systems	1 s.h.
174:237 Legal Aspects of Health and Medical Care	3 s.h.
174:243 Health Policy	1 s.h.

ELECTIVES

Students choose 12 s.h. of course work, which must include 6 s.h. in Department of Health Management and Policy courses.

Summer Internships, Fellowships, Residencies

The department facilitates placement of M.H.A. students in optional summer internships between the first and second years of study. Internships offer opportunities for practical experience outside the classroom, observing and interacting with executives in a health care setting. Internships are full-time positions that usually last 10-12 weeks. Students normally receive a salary or stipend, and in some cases, assistance with living arrangements. Internships may carry up to 3 s.h. of credit.

Many M.H.A. students complement their academic training with a postgraduate fellowship

or residency. Such experiences provide opportunities to observe, develop, and demonstrate practical management techniques and skills and to develop connections with colleagues. The department takes an active role in helping students identify and secure fellowship and residency positions.

Joint Master’s Degrees

Students who wish to pursue an integrated program combining an M.H.A. with a master’s degree in another field should discuss their plans with both academic units and indicate their interest when they apply to the M.H.A. program.

Business

Students interested in combining the traditional strengths of health management and policy with greater exposure to advanced management techniques should consider the joint master’s degree program with the Tippie College of Business.

This combination leads to an M.H.A. in health management and policy and an M.B.A. (Master of Business Administration). It requires 75 s.h. and normally is completed in two-and-a-half to three years. Separate admission to each degree program is required.

Law

The joint program with the College of Law is highly individualized, allowing students to gain in-depth exposure to and training in both health care management and law.

The program leads to an M.H.A. in health management and policy and a J.D. in law. It requires a minimum of 126 s.h. and usually takes four years to complete, although students who enroll in the accelerated law program may complete it in less time. Separate admission to each degree program is required. Students register only for law courses during their first year.

Urban and Regional Planning

Students interested in developing special expertise in community and health planning may pursue a joint master’s degree with the program in Urban and Regional Planning. The M.A. in urban and regional planning prepares students to develop public policy alternatives that help improve the quality of life in cities and throughout regions.

The program leads to an M.H.A. in health management and policy and an M.A. in urban and regional planning. It requires 76 s.h. and can be completed in three years. Separate admission to each degree program is required.

Doctor of Philosophy

The Ph.D. program, established in 1950, was the nation's first doctoral program in health care management. Students earn a Ph.D. in health services and policy, which prepares them for careers in health services research, education, and policy leadership in universities, government agencies, and health organizations. The program's faculty members are committed to interdisciplinary scholarly inquiry and research. Individual plans of study allow students to prepare for specific careers, and small class size encourages frequent student-faculty interaction, including participation in research projects as well as scholarly publications.

The program is oriented toward applied, interdisciplinary research. Students develop mastery of theories and research methodologies necessary to study the complex American health system.

The Ph.D. requires at least 90 s.h. Students may apply up to 30 s.h. of transfer credit earned for master's degree work toward the Ph.D.

REQUIRED COURSE WORK

Ph.D. students take course work in core content areas covering health care systems, health care management, health economics, and health policy. Courses in research design and statistical analysis are required. Students may waive specific courses, depending on their background.

CONCENTRATIONS

Ph.D. students choose one of four concentrations: health economics, health outcomes, health policy, or management and organization studies. In special circumstances, students may design their own concentrations, subject to faculty approval.

EXAMINATIONS

All Ph.D. students must pass a preliminary examination that tests the student's mastery of core material covered during the first year in the department, including American health systems and health services research methods.

Students take the comprehensive examination at or near the end of their formal course work. The comprehensive exam focuses on the courses in

the student's chosen concentration, with emphasis on the student's specific area of research and theoretical interest.

DISSERTATION

Doctoral candidates prepare dissertations based on original research that tests, extends, or applies concepts or principles to a problem in health care. Students may choose to complete a traditional dissertation or may complete a dissertation based on three publishable papers.

Admission

For detailed information about Graduate College policies, including application requirements and procedures, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Students from a variety of academic backgrounds are admitted to the department's graduate programs. Applicants to the M.H.A. program should hold a bachelor's degree from an accredited college or university. No specific undergraduate major is required, but prospective applicants are strongly advised to complete introductory courses in accounting, economics, and statistics and to gain facility in using spreadsheet and presentation software. A cumulative g.p.a. of at least 3.00 is required. M.H.A. program applicants must submit scores on the Graduate Record Exam (GRE) General Test (a combined verbal and quantitative score of 1100 or above is preferred) or the Graduate Management Admission Test (a score of 600 or above is preferred); official MCAT, VAT, LSAT, or DAT scores are accepted in place of GRE or GMAT scores. Previous work experience in health care is preferred.

Applicants to the Ph.D. program should have a bachelor's or master's degree. Experience in health care and a master's degree in health administration, public health, or health planning are excellent preparation for the program. A graduate degree in social science, management, economics, or law is acceptable, depending on the applicant's background and study concentration. Finance, economics, and statistics course work is recommended. A cumulative g.p.a. of at least 3.25 is usually required. All Ph.D. applicants must submit GRE scores (a combined verbal and quantitative score of 1100 or above is preferred).

All applicants must submit academic transcripts, three letters of recommendation, and a statement of objectives form (contact the Department of Health Management and Policy). Applicants to

the Ph.D. program also are required to submit a sample of scholarly writing.

International applicants to the M.H.A. or Ph.D. program who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based) or 250 (computer-based) on the Test of English as a Foreign Language (TOEFL). International applicants who score 550-599 (paper-based) or 213-249 (computer-based) are required to take English fluency courses. Applicants who score below those ranges are not considered for admission.

Students begin the program in fall semester. Campus visits are encouraged and personal interviews are required before admission. The admissions committee conducts telephone interviews with applicants unable to interview on campus.

Financial Support

A variety of financial assistance is available, including scholarships and awards, student loans, and research assistantships. Every effort is made to provide financial support to students who demonstrate need and maintain satisfactory academic standards. Some awards are offered in recognition of outstanding scholarship and experience, regardless of need.

Research assistantships generally are awarded on the basis of student merit and the department's need. Assistantships afford valuable experience in health services research and management projects. Research assistants work 10-20 hours per week and must apply for reappointment each year. Research assistantships provide a stipend and entitle students to resident tuition.

Opportunities also exist for part-time employment both on and off campus. For information and financial aid application forms, contact the Office of Student Financial Aid.

Alumni Association

An active alumni association supports the program in a number of ways, including scholarships, consultation on curriculum, continuing education, research, and fund development. The association also functions as a network for graduates entering the profession. Alumni serve as visiting faculty, consultants, mentors, and preceptors for summer internships, residencies, and fellowships.

Graduates maintain their Iowa connection and learn about news of their classmates, the department, and faculty members and students through the *Alumni Newsletter*.

The Department of Health Management and Policy and its alumni association jointly sponsor the Annual Iowa Health Care Executive Symposium each fall. Renowned speakers from across the country present a variety of symposium topics. Health care leaders, alumni, educators, students, and friends of the department attend the symposium, which offers students a high quality educational experience in addition to the opportunity to network with faculty and alumni.

Center for Health Policy and Research

The Center for Health Policy and Research is the research arm of the Department of Health Management and Policy and a University-wide interdisciplinary research facility. The center collaborates with health provider associations, policy and planning groups, insurance organizations, health delivery institutions, and other members of the health services research community. It also sponsors educational activities, including an annual policy symposium and weekly seminars.

Department of Health Management and Policy faculty members are involved in a wide range of research topics and methodologies and have research grants and contracts of \$7 million in the center. This large research portfolio provides excellent training opportunities for students.

Courses

174:100 Executive Seminar Series 0 s.h.
Issues in the health care industry; talks by executives from academic health centers, health-related associations, multihospital systems, government agencies, health maintenance organizations, community hospitals, health insurance industry. Prerequisite: consent of instructor.

174:102 Introduction to the U.S. Health Care System 3 s.h.
The U.S. health care system; socioeconomic, political, and environmental forces that influence the organization, financing, and delivery of personal and public health services; health services, policy, concepts, terminology. Same as 06j:159.

174:140 Mental Health Services and Policy I 3 s.h.
Contemporary mental health services and policy; characteristics of mental health services, historical background, evolution, future prospects. Same as 096:100.

174:144 Medicare and Medicaid Policy 3 s.h.
Health policies most pertinent to Americans over age of 65. Same as 153:144.

174:200 Introduction to Health Care Organization and Policy 3 s.h.

Organization of U.S. health care system, health policies that shape its development; historical, socioeconomic, political, environmental forces that influence the organization, financing, and delivery of personal and public health services; health services, policy concepts, and terminology, including health determinants, access to care, system integration, policy development, federalism. Same as 173:280.

174:201 Health Care Management 3 s.h.

Application of basic management principles such as leadership, goal setting, decision making, human resource management, to health care organizations. Prerequisite: consent of instructor.

174:202 Hospital Organization and Management 2-3 s.h.

Role of hospitals, governance, organizational structure, medical staff organization, departmental operations. Prerequisites: 174:200 and 174:201, or consent of instructor.

174:203 Strategic Planning and Marketing 3 s.h.

Management, marketing. Prerequisite: 174:201.

174:204 Quantitative Management in Health Care 2-3 s.h.

Quantitative analysis techniques used by managers in health care settings to assist with planning, decision making, resource allocation. Prerequisite: consent of instructor.

174:205 Issues in Health Management and Policy 3 s.h.

Integration and application of theories, concepts, principles; case studies. Prerequisite: 174:201 and consent of instructor.

174:206 Leadership in Health Care Organizations 2-3 s.h.

Management and leadership concepts and their application in health care organizations. Prerequisite: 174:201.

174:207 Group Practice and Ambulatory Care Administration 3 s.h.

Delivery of ambulatory health care services, for-profit, and not-for-profit organizations; emphasis on payment mechanism, compensation, structures, effects of managed care, other internal issues. Prerequisites: 174:200, 174:201, and 174:202; or consent of instructor.

174:208 Health Services Information Systems 2-3 s.h.

Conceptual, practical aspects of analysis, development, and use of computer-based information systems; emphasis on application to the health sciences environment.

174:212 Health Economics I 3 s.h.

Microeconomic principles applied to health care, health insurance, information and uncertainty, models of physician and hospital behavior, theory of the firm, market structure, regulation, competitive reform, managed care. Prerequisite: consent of instructor.

174:213 Health Economics II 3 s.h.

Economic theory and its application to health behavior, markets for health care and health insurance, public policy related to health. Prerequisite: 174:212 or consent of instructor.

174:214 Financial Accounting for Health Care Organizations 3 s.h.

Introduction to financial accounting practices in health care delivery organizations.

174:216 Financial Management of Health Institutions 3 s.h.

Issues in working capital management, capital financing, cost analysis and rate setting, budgeting, reimbursement, managed care contracting and health reform initiatives; emphasis on use of information from accounting, financial management systems. Prerequisite: consent of instructor.

174:217 Health Insurance and Managed Care 3 s.h.

History and theory of insurance, comparative health systems, health systems and networks, HMOs, public health insurance,

care for uninsured; emphasis on public policy. Prerequisites: 046:263 or 174:212 or equivalent health economics course, and 174:200 or equivalent U.S. health care system course; or consent of instructor. Same as 152:217.

174:218 Topics in Health Administration 1-3 s.h.

Topics related to contemporary problems that concern health care students, administrators. Repeatable.

174:220 Advanced Topics in Managed Care 3 s.h.

Skill development for managed care; risk management, rate setting, contracting, equity evaluation, mergers and acquisitions, regulatory issues; for advanced students. Prerequisite: 174:216 or consent of instructor.

174:221 Evaluation and Outcomes in Health Care 2 s.h.

Qualitative and quantitative methods for evaluating health care quality, effectiveness; program evaluation, health outcomes, clinical and cost effectiveness, evaluation across health care delivery systems. Prerequisite: 174:102 or 174:200 or consent of instructor.

174:223 Seminar in Health Care Ethics 2-3 s.h.

Biomedical and organization ethics in the contemporary health care environment; ethical concepts and principles, ethical issues that confront executive, clinical, and governance leaders in context of complex health organizations. Prerequisite: consent of instructor.

174:224 Human Resources for Health Organizations 2-3 s.h.

Overview of human resource management theories and practices for health care organizations; strategic human resource management, equal employment, staffing, training and development, appraisal, compensation. Prerequisite: 174:201 or consent of instructor.

174:225 Topics in Health Care Information Systems 1-3 s.h.

Basic project management skills to ensure that benefits are received and sustained from organizational health care projects relating to operational and regulatory matters, patient safety, quality. Prerequisite: consent of instructor.

174:226 Health Informatics I 3 s.h.

Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 021:275, 050:283, 051:187, 056:186, 074:191, 096:283.

174:228 Cost Effectiveness and Decision Analysis 3 s.h.

Methods of cost-effectiveness analysis and decision analysis; applications to resource allocation decisions in public health and medicine.

174:234 Administrative Internship arr.

174:235 Administrative Residency/Fellowship arr.

174:236 Administrative Practicum 3 s.h.

Experience with operational and planning matters in a health care setting. Second-year standing required. Prerequisite: g.p.a. of at least 3.00 for two consecutive semesters.

174:237 Legal Aspects of Health and Medical Care 3 s.h.

Statutory, common law frameworks applicable to health care system; court decisions that illustrate applications of general legal doctrines in hospital, health settings. Prerequisite: consent of instructor.

174:242 Federalism and Health Policy 3 s.h.

How American government's organization shapes development and implementation of health policy, programs, services.

174:243 Health Policy 1-3 s.h.

Policy process, policies and programs that shape provision of health care in the United States; health policies such as Medicare, Medicaid, Older Americans Act.

- 174:245 Seminar in Health Policy** 3 s.h.
Contemporary health policy issues; theoretical and applied perspectives. Prerequisite: 174:242 or consent of instructor.
- 174:247 Nonprofit Organizational Effectiveness I** 3 s.h.
Operational and financing aspects of nonprofit organizations; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund raising. Same as 06j:247, 021:263, 024:247, 028:257, 032:227, 042:247, 091:320.
- 174:248 Nonprofit Organizational Effectiveness II** 3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofits to outside world; marketing, public relations, advocacy strategies for nonprofits. Prerequisite: 06j:247 or 024:247 or 174:247. Same as 06j:248, 021:265, 024:248, 028:258, 032:228, 042:248, 091:322.
- 174:252 Advanced Organizational Behavior in Health Care** 3 s.h.
Key concepts of organizational behavior and their application to health organizations; theoretical writings, empirical studies. Prerequisites: Ph.D. standing, knowledge of human services organizations, and consent of instructor.
- 174:253 Seminar: Health Systems Management** arr.
Case studies highlighting management as the primary integrative force in health organizations; major areas of executive action in the development of policy, organization, planning, information systems, control.
- 174:254 Advanced Organizational Theory in Health Care** 3 s.h.
Key concepts and their application to health care organizations and health services; perspectives from theoretical writings, empirical studies. Prerequisites: Ph.D. standing and consent of instructor.
- 174:255 Seminar in Contemporary Health Issues** 0 s.h.
Review of relevant literature on methodological substantive issues in health care, presentations by researchers on health services and policy research. Prerequisite: consent of instructor.
- 174:257 Ph.D. Guided Research** 1-3 s.h.
Experience with empirical research, guided by a faculty mentor; structured and supervised research activities.
- 174:259 Design Issues in Health Service Research** 3 s.h.
Design and causal inference reliability and validity in measurement; rules of evidence; research design for randomized-control trials, observational studies, meta-analysis. Prerequisite: graduate standing.
- 174:260 Ph.D. Independent Research** 1-3 s.h.
Experience in empirical research through one or more substantive research experiences, with faculty mentor; authorship or coauthorship of at least one manuscript suitable for publication in peer review journal. Prerequisite: satisfactory completion of Ph.D. preliminary exams.
- 174:261 Analytic Issues in Health Services Research I** 3 s.h.
Analytic tools used in health services research; focus on applications in nonexperimental research settings, such as analyses using administrative claims data or preexisting public use data sets. Prerequisites: 171:162 and consent of instructor. Same as 046:261.
- 174:262 Analytic Issues in Health Services Research II** 3 s.h.
Continuation of 174:261; advanced applications, including panel data and qualitative response models. Prerequisite: 174:261. Same as 046:262.
- 174:263 Independent Research Project** arr.
- 174:266 Advanced Case Management: An Interdisciplinary Approach** 3 s.h.
Management of health care outcomes for cost, quality: advanced topics in health care coordination, interdisciplinary case management; managed care; financial, legal, ethical considerations; outcomes of case management practice. Prerequisite: 096:170 or consent of instructor. Same as 096:266.
- 174:268 Health Care Utilization Outcomes** 3 s.h.
Research tools to assess changes in health care use and cost as outcomes of treatment; evidence-based medicine, meta analysis, decision trees, cost-of-illness analysis, cost effectiveness models. Prerequisite: consent of instructor. Same as 173:276.
- 174:270 Seminar in Health Research and Instruction** 1-3 s.h.
Opportunity for Ph.D. students to develop research and teaching skills through presentations, readings, workshops. Prerequisites: Ph.D. student standing and satisfactory completion of Ph.D. preliminary exams.
- 174:280 Independent Study and Research** arr.
Supervised tutorial. Prerequisite: consent of instructor.
- 174:285 Ph.D. Dissertation** arr.
Research for preparation of dissertation; seminar presentation. Prerequisite: consent of instructor.

Occupational and Environmental Health

Head: Craig Zwerling

Professors: Thomas Cook (Physical Therapy/International Programs), Kelley Donham (Nursing), Laurence Fuortes (Internal Medicine/Epidemiology/International Programs), Vicki Grassian (Chemistry), Fredric Gerr (Internal Medicine), Paul James (Family Medicine), Joel Kline (Internal Medicine), James Merchant (Internal Medicine/Nursing), Gene Parkin (Civil and Environmental Engineering), Corinne Peek-Asa (Epidemiology/Nursing), Larry Robertson (Radiation Oncology), Jerald Schnoor (Civil and Environmental Engineering), Nancy Sprince (Internal Medicine/Nursing), Peter Thorne (Civil and Environmental Engineering), Craig Zwerling (Internal Medicine/Epidemiology)

Professors emeriti: Clyde Berry, William Hausler, L.W. Knapp Jr., Keith Long, Donald Morgan

Adjunct professors: Vijay Goel, John Frederic Green, Nelson Moyer

Clinical professor: Mary Gilchrist (Health Management and Policy)

Associate professors: Kenneth Culp (Nursing), William Field (Epidemiology), William Heitbrink, John Lee (Mechanical and Industrial Engineering), Patrick O'Shaughnessy (Civil and Environmental Engineering), Wayne Sanderson (Epidemiology), Thomas Schnell (Mechanical and Industrial Engineering), David Wilder (Biomedical Engineering)

Associate professor emeritus: Franklin Kilpatrick

Adjunct associate professors: Kevin Kelly, Burton Kross, James McGlothlin, Kenneth McMains, Michael Rossmann

Clinical associate professors: Craig Bainbridge, Henri Cuddihy (Internal Medicine), Monty Menhusen (Anesthesiology), David Osterberg (Geography)

Assistant professors: Daniel Anton (Physical Therapy), Gabriele Ludewig, Thomas Peters

Adjunct assistant professors: Chandran Achutan, Danelle Bickett-Weddle, Seong Woo Choi, Gregory Couser, Christine Deignan, Gregory Flamme, Dian Gottlob, Daniel Holub, Carrie LaSeur, Hans-Joachim Lehmler, Murray Madsen, Shannon Marquez, John Rosecrance, Donald Simmons, Laurie Taylor, Roberta Till-Retz, John Vargo, Peter Weyer, Michael Wichman, Catherine Zeman

Clinical assistant professors: Edward Bottei, George Phillips, Risto Rautiainen

Graduate degrees: M.P.H.; M.S., Ph.D. in Occupational and Environmental Health

Web site: <http://www.public-health.uiowa.edu/oeH>

The Department of Occupational and Environmental Health focuses on assessment of risk factors in the physical environment and their relationship to disease—particularly health problems of agricultural and industrial workers. Students are guided by faculty members whose

research interests include rural health care delivery, agricultural health, environmental health, occupational medicine, occupational lung disease, mammalian toxicology, inhalation toxicology, ergonomics, indoor air quality, occupational injury, injury epidemiology, injury prevention programs, aerosol physics, air and water quality, environmental chemistry, analytical toxicology, and environmental health in developing countries.

Graduate Programs

The department offers three graduate degrees: Master of Public Health, and Master of Science and Doctor of Philosophy in occupational and environmental health. All degrees include an optional emphasis in industrial hygiene and ergonomics. The department also offers a joint M.S./M.A. with the Graduate College's Urban and Regional Planning Program.

Individuals who are not enrolled in one of the department's degree programs but wish to take departmental courses may apply for professional improvement status. The department also offers an occupational medicine residency training program.

Master of Public Health

See Master of Public Health Program in the Catalog.

Master of Science

The M.S. requires 38 s.h. (43 s.h. for M.S. with industrial hygiene emphasis). All master's degree students are required to complete a thesis.

REQUIRED COURSES

All of these:

050:270 Responsible Conduct in Research	0 s.h.
171:161 Introduction to Biostatistics	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.
175:180 Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	1 s.h.
175:197 Environmental Health	3 s.h.
175:230 Occupational Health	3 s.h.
175:260 Environmental Toxicology	3 s.h.

One of these:

069:133 Introduction to Human Pathology	4 s.h.
096:114 Human Pathophysiology: Organ Systems	3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology	3 s.h.

175:231 Industrial Hygiene Fundamentals	3 s.h.
175:232 Assessing Physical Agent Hazards	3 s.h.
175:233 Control of Occupational Hazards	3 s.h.
175:260 Environmental Toxicology	3 s.h.

THESIS

All M.S. students must complete a master's thesis that is accepted for degree credit. Students may earn a maximum of 6 s.h. for the thesis. Additional thesis credit may be allowed for students who take more than 38 s.h.

175:300 Thesis/Dissertation	arr.
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ELECTIVES

Elective courses are chosen to fill the 38 s.h. requirement for the degree. Students work with their advisors to select electives appropriate for their professional goals.

Industrial Hygiene Emphasis

The M.S. with industrial hygiene emphasis prepares students for professional careers in industrial hygiene as well as the broad field of occupational and environmental health. Career opportunities are available in health and safety departments of industries; in consulting firms; in academic institutions; and in local, state, and federal public health agencies.

The M.S. with industrial hygiene emphasis requires a minimum of 43 s.h. Two options are available: a research option, which requires a master's thesis, and a professional option, which requires a semester-long practical experience.

The following courses are required.

REQUIRED COURSES

050:270 Responsible Conduct in Research	0 s.h.
171:161 Introduction to Biostatistics	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.
175:180 Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	1 s.h.
175:190 Occupational Ergonomics I	3 s.h.
175:192 Occupational Safety	3 s.h.
175:197 Environmental Health	3 s.h.
175:220 Environmental and Occupational Epidemiology	3 s.h.
175:221 Aerosol Technology	3 s.h.
175:230 Occupational Health	3 s.h.

RESEARCH (THESIS) OPTION

Students who choose the research (thesis) option must complete a master's thesis that is accepted for degree credit. Students may earn a maximum of 6 s.h. for the thesis.

175:300 Thesis/Dissertation	arr.
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PROFESSIONAL (NONTHESIS) OPTION

Students who choose the professional (nonthesis) option must complete a preceptorship in industrial hygiene. Students may earn a maximum of 3 s.h. for the preceptorship.

175:203 Preceptorship in Occupational and Environmental Health	arr.
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Students also must complete at least one 3 s.h. elective course to fill the 43 s.h. requirement for the degree.

Joint M.S./M.A. Degree

The Department of Occupational and Environmental Health and the Urban and Regional Planning Program offer a joint master's degree program. Students who choose this option earn an M.S. in occupational and environmental health and an M.A. in planning. Separate admission to each program is required. The combined degree requires a minimum of 65 s.h. of course work.

Doctor of Philosophy

The Ph.D. program prepares students for professional and academic careers in environmental and occupational health.

The Ph.D. requires 72 s.h. All doctoral students must complete a dissertation—a substantial scholarly treatise. Ph.D. requirements are as follows.

REQUIRED COURSES

All of these:

050:270 Responsible Conduct in Research	0 s.h.
171:161 Introduction to Biostatistics	3 s.h.
171:162 Design and Analysis of Biomedical Studies	3 s.h.

173:140 Epidemiology I: Principles	3 s.h.	175:197 Environmental Health	3 s.h.
175:180 Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	1 s.h.	175:220 Environmental and Occupational Epidemiology	3 s.h.
175:197 Environmental Health	3 s.h.	175:221 Aerosol Technology	3 s.h.
175:230 Occupational Health	3 s.h.	175:230 Occupational Health	3 s.h.
One of these:		175:231 Industrial Hygiene Fundamentals	3 s.h.
069:133 Introduction to Human Pathology	4 s.h.	175:232 Assessing Physical Agent Hazards	3 s.h.
096:114 Human Pathophysiology: Organ Systems	3 s.h.	175:233 Control of Occupational Hazards	3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology	3 s.h.	175:260 Environmental Toxicology	3 s.h.

RESEARCH CREDIT

Students earn the remaining credit for the Ph.D. by completing any combination of the following courses or other classroom courses. All Ph.D. students must complete a dissertation (175:300).

175:172 Independent Study in Occupational and Environmental Health	arr.
175:201 Research in Occupational and Environmental Health	arr.
175:300 Thesis/Dissertation	arr.

ELECTIVES

Students must earn a minimum of 24 s.h. in non-research-related courses, including classroom courses or equivalent web-based courses. Students work with their advisors to select courses appropriate for their professional goals.

Industrial Hygiene Emphasis

The Ph.D. with industrial hygiene emphasis provides doctoral students with specialized knowledge in industrial hygiene in addition to their expertise in the broad field of occupational and environmental health.

The following courses are required.

REQUIRED COURSES

050:270 Responsible Conduct in Research	0 s.h.
171:161 Introduction to Biostatistics	3 s.h.
171:162 Design and Analysis of Biomedical Studies	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.
175:180 Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	1 s.h.
175:190 Occupational Ergonomics I	3 s.h.
175:192 Occupational Safety	3 s.h.

RESEARCH CREDIT

Students earn the remaining credit for the Ph.D. by completing any combination of the following courses or other classroom courses. All Ph.D. students must complete a dissertation (175:300).

175:172 Independent Study in Occupational and Environmental Health	arr.
175:201 Research in Occupational and Environmental Health	arr.
175:300 Thesis/Dissertation	arr.

ELECTIVES

Students must earn a minimum of 12 s.h. in non-research-related courses, including classroom courses or equivalent web-based courses. Students work with their advisors to select courses appropriate for their professional goals.

Admission

For detailed information about Graduate College policies, including application requirements and procedures, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

The occupational and environmental health faculty takes several factors into consideration when evaluating applications for admission, including Graduate Record Exam (GRE) General Test scores, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All M.P.H., M.S., and Ph.D. program applicants must hold a baccalaureate degree and have a cumulative g.p.a. of at least 3.00 (M.P.H. and M.S. applicants) or at least 3.25 (Ph.D. applicants). All applicants must have taken the GRE General Test. A minimum GRE score of 1050 (verbal plus quantitative) is recommended

for master's applicants, 1100 for doctoral applicants.

International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based) or 250 (computer-based) on the Test of English as a Foreign Language (TOEFL). International applicants who score 550-599 (paper-based) or 213-249 (computer-based) are required to take English fluency courses. Applicants who score below those ranges are not considered for admission.

Undergraduate preparation for M.P.H. and M.S. applicants must include course work in mathematics, biological sciences, chemistry, and either physical sciences or engineering, depending on the applicant's chosen specialty area.

M.S. applicants who intend to pursue the industrial hygiene subtrack also must have taken physics and mathematics through calculus; course work in biological sciences, microbiology, and computer programming is highly recommended.

Completion of the M.S. program before beginning Ph.D. study is recommended. Undergraduate preparation for doctoral applicants must include at least two semesters of chemistry, one semester of physics, and one semester of calculus. Course work in biological sciences, microbiology, and computer programming are highly recommended, particularly for students interested in some specialized areas.

APPLICATION DEADLINES

Fall entrance: July 1 for U.S. citizens and permanent residents, April 1 for international applicants

Spring entrance: December 1 for U.S. citizens and permanent residents, October 1 for international applicants

Financial Support

Several graduate student awards, including tuition and stipend support, are available for individuals interested in industrial hygiene, agricultural safety and health, ergonomics, occupational epidemiology, or occupational injury prevention. Both stipend and tuition support are available for all occupational medicine residents. Full-time graduate students in good academic standing (those not admitted on conditional status) are eligible for a stipend and tuition

support. All other students are eligible for tuition support only; requests are considered case-by-case. All recipients must be U.S. citizens or permanent residents.

Postdoctoral Positions

The College of Public Health's Environmental Health Sciences Training Program offers postdoctoral positions in environmental health/toxicology. Appointments are made for two years with the possibility of an additional year. Applicants must be U.S. citizens or permanent residents.

Occupational Medicine Residency

In cooperation with University of Iowa Hospitals and Clinics, the department offers residency training in occupational medicine for physicians seeking specialty training in occupational medicine. For information contact the director of the Occupational Medicine Residency Program.

The Heartland Center

The Heartland Center for Occupational Health and Safety, one of 16 education and research centers funded by the National Institute of Occupational Safety and Health (NIOSH), provides training, education, and outreach. Its program areas are occupational health nursing, industrial hygiene, occupational medicine, ergonomics, agricultural safety and health, occupational injury prevention research, occupational epidemiology, and continuing education/outreach.

Facilities

The Department of Occupational and Environmental Health is housed on the University's Oakdale Research Campus in the Institute for Rural and Environmental Health. College of Public Health-based laboratory facilities give researchers and students access to cutting-edge technologies for the study of occupational and environmental health.

The Inhalation Toxicology Facility (ITF), provides a full array of inhalation toxicology, aerosol science, and bioaerosol assay services. A primary focus of the ITF is the study of toxicants found in the agricultural environment and related exposure situations. The facility is particularly

well-equipped for studying organic dusts and bioaerosols.

The Occupational Hygiene Laboratory (OHL) provides expertise and equipment for exposure assessment in occupational settings. The OHL provides a range of sample collection capabilities and an extensive inventory of sampling equipment. The field and laboratory services available through the laboratory support exposure-response studies and control technology development studies in a variety of occupational arenas, including agriculture, construction, and indoor environments (home and office).

A computer laboratory is available for student use, and a library collection is located in the Institute for Rural and Environmental Health.

Courses

- 175:101 Health, Work, and the Environment** 3 s.h.
Current topics in occupational and environmental health; how the United States protects workers, protects people from environmental agents, and reduces environmental harm. Same as 044:174.
- 175:111 International Health** arr.
Urgent health problems in the developing world and among disadvantaged populations in developed countries; biological, social, cultural, political aspects of international health problems; applications of research methods from epidemiology, environmental health, social sciences. Same as 152:111, 173:111.
- 175:136 Applied Anthropology** 3 s.h.
Same as 113:136.
- 175:170 Injury and Violence Prevention** 3 s.h.
Theory, research, and practice of injury control; unintentional and intentional injuries; local, national, international injury issues. Same as 173:170.
- 175:171 Problems in Occupational and Environmental Health** arr.
Didactic material in occupational and environmental health; may include tutorial, seminar, faculty-directed independent work (e.g., literature search, project, short research project).
- 175:172 Independent Study in Occupational and Environmental Health** arr.
In-depth pursuit of an area in occupational and environmental health requiring substantial creativity and independence.
- 175:175 Research Methods in Disaster Studies** 3 s.h.
Epidemiologic study of disasters and their health consequences; research to identify and reduce health effects, research in context of response and preparedness. Same as 173:175.
- 175:180 Occupational and Environmental Health Seminar** 0-1 s.h.
Contemporary topics in occupational health, agricultural and comparative medicine, environmental health.
- 175:185 Occupational Health Research Seminar** 2 s.h.
Tools necessary for making critical assessment of published scientific research reports from a methodological perspective; examples from recently published research studies in occupational and environmental health. Corequisites: 171:161 and 173:140.
- 175:190 Occupational Ergonomics I** 2-3 s.h.
Principles of ergonomics, with focus on physical capabilities of workers and their interactions with their work environment; physiological basis of work, patterns of work, occupational risk factors for musculoskeletal and neurovascular disorders, workplace and equipment design, integration of ergonomics in manufacturing processes.
- 175:192 Occupational Safety** 3 s.h.
Principles and practices of occupational safety; applications in industrial and other occupational settings; interactions with other disciplines.
- 175:193 Environmental Health Law** 3 s.h.
Legal foundation of environmental health protection; federal, state, local regulation; police powers; tort liability; investigations and inspections, air and water pollution, biotechnology. Prerequisite: 175:197 or consent of instructor.
- 175:195 Global Environmental Health** 2 s.h.
Current problems, including transboundary movement of pollutants, vectors of infectious agents, global warming and climatic change. Prerequisite: 175:111 or 175:197 or consent of instructor.
- 175:196 Agricultural Safety: Theories and Practice** 2 s.h.
General theories and practice of injury prevention from varied fields, including industrial safety, engineering, regulation, education, epidemiology, social psychology; strategic application in agriculture.
- 175:197 Environmental Health** 3 s.h.
Survey of the field; assessment of contemporary human health issues associated with biological, chemical, physical factors of environment; critical review of environmental factors that affect health; public policies governing recognition, intervention, control.
- 175:198 Solid and Hazardous Wastes** 3 s.h.
Sources, characteristics, collection and disposal of solid and hazardous wastes; environmental impacts of hazardous waste management; resource recovery systems. Offered spring semesters. Prerequisite: 175:197 or consent of instructor. Same as 053:158.
- 175:201 Research in Occupational and Environmental Health** arr.
Research that may lead to a dissertation. Repeatable.
- 175:203 Preceptorship in Occupational and Environmental Health** arr.
Work experience using knowledge and skills acquired in the classroom; arranged in conjunction with departmental or collegiate activities or with governmental agencies or private industry. Repeatable.
- 175:205 Public Health Law** 2 s.h.
Introduction to legal principles and case law relevant to public health policy making; constitutional, administrative, and tort law as applied to public health; fluency with legal analysis and terminology. Pre- or corequisite: 175:197.
- 175:209 Rural Health and Agricultural Medicine** 3 s.h.
Clinical orientation of specific health problems of rural residents, agricultural workers; rural health care delivery, socioeconomic issues in agriculture and their effects on health and safety of the agricultural population; occupational health problems, environmental health hazards in rural areas. Prerequisite: 173:140 or medicine enrollment or consent of instructor.
- 175:210 Current Topics in Agricultural Health** 1 s.h.
Issues that affect the health of agricultural populations, such as agro-terrorism, antibiotic resistance, genetically modified organisms; current scientific literature.

175:220 Environmental and Occupational

Epidemiology 3 s.h.
Environmental and occupational epidemiologic study designs; basic and novel methods of exposure assessment; methodologies to improve study validity. Prerequisite: 173:140. Corequisites: 171:161 and 175:197.

175:221 Aerosol Technology 3 s.h.

Particle statistics and physics of aerosols, including inertia, diffusion, nucleation, evaporation, condensation, optics, electrical properties; relationship to fields such as agriculture, nanotechnology, environmental and occupational health, atmospheric chemistry, drug delivery.

175:230 Occupational Health 3 s.h.

Principles, practice of occupational medicine, fundamentals of industrial hygiene and safety, occupational health management, ergonomics, occupational health nursing. Offered fall semesters.

175:231 Industrial Hygiene Fundamentals 3 s.h.

Principles, with emphasis on recognition of chemical health hazards, physical health hazards at work. Pre- or corequisite: 175:230.

175:232 Assessing Physical Agent Hazards 3 s.h.

Basic principles of recognizing and evaluating hazards presented by physical agents in occupational environments. Prerequisite: 175:230.

175:233 Control of Occupational Hazards 3 s.h.

Physical science concepts applied to control of occupational hazards ranging from dusts to mists to vapors; strategies, management issues, personal protective equipment, implementation skills; in-depth instruction on local exhaust ventilation system design. Prerequisite: 175:230 or 175:231 or consent of instructor.

175:251 Injury Epidemiology 3 s.h.

How epidemiology can be applied to injury prevention and control; specific methodological problems involved in the epidemiology of injuries; epidemiology literature, critical evaluation of research articles. Offered spring semesters of odd years. Prerequisite: 173:140 or consent of instructor. Same as 173:251.

175:252 Environmental Health Policy 3 s.h.

Major concerns in environment and human health, legislation enacted to deal with these concerns; emphasis on contemporary issues. Offered fall semesters of odd years. Prerequisite: 175:197 or consent of instructor. Same as 053:204, 152:252.

175:253 Epidemiology of Occupational Injuries 3 s.h.

Epidemiological literature on occupational injuries. Offered spring semesters of even years. Prerequisite: 173:140 or consent of instructor. Same as 173:253.

175:260 Environmental Toxicology 3 s.h.

Sources, routes of absorption, effects of environmental toxicants affecting man; pathophysiology of toxicant actions, including those of air and water pollutants, metals, pesticides, solvents, food toxicants, chemicals. Prerequisite: college organic and inorganic chemistry, or physiology, or biochemistry.

175:265 Advanced Toxicology 4 s.h.

Hepatic metabolism and toxification mechanisms, pulmonary and immunotoxicology, nervous system poisons and their mechanisms of action, general and molecular concepts of chemical carcinogenesis. Prerequisite: 175:260 or equivalent or consent of instructor.

175:270 Special Topics in Toxicology 2 s.h.

Genesis of toxicology as the science of poisoning, its application to murder, magic, medicine; use of natural products for gaining power, hunting, warfare, religion, witchcraft. Offered spring semesters of even years. Pre- or corequisite: 175:260.

175:285 Advanced Topics in Occupational Medicine 2 s.h.

Skills and knowledge for evaluating and treating patients with work-related illness.

175:294 Occupational Ergonomics II 3 s.h.

Application of ergonomic principles in varied work settings, through case study approach; participatory ergonomics, economics of ergonomics, workforce issues, psychosocial factors, shift work, integration of ergonomics into business models, current legislative issues, legal aspects of ergonomics, international perspectives; biomedical instrumentation used for risk factor exposure measurements.

175:295 Clinical Ergonomics 3 s.h.

Clinical orientation to specific ergonomic problems and issues; preparation for conducting independent on-site ergonomic evaluations in occupational settings; experience developing and evaluating ergonomic interventions in an occupational setting; rotation through an occupational medicine clinic. Prerequisite: 175:190 or consent of instructor.

175:300 Thesis/Dissertation arr.

Repeatable.

175:996 Occupational Medicine arr.

In-depth study of an area in occupational and environmental medicine, with clinical experience in an outpatient community setting. Four-week course. Prerequisite: M.D. enrollment.

Public Health Genetics

Head: Veronica Vieland

Professors: Trudy Burns, Deborah Dawson (Preventive and Community Dentistry), Jian Huang, Michael Jones (Biostatistics), Alberto Segre (Computer Science), Veronica Vieland

Associate professor: Kai Wang

Assistant professors: Andrew George, Mark Logue

Adjunct assistant professor: Jeffrey O'Connell

Graduate degree: Ph.D. in Statistical Genetics

Graduate nondegree program: Certificate in Statistical Genetics

Web site: <http://www.public-health.uiowa.edu/pphg>

The Program in Public Health Genetics focuses on statistical genetics with applications to medical research, especially mapping and understanding genes related to common, complex human diseases. It also focuses on public health implications of genetics and genetics research.

Graduate Programs

The program offers the Doctor of Philosophy and a graduate certificate, both in statistical genetics.

Doctor of Philosophy

The Ph.D. in statistical genetics prepares students for professional and academic careers in statistical genetics. It provides training in the development and evaluation of new statistical methods for analyzing human genetic data, and the application of those methods to discovering and understanding the genes underlying human disease. The program also prepares students to contribute to collaborative clinical research by providing them with training in genetics and with opportunities to participate in research involving collaboration with molecular and clinical geneticists and genetic epidemiologists.

The Ph.D. requires a minimum of 82 s.h. of course work. Students complete a 42 s.h. core; 9-12 s.h. in a concentration area outside statistical genetics (biostatistics/statistics, computer science/bioinformatics, biology/bioinformatics, or epidemiology/biostatistics); up to 25 s.h. of elective course work chosen in consultation with the student's advisor; and at least 6 s.h. of dissertation credit. They also must successfully complete a comprehensive examination and a

dissertation—a substantial scholarly treatise for which they must earn at least 6 s.h. The dissertation research topic and content must be approved by the student's dissertation committee.

Ph.D. requirements are as follows.

REQUIRED CORE

All Ph.D. students must complete the following courses (42 s.h.).

22S:153 Mathematical Statistics I	3 s.h.
22S:154 Mathematical Statistics II	3 s.h.
070:110 Medical Genetics	2 s.h.
171:201 Biostatistical Methods I	4 s.h.
185:102 Introduction to Genetic Data Analysis	3 s.h.
185:104/22C:104 Introduction to Informatics	3 s.h.
185:270 Genetics and Epidemiology	4 s.h.
185:272 Population and Quantitative Genetics	3 s.h.
185:274 Theory of Statistical Genetics	3 s.h.
185:276 Statistical Genetics Laboratory	9 s.h.
185:278 Computing Algorithms in Statistical Genetics	3 s.h.
185:285 Clinical Genetics Practicum	1 s.h.
650:270 Responsible Conduct in Research	1 s.h.

CONCENTRATION AREA

All Ph.D. students complete one of the following concentration areas.

Biostatistics/Statistics

Both of these:

171:251 Theory of Biostatistics I	4 s.h.
171:252 Theory of Biostatistics II	4 s.h.

One of these:

22S:138 Bayesian Statistics	3 s.h.
22S:161 Applied Multivariate Analysis	3 s.h.
22S:248 Computer Intensive Statistics	3 s.h.
171:261 Survival Data Analysis	3 s.h.

Biology/Bioinformatics

Both of these:

002:128 Fundamental Genetics	4 s.h.
002:170 Bioinformatics	3 s.h.

One of these:	
002:131 Evolution	4 s.h.
002:162 Population Genetics and Molecular Evolution	3 s.h.
127:191 Human Molecular Genetics	3 s.h.

Computer Science/Bioinformatics

All of these:	
002:170 Bioinformatics	3 s.h.
06K:272 Database Analysis and Design	3 s.h.
06K:275 Knowledge Discovery	3 s.h.

Epidemiology/Biostatistics

Both of these:	
171:241 Applied Categorical Data Analysis	3 s.h.
173:140 Epidemiology I: Principles	3 s.h.

One of these:	
173:255 Epidemiology of Infectious Diseases	3 s.h.
173:265 Cardiovascular Disease Epidemiology	3 s.h.
173:267 Psychiatric Epidemiology	3 s.h.
173:270 Cancer Epidemiology and Control	3 s.h.

ELECTIVES

Students select up to 25 s.h. of elective courses from this list. They also may substitute other courses with written approval of the program's director and their advisors.

22S:138 Bayesian Statistics	3 s.h.
22S:161 Applied Multivariate Analysis	3 s.h.
22S:255 Linear Models	4 s.h.
22S:256 Multivariate Analysis	3 s.h.
171:261 Survival Data Analysis	3 s.h.
171:262 Analysis of Categorical Data	3 s.h.
171:264 Longitudinal Data Analysis	3 s.h.
185:101 Introduction to Genetics and Public Health	3 s.h.
185:103 Microarray Analysis and Statistics in Bioinformatics	3 s.h.
185:281 Independent Study in Statistical Genetics	arr.
185:282 Special Topics in Statistical Genetics	arr.
185:295 Research in Statistical Genetics	arr.

DISSERTATION

Students must earn at least 6 s.h. for the dissertation and must be in residence a minimum of two years.

185:300 Dissertation in Statistical Genetics	6 s.h.
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Certificate

The Certificate in Statistical Genetics prepares students for careers as data analysts on research projects involving human genetic data. The certificate is designed to complement an M.S. in biostatistics or a related field, such as statistics. It can be completed either in conjunction with or after completing an M.S. The certificate cannot be awarded before completion of an M.S.

The certificate requires the following course work (16 s.h.) with a g.p.a. of at least 3.00.

070:110 Medical Genetics	2 s.h.
185:102 Introduction to Genetic Data Analysis	3 s.h.
185:270 Genetics and Epidemiology	4 s.h.
185:276 Statistical Genetics Laboratory	3 s.h.
*185:280 Preceptorship in Statistical Genetics	3 s.h.
185:285 Clinical Genetics Practicum	1 s.h.

*The preceptorship in statistical genetics must be approved by the head of the Program in Public Health Genetics.

Admission

For detailed information about Graduate College policies, including application requirements and procedures, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants to the Ph.D. program in statistical genetics must hold a B.S. or B.A. and have a g.p.a. of at least 3.00. Undergraduate training should include two semesters of calculus and a course in linear algebra. Additional training in statistics, computer science, and the biological sciences is recommended but not required.

Applicants must submit academic transcripts, at least three letters of recommendation, a curriculum vita, and a statement of purpose for Ph.D. study in statistical genetics. They also must submit scores on the Graduate Record Exam (GRE) General Test. A combined verbal and quantitative score of 1050 or higher is preferred.

International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based) or 250 (computer-based) on the Test of English as a Foreign Language (TOEFL). International applicants who score 550-559 (paper-based) or 213-249 (computer-based) are required to take English fluency courses.

Applicants who score below these ranges are not considered for admission.

Applicants who do not meet all admission criteria may be admitted on conditional status. They must achieve regular student status within two semesters by satisfying conditions stated by the Program in Public Health Genetics (e.g., taking remedial courses or maintaining a specified grade-point average).

APPLICATION DEADLINE

Fall semester: July 15 for U.S. citizens; April 15 for international applicants

Students are admitted for fall. Availability of financial aid decreases after the April 15 application deadline.

For more information about admission, contact the graduate program coordinator for the Program in Public Health Genetics.

Financial Support

The program offers research assistantships, which provide financial support, resident tuition, and valuable research training. Consideration for research assistantships is part of the application process. Opportunities also exist for funded postdoctoral fellowships. For information about research assistantships and postdoctoral fellowships, contact the graduate program coordinator for the Program in Public Health Genetics.

Resources

The Center for Statistical Genetics Research supports research on complex human inherited disease through basic methodological work in statistical genetics and promotion of interdisciplinary, collaborative, clinical-genetic research. The center provides opportunities for graduate students and postdoctoral fellows to be involved in research throughout their training.

Courses

185:101 Introduction to Genetics and Public Health 3 s.h.
Interface between current research in genetics and public health practice; genetic concepts; screening, diagnosis, treatment of diseases. Offered spring semesters. Prerequisite: basic understanding of biostatistics and probability.

185:102 Introduction to Genetic Data Analysis 3 s.h.
Analysis of genetic data using current statistical techniques; focus on applied aspects of genetic analysis. Offered fall semesters. Corequisite: 22S:153.

185:103 Microarray Analysis and Statistics in Bioinformatics 3 s.h.
Basic statistical principles and techniques used in bioinformatics; including analysis of microarray gene expression data. Offered spring semesters. Prerequisite: 22S:030 or 22S:101 or 171:161 or consent of instructor. Same as 002:176.

185:104 Introduction to Informatics 3 s.h.
Computing principles and fundamental aspects of computer science; history of computing, basic computer architecture and operating system concepts, fundamentals of relational databases, algorithmic idioms, computational complexity, introductory programming concepts in Perl. Offered fall semesters. Prerequisite: closed to computer science students. Same as 22C:104.

185:270 Genetics and Epidemiology 4 s.h.
Review of basic human genetic and population genetics principles; methods of integrating genetic principles into epidemiological studies; analytical methods for family data. Offered spring semesters. Prerequisites: 171:161 and 173:140, or consent of instructor. Same as 173:225.

185:272 Population and Quantitative Genetics 3 s.h.
Fundamentals of population genetics; statistical modeling for quantitative genetic traits, including regression and components-of-variance methods; parametric and nonparametric likelihood theory in genetic modeling. Offered fall semesters of odd years. Prerequisites: 22S:153, 22S:154, and 185:270.

185:274 Theory of Statistical Genetics 3 s.h.
Theoretical development underlying core statistical genetics methods; focus on use of likelihood-based methods in segregation and linkage analysis in human genetics. Offered spring semesters. Prerequisites: 22S:153, 22S:154, and 185:102; or consent of instructor.

185:276 Statistical Genetics Laboratory 3 s.h.
In-depth discussion of data analytic problems that arise in genetic investigations of complex disorders in humans; hands-on experience in genetic data analysis; class projects. Repeatable. Offered fall and spring semesters. Prerequisite: 185:102.

185:278 Computing Algorithms in Statistical Genetics 3 s.h.
Computational methods in statistical genetics, including methods of multipoint linkage analysis, algorithms for pedigree calculations, Monte Carlo simulation techniques. Offered fall semesters of even years. Prerequisite: 185:274.

185:280 Preceptorship in Statistical Genetics arr.
Individual work experience using statistical genetics knowledge and skill acquired in classroom. Prerequisite: consent of instructor.

185:281 Independent Study in Statistical Genetics arr.
In-depth pursuit of an area of special interest in statistical genetics requiring substantial creativity and independence. Prerequisite: consent of instructor.

185:282 Special Topics in Statistical Genetics arr.
Didactic material in statistical genetics that may include tutorial, seminar, or faculty-directed independent work. Prerequisite: consent of instructor.

185:285 Clinical Genetics Practicum 1 s.h.
Clinical case conferences, participation in clinical genetics journal club. Prerequisites: 650:270 and statistical genetics Ph.D. student standing. Corequisite: 070:110.

185:290 Statistical Genetics Seminar 1 s.h.

185:295 Research in Statistical Genetics arr.
Research that may lead to a dissertation. Prerequisite: consent of instructor.

185:300 Dissertation in Statistical Genetics arr.
Work on Ph.D. dissertation with dissertation advisor. Prerequisite: consent of advisor.

University College

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University College is home to a wide range of programs for University of Iowa students and precollege students. It includes major college-level programs such as the Honors Program, Study Abroad, and study at Iowa Lakeside Laboratory. Some of its college-level programs are designed to smooth entering students' transition to college life, such as the College Success Initiatives program, or to provide opportunities for populations underrepresented in the sciences and engineering, such as Iowa Biosciences Advantage and Alliances for Graduate Education and the Professoriate. Special courses for student orientation advisors, residence hall assistants, Greek community leaders, and students who design web sites for University departments and offices are offered through University College, as are Lifetime Leisure Skills courses in a broad range of sport and fitness activities.

Each year the college's International Writing Program draws writers and poets from around the world for several months of residency activities at the University, including teaching, attending classes, and presenting readings in Iowa City and other Iowa communities.

The University's Reserve Officer Training Corps programs, Aerospace Studies and Military Science, reside in University College.

Several precollege programs also are under University College's wing: the Belin-Blank Center for Gifted Education, the Iowa Young Writers' Studio, Opportunity at Iowa Summer Programs, the Secondary Student Training Program, and University of Iowa Upward Bound.

Courses offered through University College programs are taught by University of Iowa faculty and staff members.

Aerospace Studies

Head: Col. Nancy Hamel

Assistant professors: Capt. Ben Kent,
Capt. Nathan Nealson

Web site: <http://www.uiowa.edu/~afrotc>

The Aerospace Studies Program administers the Air Force Reserve Officer Training Corps (AFROTC) at The University of Iowa. AFROTC educates highly qualified students who are working toward a degree and a commission as an officer in the United States Air Force.

AFROTC is voluntary, with courses open to all undergraduate and graduate students. The amount of AFROTC academic credit that may be applied toward a degree varies from college to college at the University. The College of Liberal Arts and Sciences, for example, accepts a maximum of 20 s.h.

In order to receive a commission, AFROTC cadets must complete all University requirements for a degree as well as courses specified by the U.S. Air Force.

AFROTC offers one-, two-, three-, and four-year programs. Joining the program early gives students the opportunity to try AFROTC without obligation. It also can give them an advantage in the scholarship selection process.

The AFROTC program's three main components are the general military course, the professional officer course, and field training.

General Military Course

The general military course (GMC) consists of a 1 s.h. course and a leadership laboratory taken each semester for two years. Any student who meets AFROTC qualifications and is in good academic standing with the University is eligible to participate in the GMC. Students may apply for the GMC up to the time they earn 60 s.h.

Professional Officer Course

The professional officer course (POC) consists of four 3 s.h. AFROTC courses. Students accepted into the POC make a commitment to serve a minimum of four years as U.S. Air Force officers. To enter the POC, students must be selected to attend and must successfully complete field

training. Students generally take the POC during their last 60 s.h.

Field Training

All POC applicants must successfully complete field training at a U.S. Air Force base during a summer, usually between the second and third years. There are two types of field training: a four-week course for cadets who have completed all GMC requirements and a six-week course for all other applicants.

Field training consists of aircraft, aircrew, career, and survival orientation; junior officer training; physical training; small arms training; human relations education; and equal opportunity training. The six-week field training provides 60 hours in the classroom that a student normally would have taken in the GMC.

Students receive authorized pay and allowances when they attend field training.

Special Activities

The Cadet Corps sponsors many social events, including informal parties, formal dinners, and a military ball. The advanced training program is a voluntary program in which selected cadets may go on active duty for two or three weeks during the summer following their third year. Cadets get hands-on experience and receive authorized pay and allowances. Selected AFROTC cadets may attend airborne training and upon completion wear the Army parachute jump wings.

Financial Aid

Scholarships are available, based on merit, for one, two, and three years of study. They provide full tuition, a stipend for books, laboratory fees, and \$250-400 per month, tax-free. Applicants are selected on both objective and subjective factors. Students should apply directly to the head of aerospace studies.

All cadets in the last two years of AFROTC are eligible for some financial assistance. They receive \$350-400 per month, tax-free. Uniforms are furnished as well as all books for AFROTC classes.

Education Delay

Cadets may request an education delay to postpone entry to active duty until after completion of an advanced degree or professional training program.

Courses

23A:010 Foundations of the U.S. Air Force I 1 s.h.

Introduction to U.S. Air Force: military customs and courtesies, basic oral and written communication techniques, careers available to Air Force officers. Prerequisite: first-year or sophomore standing or consent of instructor.

23A:011 AFROTC Leadership Laboratory (LLAB) AS 100-FA 1 s.h.

A progression of experiences designed to develop leadership ability; military customs and courtesies, drill and ceremonies, military professional development, the life and work of a junior officer; leadership skills in a practical, supervised military lab setting. Offered fall semesters. Prerequisite: first-year or sophomore standing or consent of instructor. Corequisite: 23A:010.

23A:012 Foundations of the U.S. Air Force II 1 s.h.

Continuation of 23A:010. Prerequisite: first-year or sophomore standing or consent of instructor.

23A:013 AFROTC Leadership Laboratory (LLAB) AS 100-SP 1 s.h.

A progression of experiences designed to develop leadership ability; military customs and courtesies, drill and ceremonies, military professional development, the life and work of a junior officer; leadership skills in a practical, supervised military lab setting. Offered spring semesters. Prerequisite: first-year or sophomore standing or consent of instructor. Corequisite: 23A:012.

23A:020 Evolution of USAF Air and Space Power I 1 s.h.

Air power from Civil War hot air balloons through World War II; emphasis on developments in U.S. Air Force.

23A:021 AFROTC Leadership Laboratory (LLAB) AS 200-FA 1 s.h.

See 23A:011. Offered fall semesters. Corequisite: 23A:020.

23A:022 Evolution of USAF Air and Space Power II 1 s.h.

Continuation of 23A:020; air power from post-World War II to present; emphasis on developments in U.S. Air Force.

23A:023 AFROTC Leadership Laboratory (LLAB) AS 200-SP 1 s.h.

See 23A:011. Offered spring semesters. Corequisite: 23A:022.

23A:130 Air Force Leadership Studies I 3 s.h.

Emphasis on management, leadership, communication skills required of an Air Force officer. Prerequisite: junior or higher standing or consent of instructor.

23A:131 AFROTC Leadership Laboratory (LLAB) AS 300-FA 1 s.h.

See 23A:011. Offered fall semesters. Corequisite: 23A:130.

23A:132 Air Force Leadership Studies II 3 s.h.

Continuation of 23A:130. Prerequisite: junior or higher standing or consent of instructor.

23A:133 AFROTC Leadership Laboratory (LLAB) AS 300-SP 1 s.h.

See 23A:011. Offered spring semesters. Corequisite: 23A:132.

23A:140 National Security Affairs and Active Duty Preparation I 3 s.h.

America's evolving national security policy. Prerequisite: junior or higher standing or consent of instructor.

23A:141 AFROTC Leadership Laboratory (LLAB) AS 400-FA 1 s.h.

See 23A:011. Offered fall semesters. Corequisite: 23A:140.

23A:142 National Security Affairs and Active Duty Preparation II 3 s.h.

Continuation of 23A:140; emphasis on professional qualities required of Air Force officers. Prerequisite: junior or higher standing or consent of instructor.

23A:143 AFROTC Leadership Laboratory (LLAB) AS 400-SP 1 s.h.

See 23A:011. Offered spring semesters. Corequisite: 23A:142.

23A:150 Readings in Contemporary Military Issues 1-4 s.h.

Individual research. Prerequisite: consent of department head.

23A:171 AFROTC Leadership Lab AS 700 0 s.h.

Opportunity to use leadership skills acquired in previous AFROTC classes; experience providing leadership to the Cadet Corps, under direction of commandant of cadets. Prerequisites: 23A:141 and 23A:143.

23A:173 AFROTC Leadership Lab AS 700 0 s.h.

Opportunity to use leadership skills acquired in previous AFROTC classes; experience providing leadership to the Cadet Corps, under direction of commandant of cadets. Prerequisites: 23A:141 and 23A:143.

Alliances for Graduate Education and the Professoriate Summer Program

Director: Philip Kutzko (Mathematics)
Web site: <http://www.agep.iastate.edu/iowasummer.asp>

Courses

411:001 Summer Research Experience NSF 0 s.h.

The Alliances for Graduate Education and the Professoriate Summer Program (AGEP) prepares students to pursue graduate education in engineering and in the mathematical, physical, and life sciences. The eight-week program offers early research experience by matching students with University of Iowa faculty mentors in the students' interest areas. It also gives participants the opportunity to experience life as a graduate student at a large university.

Students are required to participate in weekly seminars and in social, cultural, and educational activities. They also tour facilities both on and off campus. A final report/project is required. The program ends with a research symposium at which students make oral and poster presentations of their research.

Students accepted to AGEP receive a \$2,500 stipend, on-campus room and board, and round-trip airfare to Iowa.

Applicants must be U.S. citizens or permanent residents, and members of an underrepresented minority (African American, Hispanic, or American Indian). They must be undergraduate students pursuing a degree in science, technology, engineering, or mathematics. To enter the program, applicants must have completed their sophomore year in college and have a cumulative g.p.a. of at least 3.00. Graduating seniors are not eligible.

Bachelor of Applied Studies

Coordinator: Dian Gottlob

Undergraduate degree: B.A.S.

Web site: <http://continuetolearn.uiowa.edu/ccp/bas>

The Bachelor of Applied Studies (B.A.S.) program is designed for nontraditional students who are graduates of community college technical programs and who wish to complete a bachelor's degree without interrupting their careers.

Applicants should have a minimum of three years of work experience.

The B.A.S. provides alternatives to traditional majors. Because the program does not have departmental major requirements, students work with an advisor to plan their own emphasis areas.

Students may earn credit toward the degree through several types of courses, including Saturday & Evening Classes, print- and web-based independent study courses, semester-based web courses, extension courses at sites throughout Iowa, interactive and broadcast televised courses, and regular session courses.

At The University of Iowa, the B.A.S. is awarded by the University College and administered by the Division of Continuing Education. Since the B.A.S. is a general undergraduate degree without a traditional major, B.A.S. students may not earn minors. However, the degree requirements are sufficiently flexible to allow students, with the assistance of their B.A.S. advisor, to structure a program that meets their individual objectives. B.A.S. students may plan programs designed to help them advance in their chosen career, begin a new career, or prepare for graduate or professional study. Students who have specific career goals or advanced degree programs in mind should learn what educational background they will need in order to achieve their goals, and they should include appropriate course work in their B.A.S. programs.

Bachelor of Applied Studies

The Bachelor of Applied Studies requires 120 s.h., including at least 30 s.h. earned at The University of Iowa after admission to the B.A.S. program. Students must earn at least 60 s.h. of the required 120 s.h. at four-year colleges, including 45 s.h. defined as upper-level. For the B.A.S., University of Iowa courses are considered upper-level if they are numbered 100 and above.

A few courses numbered below 100 may be considered upper-level for the B.A.S.; for a list of these courses, contact the Center for Credit Programs.

The program of study requires that a student complete 12 s.h. in three of the following five distribution areas.

Humanities (e.g., literature, history, philosophy, religion)

Communication and arts (e.g., journalism, speech, drama, art, music)

Natural sciences and mathematics (e.g., geology, biological sciences, statistics, computer science)

Social sciences (e.g., geography, psychology, economics, political science, anthropology)

Professional fields (e.g., business, education, nursing, social work, library science)

Semester hours applied toward completion of the B.A.S. core requirements (see "Admission" later in this section) may not be used to meet the B.A.S. distribution area requirements, but they may be counted toward the required 45 s.h. of upper-level course work, if applicable.

Students must maintain a g.p.a. of 2.00 or higher in all course work attempted, work undertaken at The University of Iowa, and all upper-level course work.

All Division of Continuing Education policies regarding pass/nonpass and satisfactory/fail grading, academic standards, and so forth apply to B.A.S. students (for details, see <http://www.continuetolearn.uiowa.edu/ccp/studservs.htm>).

Students may incorporate one of two online certificate programs into their B.A.S. studies: the Certificate in Entrepreneurship and the Certificate in Public Health. Or they may use an interdisciplinary approach to plan an individualized focus area.

Entrepreneurship Certificate

The Certificate in Entrepreneurship is offered by the Tippie College of Business. It requires 18-20 s.h. Courses are offered via the World Wide Web. See "Entrepreneurship Programs for Undergraduates" in the Tippie College of

Business section of the Catalog or contact the Tippie College of Business for details.

Public Health Certificate

The Certificate in Public Health is offered by the College of Public Health and is designed primarily for individuals working in public health practice and for those considering public health careers. The certificate requires 12 s.h. Courses are offered via the World Wide Web. Applicants must have substantial relevant work experience. Contact the College of Public Health for details.

Interdisciplinary Approaches

In collaboration with their B.A.S. advisor, students may design a focus in one of a variety of interdisciplinary areas (e.g., aging studies, environmental studies, technical writing, family studies).

Admission

Students who want to graduate with a B.A.S. must make a formal application for admission to the program. Prospective students should contact the Center for Credit Programs office before applying.

All applications to the program are screened. Students who have access to the full range of the University's daytime classes should seek admission to the College of Liberal Arts and Sciences in order to pursue a major leading to a degree other than the B.A.S. Non-B.A.S. students interested in tailoring a degree program to their individual interests should consider pursuing the interdepartmental studies major (see Interdepartmental Studies in the Catalog) or the Bachelor of Liberal Studies degree (see Liberal Studies in the Catalog).

To be eligible for admission to the B.A.S. program, students must have earned an Associate of Applied Science (A.A.S.) degree or an Associate of Science (A.S.) from an Iowa area community college that participates in the Iowa Community College/Regents Articulation Agreement. They must have a g.p.a. of at least 2.00 and must have completed the following B.A.S. minimum core requirements.

Rhetoric: total of 4-8 s.h. (the requirement includes two composition courses and one speech course)

Quantitative or formal reasoning (3 s.h.)

Social sciences (3 s.h.)

Cultural diversity (3 s.h.)

Business/management: total of 6 s.h. from these:

06A:001 Introduction to Financial Accounting	3 s.h.
06A:002 Managerial Accounting	3 s.h.
06A:020 Accounting for Nonbusiness Students	3 s.h.
06J:047 Introduction to Law	3 s.h.
06J:048 Introduction to Management	3 s.h.
06K:070 Computer Analysis	3 s.h.

See a B.A.S. advisor for a list of other acceptable courses.

Contact the Center for Credit Programs for more information about the B.A.S. program.

Career Center Programs

Director: David Baumgartner

Web site: <http://www.careers.uiowa.edu>

The University of Iowa Marvin A. and Rose Lee Pomerantz Career Center administers the University's Career Center Programs. The center helps students explore and plan careers, search for employment and internship opportunities, and prepare for job interviews. Students may use the Pomerantz Career Center's services at any time during their academic careers, but the center encourages entering first-year and transfer students to visit after they arrive on campus and to make use of all of the center's services throughout their study at Iowa.

The center offers workshops throughout the year on a variety of topics, including résumé writing, job search techniques, employer research, and interviewing skills. It hosts several career fairs each fall and spring, offering students the opportunity to talk with and learn about prospective employers.

The Pearson Library contains career-related books, periodicals, and online resources—some broad in scope, others targeted to specific careers or jobs. Corporate annual reports and employer recruiting brochures join information on salaries, geographical cost of living, resources for jobs and internships, graduate schools, and other topics.

The Pomerantz Career Center facilitates job interviewing with a wide range of employers—regional, national, and international; profit and nonprofit; state and federal government. Employers conduct on-campus job interviews at specific times during the year, and many post immediate openings year-round. On-campus recruiting and job postings are available on the center's web site.

The center also helps students find internships in Iowa, the Midwest, nationwide, and sometimes in other countries. For a list of discipline-related internships (all require course registration), see "Courses"/"Internships" below.

For more information about the center's services and facilities, contact the Pomerantz Career Center.

Courses

Career Exploration

- 409:100 Career Center Seminar** 0 s.h.
Career related issues; how to use the Pomerantz Career Center in choosing majors, finding internships, developing successful job search strategies.
- 409:101 Consider Iowa Road Trip** 1 s.h.
Visits to Iowa organizations; employment opportunities in Iowa; research on companies; preparation for site visits; review and organization of observations. Taught during spring break.
- 409:102 Job Search Strategies** 2 s.h.
Successful search strategies for jobs and internships; how to write successful cover letters and résumés; interview skills; company research.

Internships

Students must register before beginning an internship in order for the internship to be noted on the transcript.

- 409:001 Internship in Art** 0 s.h.
- 409:002 Internship in Biological Science** 0 s.h.
- 409:003 Internship in Speech Pathology and Audiology** 0 s.h.
- 409:004 Internship in Chemistry** 0 s.h.
- 409:006 Internship in Business** 0 s.h.
- 409:007 Internship in Education** 0 s.h.
- 409:008 Internship in English** 0 s.h.
- 409:009 Internship in French** 0 s.h.
- 409:012 Internship in Geoscience** 0 s.h.
- 409:013 Internship in German** 0 s.h.
- 409:015 Internship** 0 s.h.
- 409:016 Internship in History** 0 s.h.
- 409:019 Internship in Journalism** 0 s.h.
- 409:020 Internship in Classics** 0 s.h.
- 409:021 Internship in Library Science** 0 s.h.
- 409:022 Internship in Computer Science** 0 s.h.
- 409:024 Internship in Museum Studies** 0 s.h.
- 409:025 Internship in Music** 0 s.h.
- 409:027 Internship in Exercise Science** 0 s.h.
- 409:028 Internship in Health and Sport Studies** 0 s.h.
- 409:029 Internship in Physics and Astronomy** 0 s.h.

409:030 Internship in Political Science	0 s.h.	409:175 Internship in Occupational and Environmental Health	0 s.h.
409:031 Internship in Psychology	0 s.h.	409:187 Internship in International Studies	0 s.h.
409:032 Internship in Religious Studies	0 s.h.	409:188 Internship in Performing Arts	0 s.h.
409:033 Internship in Literature, Science, and the Arts	0 s.h.	409:190 Washington Center Internship Program	arr.
409:034 Internship in Sociology	0 s.h.	Internship placements for students in all University of Iowa majors (typical placements include Congress, the White House, the Center for Strategic and International Studies, the U.S. Department of Commerce, the U.S. Department of Defense, the Environmental Protection Agency, CNN, C-SPAN, BET, MCI Center, the Smithsonian Institution, the National Institutes of Health, Amnesty International, the Children's Defense Fund, Mexican Cultural Institute Embassies, the U.S. Marshall's Office, federal courts, law offices, and the U.S. Secret Service); participation in Presidential Lecture Series and Congressional Breakfast Series. Full semester or summer session.	
409:035 Internship in Spanish	0 s.h.	409:192 Internship in Statistics and Actuarial Science	0 s.h.
409:036 Internship in Communication Studies	0 s.h.	409:193 Internship in Accounting	0 s.h.
409:039 Internship in Asian Languages and Literature	0 s.h.	409:194 Internship in Finance	0 s.h.
409:041 Internship in Russian	0 s.h.	409:195 Internship in Marketing	0 s.h.
409:042 Internship in Social Work	0 s.h.	409:196 Internship in Economics	0 s.h.
409:044 Internship in Geography	0 s.h.	409:197 Internship in Management and Organizations	0 s.h.
409:045 Internship in American Studies	0 s.h.	409:198 Internship in Management Information Systems	0 s.h.
409:048 Internship in Cinema and Comparative Literature	0 s.h.	409:199 Internship in Liberal Studies	0 s.h.
409:049 Internship in Theatre Arts	0 s.h.		
409:061 Internship in Microbiology	0 s.h.		
409:091 Internship in Law	0 s.h.		
409:099 Internship in Biochemistry	0 s.h.		
409:103 Internship in Linguistics	0 s.h.		
409:113 Internship in Anthropology	0 s.h.		
409:122 Internship in Mathematics	0 s.h.		
409:129 Internship in African American World Studies	0 s.h.		
409:131 Internship in Women's Studies	0 s.h.		
409:136 Internship in Quality Management and Productivity	0 s.h.		
409:137 Internship in Dance	0 s.h.		
409:142 Internship in Molecular Biology	0 s.h.		
409:143 Internship in Honors	0 s.h.		
Exploration of professional careers by arrangement between the student and a professional in the student's chosen field, who certifies satisfactory completion of a journal and presentation.			
409:145 Internship in Interdepartmental Studies	0 s.h.		
409:153 Internship in Aging Studies	0 s.h.		
409:159 Internship in Environmental Sciences	0 s.h.		
409:169 Internship in Leisure Studies	0 s.h.		
409:170 Internship in Public Health	0 s.h.		
409:171 Internship in Biostatistics	0 s.h.		
409:172 Internship in Community and Behavioral Health	0 s.h.		
409:173 Internship in Epidemiology	0 s.h.		
409:174 Internship in Health Management and Policy	0 s.h.		

College Success Initiatives

The College Success Initiatives program offers courses designed to help first-year and entering transfer students succeed at The University of Iowa. College Success initiatives courses include a traditional first-year experience course, a transition course for transfer students, a web-based course offering an introduction to electronic tools and resources at The University of Iowa, and a course for first-year students who have been placed on academic probation.

The College Success Initiatives is administered by the associate provost for undergraduate education. For more information about College Success Initiatives courses, contact the Academic Advising Center. Other programs designed especially for first-year students at Iowa include Courses in Common (contact the Academic Advising Center), First-Year Seminars (contact the College of Liberal Arts and Sciences), and Learning Communities (contact the Office of the Provost).

Courses

- 407:001 The College Transition** 2 s.h.
College culture, University of Iowa resources, refinement of study skills, test taking, identification of personal values, self-motivation, goal setting; taught in small sections with emphasis on classroom discussion. Prerequisite: entering first-year student standing.
- 407:002 College Success Seminar** 1 s.h.
Skills, habits, and attitudes essential for college success; self-assessment, goal setting, problem solving, motivation, time management, study skills, preparing for and taking tests; campus resources, including the Pomerantz Career Center, University Counseling Service; emphasis on class participation and completion of assignments related to course topics. Prerequisite: selected students with first-year standing in the College of Liberal Arts and Sciences.
- 407:005 HSLC Seminar** 1 s.h.
- 407:007 Online at Iowa** 1 s.h.
Web-based introduction to electronic tools and resources at The University of Iowa; web sites, e-mail, databases; how to research courses, register for classes, and review grades; computer security; virtual campus tour.
- 407:011 The Transfer Transition** 2 s.h.
University of Iowa resources, career and major selection, identification of personal values, self-motivation, goal setting, study and test-taking skills; small sections with classroom discussion. Prerequisite: first-year transfer student standing.
- 407:015 Diversity Awareness: Discussion About Differences** 1 s.h.
Multicultural and diversity awareness developed through group interaction, dialogues, and reflection on topics such as race, ethnicity, gender, sexual orientation, and socioeconomic status.

Honors Program

Director: John S. Nelson

Web site: <http://www.uiowa.edu/~honors>

The University of Iowa Honors Program enriches the intellectual and personal lives of outstanding University of Iowa undergraduates in all colleges and majors. It provides special academic opportunities, extracurricular programs, and social events, many held in the award-winning Blank Honors Center and the University Honors House.

Honors Program staff members help honors students create their own honors curricula to explore interests inside and outside the classroom. Honors students enjoy course options for team and independent learning-by-doing in research, writing, teaching, leadership, and service. They meet with some of the University's best teachers in small seminars designed especially for first- and second-year students and continue to work closely with excellent professors and other honors students in a variety of courses. Extracurricular activities in foreign relations, the arts, volunteering, and other areas give honors students practical experience and connections beyond the classroom. Above all, the Honors Program engages students in intellectual communities where they explore frontiers of knowledge with many of the most interesting people on campus.

The Honors Program admits students directly and automatically from high school, based on high school rank and ACT or SAT score. National Merit Scholars, Presidential Scholars, Old Gold Scholars, National Achievement Scholars, and National Academy of Arts, Sciences, and Engineering students are admitted automatically, as are other students who show great academic promise for college learning and further achievement.

Entering students who are not admitted automatically may become members through a process that requires a high school transcript, a letter of recommendation from a teacher, and a personal letter describing how the student would gain from Honors Program membership.

Entering transfer students must have a cumulative g.p.a. of at least 3.50 and must have earned at least 24 s.h. of college credit in order to be admitted to the Honors Program. Transfer

students with less than 24 s.h. of college credit are admitted to the program on the same basis as are students who enter the University directly from high school.

Membership in the Honors Program also is open to undergraduate students enrolled in the Tippie College of Business and the Colleges of Education, Engineering, Liberal Arts and Sciences, and Nursing. Honors Program students must maintain a University of Iowa cumulative g.p.a. of at least 3.33 (B-plus) in order to remain in the program. The Honors Program automatically admits current students if they earn a g.p.a. of at least 3.33 before completing 72 s.h. of course work.

For more information on honors membership requirements, see General Information on the Honors Program web site.

Academic Opportunities

The Honors Program recognizes that students have different educational needs and goals. For this reason, the program offers a curriculum that is flexible, broad, and challenging. Honors course options begin as early as the first semester and continue through the last semester of the senior year. The options include a diverse set of academic courses as well as opportunities to work directly with faculty members as research assistants, teaching interns, and writing fellows while earning credit toward graduation.

Students are free to design curricula that best suit their backgrounds and interests. They may select honors options to meet the requirements of the College of Liberal Arts and Sciences General Education Program, their major departments, or elective credit. The Academic Advising Center, departmental honors advisors, and Honors Program staff members are all available to help students develop appropriate study plans.

First-year honors seminars are a great way to begin. Choices continue with a variety of honors seminars that introduce students to exciting topics in the humanities, social sciences, and natural sciences. Honors seminars are small and highly interactive, and they cover new topics each semester. In addition to seminars, individual departments offer a wide range of courses for

honors credit, from laboratory and discussion sections of introductory courses to specialized studies in students' varied disciplines. Finally, students can request honors designation for any regular University of Iowa course. Honors designation allows students to delve more deeply into a topic, under the instructor's guidance, by developing a study plan that goes beyond the course's normal requirements.

Honors Commendation

The Honors Program and the University president join in celebrating students who complete at least 12 s.h. of honors course work with a grade of B or higher in each graded course before completing their second year or their first 59 s.h. (whichever comes last). Honors Commendation includes a certificate of congratulation signed by the Honors Program director and the University president.

Honors in the Major

Most majors offer upper-level honors courses, honors seminars, independent research, or opportunities to pursue an original honors thesis or senior project under the guidance of a faculty member. Each college and department determines its own requirements for graduation with honors, and faculty members in each department serve as honors advisors.

After students declare a major in the College of Liberal Arts and Sciences or enter the Tippie College of Business or the Colleges of Education, Engineering, or Nursing, they should speak with their collegiate or departmental honors advisors about their academic programs. Students who graduate with honors in their majors receive special recognition during commencement, and their permanent academic records note their achievements.

Extracurricular Programs

The Honors Program provides honors students with a rich variety of activities outside the classroom. Participation is not required, but many honors students find extracurricular programming a good way to meet people, get involved, and learn more about the world around them.

The **Arts Program** sends groups of honors students to attend music, dance, and theater events at the University and in the community. Students have opportunities to interact with artists, faculty members, and other honors

students through related discussions, lectures, and visits.

The **Iowa City Foreign Relations Council** hosts luncheon dialogues on relevant international issues. Past speakers include award-winning journalists, Nobel Peace Prize laureates, seasoned diplomats, prominent politicians, and policy analysts. Honors students gain more textured understandings of world affairs by listening to and talking with these expert speakers.

The **Volunteer Program** provides students with service opportunities at varied organizations in eastern Iowa. Honors students learn more about their communities and related needs, often continuing to volunteer on their own.

The **Presidential Scholars Program** emphasizes community, cultural, and academic involvement while offering unique team-building components. As part of the program, scholars may participate in cook-outs, Frisbee games, arts events, canoeing adventures, pizza parties, dinners with faculty members, mentoring programs, and volunteer projects.

The newsletter **Honorable Mention** is written, edited, and published four times a year by honors students. It informs, educates, and entertains honors students, their families, and University staff and faculty.

The honors **web site** and **electronic mailing list** offer resources for honors students. These also tell about past, present, and future honors activities, scholarships, courses, and other opportunities.

The Honors Program advises five major national and international **honor societies**: Phi Eta Sigma, National Society of Collegiate Scholars, Golden Key, Mortar Board, and Omicron Delta Kappa. The societies provide select students with opportunities to lead, serve their communities, and cultivate academic excellence.

For more information about honors extracurricular programs, see Extracurriculars on the Honors Program web site.

Scholarship Advising

The Honors Program helps students apply for many scholarships, awards, and prizes. The program offers its own scholarships of \$1,000 to \$3,000 to selected continuing honors students in all colleges. It also provides research stipends for students completing honors projects and travel grants for those who present work at conferences. These awards are made possible in

part by a bequest from Professor Rhodes Dunlap, the program's founder and director for more than 20 years. Announcements about honors scholarships and other awards appear in the Honors Program newsletter and electronic mailing list. Honors Program scholarships are not available to incoming first-year or transfer students.

Honors students are awarded national and international scholarships each year. The program provides advising and nominations for Rhodes, Marshall, Gates Cambridge, Truman, Udall, Goldwater, and Jack Kent Cooke Scholarships.

Blank Honors Center

The Honors Program makes its home in the Blank Honors Center, a new facility for fostering community among honors students. The Blank Honors Center offers extended hours, social areas, a kitchenette, quiet study areas, classrooms, a computer lab with 24 workstations, office space for honor societies, honors advising for students, and offices for Honors Program staff. The center also has rooms for meetings, events, presentations, and conversation. Honors staff members are always on hand to help students.

University Honors House

The University Honors House fills Daum Residence Hall and is linked to the Blank Honors Center by a skywalk. The University Honors House hosts the Honors Learning Community, which sponsors cultural, academic, and social events for honors students living in Daum Hall. It also organizes group outings to arts events, workshops on scholarship and research opportunities, volunteer activities, and dinners with faculty members, and provides a convenient place for residents to socialize and study with each other.

The University Honors House particularly welcomes first-year and transfer students. To learn more about the University Honors House and the Honors Learning Community, see Extracurriculars on the Honors Program web site.

Courses

Honors courses are open only to honors students.

143:030 Honors First-Year Seminar 1 s.h.
 Small discussion classes taught by faculty members on special topics; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips).
 Prerequisite: first- or second-semester standing.

143:040 Honors Studies arr.
 Independent studies arranged with faculty members who certify satisfactory completion of study plans and performance for topics not covered by other UI courses.

143:041 Honors Group Studies arr.
 Group independent studies arranged with faculty members who certify satisfactory completion of study plans and performance for topics not covered by other UI courses.

143:042 Honors Service Learning arr.
 Service learning projects arranged with faculty members who certify satisfactory completion of study plans and service.

143:043 Honors Group Service Learning arr.
 Group service learning projects arranged with faculty members who certify satisfactory completion of study plans and service.

143:050 Honors Seminar in Humanities 3 s.h.
 Small-class learning with a faculty member on humanities topics. GE: humanities.

143:060 Honors Seminar in Social Sciences 3 s.h.
 Small-class learning with a faculty member on social science topics. GE: social sciences.

143:070 Honors Seminar in Natural Sciences 3 s.h.
 Small-class learning with a faculty member on natural science topics. GE: natural sciences.

143:090 Honors Research Colloquium 1 s.h.
 Small-class research with faculty members; advanced readings.

143:100 Honors Research Practicum 1-3 s.h.
 Individual research performed in conjunction with a faculty member's research.

143:101 Honors Teaching Practicum 3 s.h.
 Teaching internship in first- and second-year courses; may include providing tutorial assistance, conducting review sessions, aiding course organization.

143:102 Writing Fellows: Writing Theory and Practice 3 s.h.
 Preparation of honors students selected as writing fellows to serve as peer tutors in writing-intensive courses; theories of writing, evaluation of drafts, peer tutoring with students. Prerequisites: sophomore or junior honors standing, admission to Writing Fellows Program, and availability to work as a writing fellow in subsequent semesters.

143:150 Honors Special Topics 1-3 s.h.
 Small-class learning with faculty members on advanced topics. Prerequisite: junior or senior honors standing.

Intercollegiate Athletic Participation

Students who are members of University of Iowa intercollegiate athletics teams and are certified to participate in their sport may register for 408:021. Each section of the course represents a specific sports team; students register for the appropriate section. Registration requires approval from the director of athletic student services. Qualified students may repeat the course. Members of University of Iowa sport clubs are not eligible to enroll in 408:021.

Courses

408:021 Intercollegiate Athletic Participation 1 s.h.

International Writing Program

Director: Christopher Merrill

Web site: <http://www.uiowa.edu/~iwp>

The International Writing Program is a unique residency program for established writers from outside the United States. IWP participants range from emerging talents to writers who are among their countries' leading literary figures and writers of world stature.

Each fall the International Writing Program assembles a community of poets, fiction writers, essayists, playwrights, and journalists. For most of them, the IWP is their first, or their first extended, stay in the United States. At the University they live and interact with each other while working on writing and translation projects. Throughout their residency, they participate in 181:191 International Literature Today and in 181:205 International Translation Workshop. They also interact with the public through readings, panel discussions, and other presentations.

Since 1967, more than a thousand writers from 115 countries have participated in the program.

International Writing Program participants are supported by the U.S. Department of State, through bilateral agreements with many countries, by grants from cultural institutions and governments abroad, and by private funds. The program does not provide grants for writers.

For more information, contact the International Writing Program or visit the program's web site.

Courses

181:001 Readings for Writers	1 s.h.
Introduction to the Iowa City writing community; attendance at readings by professional, faculty, and student writers; students keep journals about readings.	
181:101 Independent Studies	arr.
Directed readings in contemporary world literature.	
181:152 America in Other Words	1-3 s.h.
Current idea of America in its imaginary form: post-1989 world fiction, poetry, and film in original language, in translation, and via online translation resources. Same as 048:152.	
181:191 International Literature Today	1, 3 s.h.
Same as 008:191.	
181:205 International Translation Workshop	1-3 s.h.
Same as 048:205.	
181:260 Translation Workshop	1-3 s.h.
Same as 08W:260, 048:260.	

Iowa Biosciences Advantage

Director: Sarah K. England (Physiology and Biophysics)

Web site: <http://www.uiowa.edu/iba/>

The Iowa Biosciences Advantage (IBA) is a highly competitive undergraduate research and academic enrichment program funded by the National Institutes of Health. The program's aim is to increase diversity in the biomedical sciences.

The Iowa Biosciences Advantage provides undergraduate students with opportunities to work in research laboratories with faculty mentors during the course of their undergraduate careers. The program's faculty represents a broad range of disciplines in the basic and biomedical sciences. IBA students also benefit from specialized course work, career workshops, and academic advising for biomedical and bioscience careers.

Students selected for IBA must maintain good standing in academics and research. Good academic standing requires a g.p.a. of at least 3.00 and is evaluated at the end of each semester. Good research standing is determined by the student's research mentor.

Students work with their mentors throughout the academic year and summer. They may present their research in August at the Annual IBA Scholar Research Symposium.

STUDENTS ACCEPTED FROM HIGH SCHOOL

Students admitted to IBA from high school spend their first year at The University of Iowa establishing good academic standing and conducting laboratory rotations.

During fall semester, IBA students enroll in a special section of 407:001 The College Transition (2 s.h., graded satisfactory/unsatisfactory), which covers topics such as defining college culture, discovering University resources, refining study skills, taking tests, and setting goals.

During spring semester, IBA students enroll in two courses. They take 168:041 IBA Student Development Seminar (1 s.h.), an extension of subject matter introduced in The College Transition. They also take a special section of 168:047 IBA Research in Biomedical Science (0 s.h.) and complete two research rotations. The rotations, which are set up by IBA staff,

introduce students to laboratory research at the University.

At the end of the first year, each student is evaluated for admission to the IBA Scholar Program. Students selected as IBA scholars remain on campus for the eight-week summer session. They earn wages for laboratory work with their research mentors, live in the IBA Summer Learning Community, and participate in IBA events.

STUDENTS ACCEPTED FROM COLLEGE

Applications also are accepted from current University of Iowa undergraduates majoring in the sciences as well as students transferring to Iowa as sophomores or juniors. Students accepted to IBA during their first, second, or third year of college join the appropriate class of IBA scholars. During their first semester of participation, new undergraduates complete several lab rotations and establish good academic standing. They also enroll in the IBA Student Development Seminar (168:041). Once students are matched with a research mentor, they earn wages for their laboratory work during summer and the academic year.

Admission

Students apply to the Iowa Biosciences Advantage during their senior year of high school or once they are undergraduate students.

Applicants must:

- have a strong interest in scientific research;
- demonstrate commitment to racial and ethnic diversity;
- have a qualifying academic major;
- be in good academic standing (grade-point average of at least 3.00);
- submit an IBA application, including short essays and a release for IBA to obtain the applicant's transcripts; and
- submit one letter of recommendation from a science or math instructor.

Admission requires an interview. Admission decisions are made throughout the year.

Faculty

Faculty members from the University's broad range of basic and biomedical science disciplines serve as teachers and mentors to IBA students. They represent many departments, including anatomy and cell biology, biochemistry, biological sciences, biomedical engineering, chemistry, exercise science, microbiology, neuroscience, pharmacy, physiology and biophysics, and psychology.

Courses

168:039 Introduction to Laboratory Techniques 2 s.h.

Exercises that teach basic laboratory techniques through experimentation with biological materials; preparation for conducting research in the mentor's laboratory.

168:041 IBA Student Development Seminar 0-1 s.h.

Academic and professional development; presentations by faculty researchers, admissions representatives, or students in graduate bioscience programs; discussions about succeeding at the University; talks by professional educators on topics such as effective study skills.

168:047 IBA Research in Biomedical Science arr.

Registration in a section taught by the student's research mentor. Prerequisite: enrollment in IBA.

Iowa Lakeside Laboratory

Executive director and director of academics and research: Bonnie S. Bowen (Iowa State University)

University of Iowa coordinator: Diana Horton (Biological Sciences)

Iowa State University participating faculty:

Bonnie S. Bowen (Ecology, Evolution, and Organismal Biology), Lee Burras (Agronomy), C. Arthur Croyle (Art and Design), Clay A. Pierce (Natural Resource Ecology and Management)

University of Iowa participating faculty: John F.

Doershuk (Anthropology)

University of Northern Iowa participating faculty:

Thomas Hockey (Earth Science), Michael J. Shott (Sociology, Anthropology, and Criminology), Daryl D. Smith (Native Roadside Vegetation Center)

Web site: <http://www.lakesidelab.org>

Iowa Lakeside Laboratory is a field station run cooperatively by the Iowa Lakeside Laboratory Consortium, whose members include The University of Iowa, Iowa State University, the University of Northern Iowa, and Drake University. Iowa Lakeside Laboratory courses can be taken for credit through all consortium member schools. Students should check with their advisors to determine whether Iowa Lakeside Laboratory courses can be used to satisfy requirements of their academic major or minor, or college or university general education requirements.

The laboratory was established in 1909 for the conservation and study of the rich flora and fauna of northwest Iowa, especially the numerous lakes, wetlands, and prairies of the Iowa Great Lakes region. The campus is located on approximately 140 acres of restored prairie, wetland, and gallery forest along the west shore of West Okoboji Lake. Lakeside's mission is to provide undergraduate and graduate students an opportunity for hands-on experience in a variety of natural and human environments through its field-oriented summer courses, and to provide research facilities and support for graduate students and faculty members working on research projects in northwestern Iowa.

Each summer Iowa Lakeside Laboratory offers students a unique educational experience—small, full-immersion, field-oriented courses in the natural sciences (archaeology, ecology, environmental science, evolution, geology, hydrology, soils, taxonomy). All courses meet all day Monday through Friday. The majority of courses last four weeks. Enrollment in

most courses is limited to eight to ten students. Courses are taught at the undergraduate level (sophomore and junior) and the senior/graduate level. Students earn 1 s.h. for each week (40 hours) in class. One- and two-week courses also are available, including courses designed especially for teachers.

Weather permitting, students normally spend at least part of each day doing fieldwork, either as part of their class work or for individual or group projects. Because some courses are offered alternate summers, the current Iowa Lakeside Laboratory Bulletin or the University of Iowa's summer course offerings on ISIS (Iowa Student Information Services) should be consulted for the courses being offered in a particular summer session. The Iowa Lakeside Laboratory Bulletin also contains additional information about the Iowa Lakeside Laboratory and about each course being offered.

Research projects by undergraduates, graduate students, and faculty members can be completed either on the campus or at many nearby natural areas. Undergraduate and graduate students are strongly encouraged to do independent projects at Iowa Lakeside Laboratory, and graduate students are welcome to use Lakeside as a base for their thesis and dissertation research. Laboratory space and other facilities are available for long-term or short-term research projects.

Teaching and research facilities include eight laboratory buildings, a library, and a lecture hall. Living accommodations include cottages, motel-style units, and a large mess hall. All students are encouraged to stay at Lakeside while they are taking courses to derive full advantage of its educational, professional, and social life.

Registration

Students can enroll in Iowa Lakeside Laboratory courses only by submitting an Iowa Lakeside Laboratory Registration and Scholarship Form and the Lakeside housing form to the Iowa Lakeside Laboratory Administrative Office. These forms are included in the Iowa Lakeside Laboratory Bulletin and in The University of Iowa's online course schedule on ISIS. Information on registration and current courses is available in the bulletin and on the Iowa Lakeside Laboratory web site. The *Iowa Lakeside*

Laboratory Bulletin is available on the Iowa campus from the Department of Biological Sciences, the Department of Chemistry, and the Department of Geoscience.

Early registration is advisable. Because enrollment in Lakeside courses is limited, students should register before May 1 for the following summer session. Housing is limited at Lakeside. When students register for courses, they must either apply for housing or state that they plan to live off campus.

Financial Support

Iowa Lakeside Laboratory scholarships are available to undergraduates and graduate students. Scholarships cover room and board. Information about how to apply for Iowa Lakeside Laboratory scholarships is included in the Iowa Lakeside Laboratory Bulletin and on Lakeside's web site. Students also should consult the Office of Student Financial Aid for information about other scholarships, work-study, and loan programs.

The University of Iowa provides Thomas H. Macbride Scholarships in Natural Science for qualified graduate students attending Lakeside. The scholarships cover Iowa Lakeside Laboratory tuition costs. Application deadline is April 1.

Courses

- 00L:005 Flora of the Iowa Lakes Region** 2 s.h.
Overview of life sciences disciplines: ecology and evolutionary biology, molecular, cellular, and developmental biology; hands-on experience with one or more of these disciplines. Prerequisites: a biology course and high school enrollment.
- 00L:015 Introduction to the Life Sciences** 1 s.h.
Overview of life sciences disciplines: ecology and evolutionary biology, molecular, cellular, and developmental biology; hands-on experience with one or more of these disciplines. Prerequisites: a biology course and high school enrollment.
- 00L:031 Ecology** 4 s.h.
Introduction to the principles of ecology at the population, community, ecosystem levels; field studies of local lakes, wetlands, and prairies used to examine factors that control distributions, interactions, and roles of plants and animals in native ecosystems.
- 00L:035 Physical Geology** 4 s.h.
Landscape development as a product of geologic materials and processes; field studies of the earth's composition, glaciation, weathering, erosion, sedimentation. Offered summer sessions of even years.
- 00L:040 Archaeology** 4 s.h.
Nature of cultural and environmental evidence in archaeology, how such evidence is used to model past human behavior and land use; emphasis on Iowa prehistory; basic reconnaissance surveying, excavation techniques.
- 00L:043 Illustrating Nature—Sketching** 2 s.h.
Sketching plants, animals, terrain; visual communication, development of a personal style, integration of typographic and visual elements on a page.
- 00L:044 Illustrating Nature—Photography** 2 s.h.
Beginning/intermediate technique and composition in color photography of natural areas, their plants and animals.
- 00L:050 Undergraduate Internship** 1-5 s.h.
Placement with county conservation boards, camps, parks, and other agencies for experience as interpreters, rangers, technicians. Prerequisites: sophomore standing and consent of instructor.
- 00L:064 Biology of Aquatic Plants** 4 s.h.
Field-oriented introduction to the taxonomy and ecology of aquatic plants in lakes, wetlands, rivers; individual or group projects. Offered summer sessions of odd years.
- 00L:100 Techniques for Biology Teaching** 1-2 s.h.
Development and implementation of laboratory exercises suitable for inclusion in elementary, middle, high school, and community college biology and environmental courses; exercises built around common organisms and ecosystems in Iowa; animal biology, plant biology, fungi and lichens, aquatic ecology, prairie ecology, wetland ecology, limnology, animal behavior, insect ecology, biology of invertebrates, noninvasive use of living organisms, Project WET; field trips.
- 00L:101 Iowa Natural History** 4 s.h.
Biological diversity and its causes examined through lectures and field trips to native lake, marsh, forest, and prairie habitats; measuring the environment, sampling and identifying organisms, experimenting with the ecosystem, understanding species interactions, appreciating influences of past and present climates and geological events on natural ecosystems of the region. Prerequisite: one biological sciences course.
- 00L:102 Plant-Animal Interactions** 4 s.h.
Introduction to ecology and co-evolution of plants and animals; emphasis on dispersal, pollination, plant-herbivore interactions; field and laboratory work, reading, discussion. Prerequisite: one biological science course.
- 00L:103 Aquatic Ecology** 4 s.h.
Analysis of aquatic ecosystems; emphasis on basic ecological principles; ecological theories tested in the field; identification of common plants and animals. Prerequisites: ecology, chemistry, and physics courses.
- 00L:105 Plant Taxonomy** 4 s.h.
Principles of classification and evolution of vascular plants; taxonomic tools and collection techniques; use of keys; field and laboratory studies emphasizing identification of local flowering plants, recognition of major plant families.
- 00L:109 Freshwater Algae** 4 s.h.
Structure and taxonomy of freshwater algae based on field material collected; emphasis on genus-level identifications; habitat visits to lakes, fens, streams, rivers; algal ecology.
- 00L:113 Undergraduate Independent Study** 1-4 s.h.
Prerequisites: junior or senior standing and consent of instructor.
- 00L:115 Field Mycology** 4 s.h.
Identification and classification of the common fungi; techniques for identification, preservation, and culture practiced with members of the various fungi groups.
- 00L:117 Ecology and Systematics of Diatoms** 4 s.h.
Field and laboratory study of freshwater diatoms; techniques in collection, preparation, and identification of diatom samples; study of environmental factors affecting growth, distribution, taxonomic characters; project design and execution, including construction of reference and voucher collections; data organization and analysis.
- 00L:119 Evolution** 4 s.h.
Mechanisms and patterns in microevolution, macroevolution; field exercises emphasizing studies of natural selection, adaptation, genetic variation, and population genetics of local plant, animal populations.

- 00L:120 Freshwater Invertebrates** 4 s.h.
Field-oriented introduction to identification, life history, and ecology of common, free-living freshwater invertebrates of north-temperate lakes, rivers, wetlands; emphasis on invertebrates' role in aquatic food chains and litter processing. Prerequisite: an ecology course.
- 00L:121 Plant Ecology** 4 s.h.
Principles of plant population, community, and ecosystem ecology illustrated through studies of native vegetation in local prairies, wetlands, forests; group or individual projects.
- 00L:122 Prairie Ecology** 4 s.h.
Basic patterns, underlying physical and biotic causes of regional and local distributions of North American prairie plants and animals; field and laboratory analysis and projects. Prerequisite: familiarity with basic principles of biological sciences and ecology.
- 00L:124 Wetland Ecology** 4 s.h.
Ecology, classification, creation, restoration, and management of wetlands; field studies on composition, structure, and function of local natural wetlands, restored prairie pothole wetlands; individual or group projects. Prerequisite: 00L:031.
- 00L:126 Ornithology** 4 s.h.
Biology, ecology, and behavior of birds; emphasis on field studies of local avifauna; group projects with focus on techniques of population analysis and methodology for population studies.
- 00L:127 Introduction to Insect Ecology** 4 s.h.
Insects; their diversity and life history; emphasis on ecology and behavior; field, laboratory study. Offered summer sessions of odd years.
- 00L:128 Fish Ecology** 4 s.h.
Basic principles of fish interaction with biotic and abiotic environments; field methods, taxonomy, and biology of fish with emphasis on the fish fauna of northwestern Iowa.
- 00L:129 Vertebrate Ecology and Evolution** 4 s.h.
Field and laboratory study of representative vertebrates of northwestern Iowa; observations and experimentation emphasize ecological histories by integrating concepts of functional morphology, behavioral ecology, evolutionary biology.
- 00L:130 Natural History Workshop** 1-2 s.h.
A specific aspect of the upper Midwest's natural history, or techniques for studying natural history; amphibians and reptiles, birds and birding, nature photography, mushrooms and other fungi, Iowa's trees and forests, fish biology, prairies, common algae, common insects, aquatic plants, life in rivers, life in lakes, mosses and liverworts, natural history of Iowa Great Lakes region, field archaeology, scuba diving, astronomy, nature sketching; five-day, nontechnical introductions.
- 00L:141 Statistical Methods for Field Biologists** 4 s.h.
Design and implementation of ecological and environmental field studies and statistical analyses; interpretation, presentation of field data; fundamentals of experimental design, hypotheses testing with continuous and discrete data, simple and multilinear regression and correlation, introduction of analysis of variance, data presentation; individual and/or group projects to collect field data.
- 00L:142 Watershed Hydrology and Surficial Processes** 4 s.h.
Effects of geomorphology, soils, and land use on transport of water and materials (nutrients, contaminants) in watersheds; fieldwork emphasizing investigations of the Iowa Great Lakes watershed. Prerequisites: four courses in physical or biological sciences or engineering.
- 00L:144 Ecosystems of North America** 2-4 s.h.
Extended field trip for study of an ecosystem type (e.g., prairie, coastal wetland, forest, alpine, coral reef) or the ecosystems of a specific region (e.g., Rocky Mountains, Gulf Coast, Appalachian Mountains, deserts of the Southwest, Central America); pre-trip orientation, post-trip review and synthesis. Field trip fee. Prerequisites: an ecology course and consent of instructor.
- 00L:145 Introduction to Environmental Planning** 4 s.h.
Environmental planning theories and methods, emphasis on environmental planning using geographic information system (GIS) modeling approaches and public participation in the planning process; individual or group environmental planning projects. Offered summer sessions of even years. Recommended: basic familiarity with ArcView and database programs.
- 00L:150 Watershed Modeling and GIS** 4 s.h.
Geographic information system (GIS) techniques for watershed hydrology and water quality modeling, water resource management; approaches to watershed analysis, modeling, management; analytical tools for modeling watershed hydrology, water quality; case studies in modeling and managing rural and urban watersheds.
- 00L:151 Analysis of Environmental Data** 2 s.h.
Theory and application of statistical techniques for analysis of ecological and paleoecological data.
- 00L:156 Advanced Field Ornithology** 2 s.h.
Field study of birds of the upper Midwest; extended field trip to Minnesota, Wisconsin; individual or group project. Field trip fee. Corequisite: 00L:126.
- 00L:160 Restoration Ecology** 4 s.h.
Ecological principles for restoration of native ecosystems; establishment (site preparation, selection of seed mixes, planting techniques) and management (fire, mowing, weed control) of native vegetation; evaluation of restorations; emphasis on prairie restoration, wetland vegetation. Prerequisite: an ecology course.
- 00L:161 Introduction to GIS** 4 s.h.
Descriptive and predictive geographic information system (GIS) modeling techniques, spatial statistics, map algebra; application of GIS modeling techniques to environmental planning and resource management.
- 00L:163 Conservation Biology** 4 s.h.
Population- and community-level examination of factors influencing viability of plant and animal populations from demographic and genetic perspectives; assessment of biodiversity; design, management of preserves. Offered summer sessions of odd years. Prerequisite: 00L:031.
- 00L:165 Behavioral Ecology** 4 s.h.
Ecological and evolutionary theories of animal behavior examined through field studies of animal coloniality, courtship, territoriality, predator defense, habitat selection, foraging, mating systems, parental care. Offered summer sessions of even years. Prerequisites: two biological sciences courses.
- 00L:166 Amphibians and Reptiles** 4 s.h.
Ecology, behavior, and conservation biology of amphibians and reptiles, with focus on their anatomy, morphology; temperature and water regulation, locomotion, life history, reproduction, population and community ecology; conservation. Offered summer sessions of even years. Prerequisites: two biological sciences courses.
- 00L:170 Vegetation Restoration and Management** 4 s.h.
Theoretical and practical considerations for development and implementation of vegetation management plans; hands-on experience with varied techniques for restoring and managing natural vegetation, including mowing, burning, grazing, thinning, mechanical and chemical weeding, planting techniques. Prerequisite: an ecology course.
- 00L:175 Soil Genesis and Landscape Relationships** 4 s.h.
Relationships between soil formation, geomorphology, environment; soil description, classification, geography, mapping, interpretation for land use. Offered summer sessions of even years. Prerequisite: 00L:142.
- 00L:199 Undergraduate Research** 1-4 s.h.
Prerequisites: junior or senior standing and consent of instructor.

00L:213 Graduate Independent Study 1-4 s.h.

Prerequisite: consent of instructor.

00L:217 Ecology and Systematics of Diatoms 4 s.h.

00L:240 Natural History Workshop 1-3 s.h.

An aspect of the upper Midwest's natural history, or techniques for studying natural history. Prerequisite: consent of instructor.

00L:250 Graduate Internship 1-5 s.h.

Experience as interpreters, rangers, technicians, and teachers through placement with county conservation boards, camps, parks, schools, other agencies. Prerequisite: consent of instructor.

00L:299 Research 1-4 s.h.

Lifetime Leisure Skills

Director: Wayne Fett

Web site: <http://www.recserv.uiowa.edu/programs/TTE/earth.htm>

Lifetime Leisure Skills courses are open to University of Iowa undergraduate and graduate students. Undergraduates in the College of Liberal Arts and Sciences may count credit earned in Lifetime Leisure Skills toward the 120 s.h. required for a bachelor's degree. Students should consult with their academic advisors.

Courses

410:041 Scuba 1 s.h.
Basics of scuba diving. Taught in Field House pool. Six weeks.

410:042 Introduction to Rock Climbing 1 s.h.
Basics of rock climbing. Taught at Pictured Rocks County Park. Two days.

410:043 Bicycle Touring 1 s.h.
Basics of bicycle touring. Taught on Johnson County area roads.

410:044 Mountain Bicycling 1 s.h.
Basics of mountain bicycling. Taught on Sugar Bottom recreation trail system.

410:045 Leadership in the Outdoors 3-4 s.h.
Leadership theories, group dynamics, permits, outdoor leadership skills; experience as leader for a day during a weeklong wilderness field trip.

410:046 Tae Kwon Do 1 s.h.
Basics of Tae Kwon Do. Eight weeks.

410:047 Kick Boxing 1 s.h.
Basics of kick boxing. Eight weeks.

410:048 Canoeing 1 s.h.
Basics of canoeing. Taught at Macbride Nature Recreation Area. Two days.

410:049 White-Water Kayaking 1 s.h.
Basics of white-water kayaking. Taught in Field House pool, rivers in Wisconsin, Missouri.

410:050 White-Water Canoeing 1 s.h.
Basics of white-water canoeing. Taught on rivers in Wisconsin, Missouri.

410:051 Marathon Training and Racing 1 s.h.
Multiweek training program culminating in the Midwest; for students already running 30-40 miles per week.

410:052 Intermediate Cross-Country Skiing 1 s.h.

410:053 River Canoeing 1 s.h.

410:054 Dog Sledding 1 s.h.
Basics of dog sledding; living in a wood-heated cabin.

410:055 Intermediate Rock Climbing 1 s.h.

Belaying, anchor placement. Prerequisite: 410:042 or consent of instructor.

410:056 Hiking 1 s.h.
Basics of hiking. Taught at Governor Dodge State Park.

410:057 Backcountry Skiing and Snowshoeing 1 s.h.
Basics of backcountry winter travel; living in a wood-heated cabin.

410:058 Basic Self-Defense 1 s.h.
Basics of self-defense.

410:059 Intermediate Tae Kwon Do 1 s.h.
Development of knowledge and skills learned in beginning Tae Kwon Do. Prerequisite: 410:046.

410:060 Ballroom Dancing 1 s.h.
Basics of ballroom dancing.

410:061 Downhill Skiing Instruction, Aspen, Colorado 1 s.h.
Eight 3-hour lectures, five days of instruction on mountain near Aspen, Colorado.

410:062 Trail Running 1 s.h.
Training, clothing, equipment, nutrition.

410:063 Introduction to Nature Photography 1 s.h.
Basics of outdoor photography (no darkroom requirement). Taught at Macbride Nature Recreation Area.

410:064 Basic Orienteering 1 s.h.
Basics of orienteering, including map and compass skills. Taught at Macbride Nature Recreation Area.

410:065 Low-Impact Camping 1 s.h.
Basics of low-impact camping. Taught in overnight camping experience at Macbride Nature Recreation Area.

410:066 Exploring the Loess Hills of Western Iowa 1 s.h.
History of the Loess Hills area of western Iowa; includes a weekend of hiking and camping in the Loess Hills area.

410:067 Team Building Challenge Course 1 s.h.
How to work in a group setting and be responsible group members.

410:068 Wilderness Appreciation 1 s.h.
Basics of wilderness appreciation; one overnight camping experience. Taught at Macbride Nature Recreation Area.

410:069 Basic Snowshoeing 1 s.h.
Basics of snowshoeing. Taught on trails in Wisconsin.

410:070 Intermediate Bicycle Touring, Wisconsin 1 s.h.
Bicycling on roads and trails in and near Sparta and Elroy, Wis.; focus on bike touring skills.

Military Science

Head: LTC Randall Millers

Professor: LTC Randall Millers

Assistant professors: MAJ Dave Pinter, LTC Tony Wolf, CPT Christopher Barker

Web site: <http://armyrotc.com/edu/univia/index.htm>

The Military Science Program administers the Army ROTC program. Although it does not grant degrees, its courses provide students with education in the military's role and instruction in leadership and management. The program gives students who wish to serve on active or reserve status in the armed forces the opportunity to earn commissions as Army officers. It also administers financial assistance and merit scholarships from the U.S. government to qualified students.

The program's curriculum includes classroom lectures, experimental exercises, and direct feedback on leadership skills. The U.S. business community has singled out Army ROTC as the best leadership training program in America. The program's graduates are prepared to lead in the military and in civilian life.

Military Science courses are open to all students. Course credit that counts toward graduation varies by college. Students in the College of Liberal Arts and Sciences may count up to 20 s.h. toward graduation.

Basic Course

The ROTC basic course is designed primarily for first- and second-year students. It provides the fundamentals of leadership and management and introduces the roles of the military as influenced by national and foreign policy. Students incur no obligation to the military for participation in the basic course.

The following courses satisfy the basic course requirement. Some of these courses are prerequisites to others, so students must be careful to take courses in the correct order. Courses 023:101 and 023:102 are prerequisite to 023:103; courses 023:101, 023:102, and 023:103 are prerequisite to 023:104.

023:101 Leadership and Personal Development MSL101	1 s.h.
023:102 Introduction to Tactical Leadership MSL102	1 s.h.

023:103 Innovative Team Leadership MSL103	2 s.h.
023:104 Foundations of Tactical Leadership MSL104	2 s.h.

The basic course requirements may be taken over a one- or two-year period or during a four-week paid summer camp, the Leader's Training Course (LTC), at Fort Knox, Kentucky. Students with prior military training normally are exempt from the basic course requirements.

Advanced Course

The ROTC advanced course is open to any student who meets the prerequisites, but is designed primarily for cadets who wish to pursue a commission as a lieutenant in the U.S. Army upon graduation. It is open to both undergraduate and graduate students. Most cadets in the advanced course incur an obligation to the military that can be satisfied in the Active Army, Army Reserve, or Army National Guard.

To enter the advanced course, students must satisfy the basic course requirements, earn at least 54 s.h., and have a cumulative g.p.a. of at least 2.00. In order to become U.S. Army officers, cadets must complete the Leadership Development and Assessment course (LDAC), a six-week session held at Fort Lewis, Washington. Cadets normally attend LDAC during the summer between their third and fourth years. With the military science professor's permission, cadets may delay LDAC until the summer after their final ROTC class.

A tax-free monthly stipend is provided to cadets who enter a contractual agreement with ROTC to serve in the armed forces. Additional financial assistance may be provided through scholarships or membership in an Army Reserve or Army National Guard unit.

The following courses are the academic requirements for completion of the advanced course. Some of these courses have prerequisites and corequisites, so students must be careful to take courses in the correct order. Prerequisites and corequisites for each course are listed with course descriptions; see "Courses" at the end of this section.

023:090 Leadership Lab	0 s.h.
023:095 Advanced Military Fitness Training	1 s.h.

023:105 Adaptive Tactical Leadership MSL301	3 s.h.
023:106 Leadership in Changing Environments MSL302	3 s.h.
023:107 Developing Adaptive Leaders MSL401	3 s.h.
023:108 Leadership in a Complex World MSL402	3 s.h.

Additional Course Work

Cadets whose aim is a commission must satisfy a Professional Military Education (PME) requirement. They must complete at least one course in military history from the following list. This course may be the same as one used to complete the College of Liberal Arts and Sciences General Education Program. With the military science professor's approval, cadets may use other courses to meet the requirement.

Students earning a degree in nursing or engineering normally are exempt from this requirement.

016:011 Issues in Human History: The Vietnam War in Historical Perspective	3 s.h.
016:014 Issues in Human History: Europe's Expansion Overseas	3 s.h.
16A:153 U.S.A. in a World at War 1931-1945	3 s.h.
16A:162 American Revolutionary Period 1740-1789	3 s.h.
16A:164 Civil War and Reconstruction	3 s.h.
16A:166 The Progressive Era in America	3 s.h.
16A:168 The Contemporary U.S. 1940-Present	3 s.h.
16W:182 The Vietnam War in Historical Perspective	3 s.h.

Other courses may be used to meet the requirement, with approval of the professor of military science.

Financial Aid

Military Science offers two-, three-, and four-year merit scholarships for students who wish to enter the ROTC program. These scholarships pay tuition at The University of Iowa, an allotment for books and supplies each semester, most mandatory educational fees, and a tax-free monthly stipend during the academic year. Scholarships also are available for nursing students who wish to become Army nurses.

The Army Reserve and Army National Guard also provide financial assistance through membership with a unit.

Courses

023:090 Leadership Laboratory 0 s.h.
Hands-on training in basic soldier skills, such as customs and courtesies, drill and ceremony, first aid, weapons employment, troop movement techniques; leadership training for U.S. army officership. Offered fall and spring semesters.

023:095 Advanced Military Fitness Training 1 s.h.
Aerobics and running, muscular strength and endurance, flexibility, and nutrition through exercise and classroom instruction; how to evaluate and measure fitness improvement; developed around Army physical fitness training program. Offered fall and spring semesters.

023:101 Leadership and Personal Development
MSL101 1 s.h.
Introduction to the personal challenges and competencies critical for effective leadership; how skills such as critical thinking, goal setting, time management, physical fitness, and stress management relate to leadership, officership, and the army as a profession; dimensions of army leadership; understanding of the ROTC program, its purpose in the army, its advantages for students. Offered fall semesters.

023:102 Introduction to Tactical Leadership
MSL102 1 s.h.
Leadership fundamentals such as setting direction, problem solving, listening, presenting briefs, providing feedback, using effective writing skills; leadership values, attributes, skills, and actions explored through hands-on, interactive exercises; cadre role models, development of strong relationships among students through common experience, practical interaction. Offered spring semesters.

023:103 Innovative Team Leadership **MSL201** 2 s.h.
Dimensions of creative, innovative tactical leadership strategies and styles explored through team dynamics and historical leadership theories (trait and behavior) central to the Army leadership framework; personal motivation and team building through planning, executing, and assessing team exercises and participating in leadership labs; continued development of leadership values and attributes through understanding army rank, structure, duties, basic aspects of land navigation and squad tactics; case studies on soldier's creed and warrior ethos in the contemporary operating environment. Offered fall semesters. Prerequisites: 023:101 and 023:102, or consent of instructor.

023:104 Foundations of Tactical Leadership
MSL202 2 s.h.
Challenges of leading tactical teams in the complex contemporary operating environment; dimensions of terrain analysis, patrolling, operation orders; theoretical basis of the army leadership framework, dynamics of adaptive leadership in the context of military operations; self-assessment of cadet leadership styles, practice in communication and team building skills; case studies on importance and practice of teamwork and tactics in real-world scenarios. Offered spring semesters. Prerequisites: 023:101, 023:102, and 023:103; or consent of instructor.

023:105 Adaptive Tactical Leadership **MSL301** 3 s.h.
Study, practice, and evaluation of adaptive leadership skills in challenging scenarios related to squad tactical operations; feedback on cadets' leadership attributes and actions, continued development of leadership and critical thinking abilities; development of tactical leadership abilities in preparation for Leadership Development and Assessment Course (LDAC). Offered fall semesters. Prerequisites: 023:101, 023:102, 023:103, and 023:104, or completion of army basic training or Leader's Training Course. Corequisites: 023:090 and 023:095.

023:106 Leadership in Changing Environments MSL302 3 s.h.

Development of cadet awareness and tactical leadership to platoon level, through increasingly intense situational leadership challenges; experience reviewing combat, stability, and support operations; conducting military briefings, developing proficiency in garrison operation orders; focus on exploring, evaluating, and developing skills in decision making, persuasion, and motivation of team members in a contemporary operating environment; preparation for summer Leader Development Assessment Course. Offered spring semesters. Prerequisites: 023:101, 023:102, 023:103, and 023:104, or completion of army basic training or Leader's Training Course; and 023:105. Corequisites: 023:090 and 023:095.

023:107 Developing Adaptive Leaders MSL401 3 s.h.

Development of proficiency in planning, executing, and assessing complex operations, functioning as member of a staff, providing performance feedback to subordinates; experience assessing risk, making ethical decisions, leading fellow cadets; military justice and personnel processes in preparation for officership; identification of key staff responsibilities, coordination of staff roles, use of situational opportunities to teach, train, and develop subordinates. Offered fall semesters. Prerequisites: 023:105 and 023:106. Corequisites: 023:090 and 023:095.

023:108 Leadership in a Complex World MSL402 3 s.h.

Leadership dynamics in complex military operations of the contemporary operating environment; differences in customs and courtesies, military law, principles of war, rules of engagement in the face of international terrorism; interaction with nongovernmental organizations, civilians on the battlefield, host nation support; ethical and practical demands on army commissioned officers; preparation for first unit assignment through case studies, scenarios, exercises. Offered spring semesters. Prerequisites: 023:105, 023:106, and 023:107. Corequisites: 023:090 and 023:095.

023:121 Readings in Contemporary Military Issues 1-3 s.h.

Preparation of book reviews from a reading list provided by the instructor, with topics ranging from historical battles and campaigns to global impact of U.S. political policies; or writing of an operations order relating to an ROTC event or similar project of historical significance (work in conjunction with instructor). Prerequisites: 023:101, 023:102, 023:103, and 023:104, or completion of army basic training or Leader's Training Course.

Museum Studies

Director: Pamela Trimpe

Undergraduate nondegree program: Certificate in Museum Studies

Web site: <http://www.uiowa.edu/~museum>

The University of Iowa has offered courses in museum studies continuously since 1910. Museum Studies Program students have become directors, curators, educators, and exhibit specialists in museums throughout the country. University College provides administrative and program support for museum studies. Both graduate and undergraduate students may take courses offered by the Museum Studies Program; the Certificate in Museum Studies is offered for undergraduate students.

A major in one of the natural sciences (e.g., biological sciences or geoscience), anthropology, science education, art history, American studies, or history is recommended for students preparing for museum careers; see the appropriate department sections (College of Liberal Arts and Sciences) in the Catalog. Undergraduate students may add the museum studies certificate to any of these majors or use the interdepartmental studies major (College of Liberal Arts and Sciences) to design their own plan of study by coordinating course work relevant to their academic concentration areas and professional interests.

Courses offered by the Museum Studies Program provide an introduction to fundamental museological subjects, including background in the history, organization, function, and management of museums as well as experience in exhibition planning and design, collection management, and education outreach development.

Museum studies courses are of value not only to students intending to pursue careers in museums but also to those with related interests in the arts, sciences, or humanities. Museum studies is useful in many career areas, including archaeology, anthropology, history, American studies, communication studies, elementary and secondary education, historic preservation, library science, recreation and leisure, art history and studio art, and science education.

Certificate

The Certificate in Museum Studies requires a minimum of 21 s.h. All students take 024:102 Introduction to Museology (3 s.h.), which provides a historical overview of museum development and function and introduces students to issues such as museum governance and financing, ethics and law, collection management, exhibition and educational programming, interpretation, and audience research. Ideally, this is the first course students take in the certificate program.

Students also select three courses (minimum of 9 s.h.), one from each of the following four categories, and two additional courses (minimum of 6 s.h.), from any of the four categories.

Museum administration and management
History, theory, and culture
Exhibition development and public education
Collection management and care

The Museum Studies Program web site lists courses that count toward the certificate. Students also may request permission to use courses not on the program's list, providing the content of the course and the student's work in the course fits into one of the program's defined areas.

After completing at least 15 s.h. of the foundation course work described above, students complete an internship (minimum of 3 s.h.). The academic coordinator works closely with students and affiliated faculty members to ensure that internships provide students with the instruction and experience they need.

Courses applied toward the museum studies certificate also may be used to complete the College of Liberal Arts and Sciences General Education Program or requirements for a major or minor. However, students may not use more than 6 s.h. of course work applied toward another major, certificate, or minor to complete the requirements of the Certificate in Museum Studies.

Students interested in the museum studies certificate are encouraged to meet with one of the Museum Studies Program directors.

Museum Facilities

The University of Iowa has several excellent museum facilities. The Museum of Natural History, founded in 1858, is the oldest university museum west of the Mississippi River. It houses exhibits on North American and Iowa geology, biological sciences, and Native American cultures.

The University of Iowa Museum of Art houses significant collections of more than 12,000 objects and several outstanding collections, including African and pre-Columbian art, prints, and paintings from the 19th and 20th centuries. The historic building that was Iowa's last territorial and first state capitol from 1842 to 1857 has become the Old Capitol Museum.

Students can gain first-hand experience through supervised internships. They also can learn from a number of smaller collections that are available on campus and in the Iowa City area.

Courses

024:102 Introduction to Museology 3 s.h.

Overview of museum history, function, philosophy, collection and curatorial practices, governance and funding issues, exhibition evaluation, audience studies; American cultural institutions. GE: humanities. Same as 07S:112, 097:115, 113:103, 169:102.

024:104 Exhibition Planning 3 s.h.

The process of developing exhibitions; creative problem solving, interpretative design, defining communication objectives, selecting objects and exhibit media, producing concept drawings, prototyping labels to produce a design brief. Prerequisite: 024:102 or consent of instructor.

024:108 The Image in America 3 s.h.

Same as 16A:108.

024:119 Writing for Interdisciplinary Audiences 3 s.h.

Same as 08N:119, 153:119, 154:119.

024:120 Collection Care and Management 3 s.h.

How a museum's management policy relates to its administrative, legal, and ethical obligations to its collections; acquisitions, deaccessions, collection use, data standards, storage environment, health, safety, documentation. Same as 012:120.

024:147 Nonprofit Organizational Effectiveness I 3 s.h.

Operational and financial aspects of nonprofit management, including organization mission and governance; strategic planning necessary for effective management, including finance, budget, income generation, fund-raising; guest presenters. Offered via Iowa Communications Network. Same as 06J:147, 025:176, 032:127, 042:157, 049:175, 096:168.

024:148 Nonprofit Organizational Effectiveness II 3 s.h.

Foundations of nonprofit institutions, including role, nature, history; tax treatment, political and legislative activities; role of director; officers; fiduciary duties and executive compensation, problems of external regulation, accreditation, ethics; funding, operating, legal issues. Offered via Iowa Communications Network. Same as 06J:148, 025:177, 032:128, 042:158, 049:176, 096:169.

024:150 Directed Studies and Projects arr.

Advanced readings in historical development, educational philosophy, programs, operations of museums; individual projects coordinated with programs, exhibits, or collections of campus and area museums. Prerequisite: 024:102, 024:104, or 024:120.

024:161 Art, Law, and Ethics 3 s.h.

How law and ethics apply to individuals and institutions concerned with the visual arts; personal and professional ethics; communal, national, and international issues, 18th century to present; how creative production is embedded in a social, legal, and moral context; legal and moral questions that spring from visual arts activities; how law and ethics support and constrain the visual arts; group project. Same as 01H:182, 033:175, 091:192.

024:180 Museum Internship arr.

Working experience in functions, departments, programs of the sponsoring museum; relation to museum's overall mission and museum field in general.

024:247 Nonprofit Organizational Effectiveness I 3 s.h.

Same as 06J:247, 021:263, 028:257, 032:227, 042:247, 091:320, 174:247.

024:248 Nonprofit Organizational Effectiveness II 3 s.h.

Same as 06J:248, 021:265, 028:258, 032:228, 042:248, 091:322, 174:248.

Orientation Training

Director: Andrew Cinoman

Web site: <http://www.uiowa.edu/admissions/undergrad/orientation/index.html>

The University of Iowa holds orientation sessions, presented by orientation staff, for all incoming undergraduates. Parents and guardians are invited to attend separate but concurrent programs.

Orientation Training offers the following courses for all student employees who assist the regular staff in presenting orientation programs. Student orientation advisors are required to take 412:077. Parent program assistants are required to take 412:078.

Courses

412:077 Workshop in Orientation Services 2 s.h.

Preparation for the role of student advisor in the Office of Orientation Services; knowledge of academic requirements, policies, and procedures at The University of Iowa; development of leadership, group facilitation, presentation, and academic advising skills. Prerequisite: consent of instructor.

412:078 Orientation Services Parent Training 1 s.h.

Preparation for the role of parent program assistant in the Office of Orientation Services; understanding the needs of parents who attend orientation programs; enhancement of communication, problem solving, and conflict management skills; knowledge of resource units on campus. Prerequisite: consent of instructor.

Patient Care Practicum

Director: Thomas R. Rocklin (Psychological and Quantitative Foundations)

The Patient Care Practicum prepares students for work and/or internships at University of Iowa Hospitals and Clinics (UIHC). Students complete required online training modules through the University's course management system. Once the training modules are completed, students are certified to work at UIHC.

Courses

414:198 UIHC Compliance Training

0 s.h.

Research Experiences for Undergraduates in Microbiology

Web site: <http://www.medicine.uiowa.edu/microbiology/educational/summer.htm>

The Department of Microbiology offers 403:030 Undergraduate Research Fellowship Program, a nine-week summer program for qualified undergraduate students who are studying microbiology or other biological sciences and are interested in pursuing careers in science. Participants conduct research on a project they select, under the direct supervision of a faculty member.

Each participant receives a stipend to pay for housing and food.

Applicants must be U.S. citizens or permanent residents who have completed their sophomore or junior year in a bachelor's degree program in the biological sciences. Applications should include a completed application form and two letters of recommendation. Deadline to apply is mid-February for the following summer.

Visit the program's web site or contact the Department of Microbiology, Carver College of Medicine, for more information.

Courses

403:030 Undergraduate Research Fellowship Program

0 s.h.

Student Information Technology Skills

Director: Mark Hale (Chief Information Office)

Web site: <http://cio.uiowa.edu/events/SWC/default.htm>

Student Information Technology Skills is an intensive program for students interested in creating and maintaining web sites for University of Iowa departments or administrative units. Students are graded on their final project and participation in online and face-to-face discussions. Enrollment requires the instructor's consent. Stipends may be available.

Courses

416:100 Creating Web Sites 2 s.h.

HTML, CSS fundamentals, use of Dreamweaver software for page and site development, web graphics; examination and critique of UI and non-UI web pages; design standards and practices for meeting federal accessibility guidelines; guidance in understanding how to work effectively with campus web customers.

416:101 Topics in Institutional Computing 2 s.h.

Key topics in providing computing support in institutional settings; networking and network services, security, authentication and authorization, e-mail and other enterprise services; policies, law, professional practices; roles and responsibilities of IT workers.

416:102 Core IT Support Skills 2 s.h.

Knowledge and hands-on skills necessary for supporting computers in an institutional setting; basic hardware, operating systems, application, and networking support topics.

Student Services

Director: William R. Nelson

Web site: <http://imu.uiowa.edu/osl/index.php>

Student Services offers an organizational management workshop designed for current and future leaders of the University's fraternity and sorority community. Students learn through lectures, small- and large-group interactive learning activities, and discussion. Enrollment is limited to current and future officers of Iowa's fraternity and sorority community.

Courses

413:075 Introduction to Organizational Management

2 s.h.

Study Abroad

Director: Janis Perkins

Web site: <http://www.uiowa.edu/~uiabroad>

The University of Iowa sponsors or co-sponsors a wide variety of study abroad programs in more than 40 countries. Students may choose from summer, semester, academic year, and winter session programs that complement and extend the University's academic programs across the curriculum.

Students also may participate in study abroad programs sponsored by other accredited U.S. and foreign institutions. They should obtain advance approval of all transfer credit by completing a Study Abroad Credit Approval Form.

Information on University of Iowa and other study abroad programs is available at the Office for Study Abroad.

Courses

165:105 International Student Exchange Program arr.

Study on reciprocal exchange at foreign universities worldwide; some instruction in English. Year-long, one semester, and summer options. Prerequisites: 40 s.h. of credit, g.p.a. of at least 3.00, and in some cases, command of a foreign language.

165:106 UK Exchange Program arr.

Regular degree course work at the Universities of Birmingham, Hull, and Lancaster (England) and the University of Strathclyde (Scotland); humanities, social sciences, physical sciences, business, engineering. Prerequisites: 40 s.h. of credit and g.p.a. of at least 3.00.

165:107 Global Engineering Education Exchange arr.

165:108 Japan Exchange Program arr.

Seven levels of Japanese language and area studies at Nanzan University's Center for Japanese Studies, Nagoya; language and area studies at Nagoya University of Foreign Studies, year or spring; language and culture classes at Kanda University of International Studies, Tokyo; language study or degree course work at Meiji University, Tokyo; area studies and international relations, taught in English, at Tokyo Denki University, School of Information Environment, fall. Prerequisites vary by university.

165:112 The Iowa Exchanges arr.

Choice of several institutions. University of Iceland: anthropology, folklore studies, Icelandic literature, linguistics, earth sciences; semester or year-long program. University of Nijmegen: American studies, English literature, linguistics, international economics, geography, globalization, psychology, and artificial intelligence; all taught in English; semester or year-long. Universidad de las Americas: liberal arts, business, international relations; taught in Spanish; semester or year-long. Fachhochschule Giessen-Friedberg: engineering and related course work; taught in German; semester or academic year. University of Dortmund, Germany: German language and culture for foreigners, regular course work in liberal arts, sciences, engineering, and business; all taught in German; semester or academic year. Korean exchanges:

choice of six universities in Republic of Korea offering Korean language and Korean and/or Asian studies courses, regular university course work in full range of disciplines; taught in English; semester or academic year; course offerings vary by university. University of Szeged Exchange, Szeged, Hungary: Hungarian language, Hungarian and East-Central European studies; taught in English; regular university course work in liberal arts and sciences taught in Hungarian; semester or academic year. Denmark Aalborg Exchange—Aalborg University: regular university course work in communication studies, psychology, and European studies emphasizing economics and politics; taught in English; semester or year-long. Ecole Supérieure de Commerce d'Amiens: graduate and advanced undergraduate course work in business; semester or academic year; proficiency in French and appropriate academic background required. Corvinus University Exchange, Budapest, Hungary: business, economics, and political science courses; taught in English; Hungarian language courses. Tilburg University, The Netherlands: accounting, applied microeconomics, finance, management, international marketing, electronic commerce, and other subjects; taught in English; semester or academic year. Journalism exchange with Mount Royal College, Calgary, Canada; Joetsu exchange, graduate study and research in education at Joetsu University of Education, Japan. L'École HEC (Hautes Etudes Commerciales) School of Management, Jouy-en-Josas, France: regular degree course work in business administration; taught in English and French; French proficiency and honors standing recommended.

165:117 Frankfurt Exchange Program arr.

Regular degree course work in business and economics at Johann Wolfgang Goethe Universität; courses taught in German. Semester or academic year. Arranged through Tippie College of Business. Prerequisites: two years of college German or equivalent, and relevant academic background.

165:119 Vienna Exchange Program arr.

Regular degree course work in business administration and economics at Wirtschatsuniversität in Vienna, Austria; taught in English and German. Semester or academic year. Arranged through Tippie College of Business. Recommended: one year of college German or equivalent.

165:500 Study Abroad 0 s.h.

Students participating in study abroad programs at other U.S. or foreign universities maintain their status at The University of Iowa by registering for this course.

165:501 Study Abroad arr.

165:510 Field Research Abroad arr.

Research projects abroad.

165:520 Ghana Internship Program arr.

Internships in areas related to the student's academic and career objectives; professional experience working in the cultural environment of a developing country.

165:805 Iowa Regents Semester in Wales arr.

University of Swansea, Wales; three-week interdisciplinary course on British life and culture, followed by regular degree course work in the humanities, social sciences, physical sciences, business, engineering. Fall and spring semesters. Prerequisite: g.p.a. of at least 2.80.

165:810 CIEE Spain Program arr.

Several programs in Seville, Alicante, Barcelona, Palma de Mallorca, and Alcala addressing specific language proficiency levels and academic interests. Prerequisites vary.

- 165:811 USAC Studies in Spain** arr.
Intensive Spanish language at beginning level; advanced language, civilization, literature at third-year level; intensive Basque language; some courses taught in English; program sites include Bilbao, San Sebastian, Madrid, Alicante. Prerequisite: g.p.a. of at least 2.50.
- 165:812 CIEE France Program** arr.
Two programs. Contemporary French studies program: language skills for students taking courses on French culture and contemporary civilization; one semester of French required. Critical studies program: critical approach to contemporary French thought in literature, film, philosophy, art, aesthetics, proficiency in French required. Prerequisite: g.p.a. of at least 3.00.
- 165:813 CIEE China Program** arr.
Three programs in the People's Republic of China, one program in Taiwan. Mandarin Chinese, Chinese civilization, area studies, and international relations. Summer, semester, or academic year. Prerequisites and sessions vary.
- 165:814 Iowa in Tianjin** arr.
Chinese language, area studies, and folk art; based at Tianjin University of Technology. Eight weeks in summer. Prerequisite: one to three years of college-level Chinese.
- 165:816 CIC Latin American Health and Nutrition Program** arr.
Interdisciplinary and field-based study with course work in Spanish language, medicine, social sciences, humanities; independent study. Summer and/or fall. Prerequisites: one year of Spanish (summer), or two years of Spanish (summer and fall), or three years of Spanish (fall); and g.p.a. of at least 2.50.
- 165:817 CIC Program in Mexico** arr.
University of Guanajuato; Spanish language, Latin American literature, art, history, anthropology, film, political science; homestays with Mexican families. Summer. Prerequisites: five semesters of Spanish and g.p.a. of at least 3.00.
- 165:818 CIC Program in Quebec** arr.
Laval University; French language, Quebec literature and culture; home-stays with Francophone families or dormitory accommodations. Summer or fall semester. Prerequisites: one year of college-level French and g.p.a. of at least 3.00.
- 165:820 Semester at The Queen's University of Belfast** arr.
Courses at The Queen's University of Belfast, Northern Ireland; nearly 100 subjects, including social sciences and humanities from Irish and Northern Irish perspectives. Prerequisite: g.p.a. of at least 3.00.
- 165:826 Summer Art Program in Italy** arr.
Printmaking and drawing courses in collaboration with the Scuola Internazionale de Grafica; cultural and artistic introduction to Venice and surrounding area; for students at all levels of artistic accomplishment.
- 165:827 Asia Study Tour** arr.
Introduction to history, culture, society, economics, and politics of one or more Asian countries.
- 165:828 ACTR Program Russia** arr.
Russian language programs at institutions in Moscow, Leningrad, or Vladimir; or business language and internship program; or Eurasian language program. One semester of academic year or summer. Prerequisite: three years of college-level Russian or equivalent.
- 165:829 London Performance Study** arr.
Selected theater productions, lectures, performances, discussions, written exercises, workshops, cultural activities. Credit may be applied toward a University of Iowa major in English or theatre arts. Summer.
- 165:831 Elementary Student Teaching Abroad** arr.
Supervised student teaching in an overseas school.
- 165:832 Secondary Student Teaching Abroad** arr.
Supervised student teaching in an overseas school.
- 165:833 Academic Year in Freiburg** arr.
Combination of special program classes, German for foreigners, and regular degree course work in most liberal arts subjects at Albert-Ludwigs University, Freiburg, Germany. Academic year. Prerequisite: at least four semesters college German or equivalent with g.p.a. of at least 3.00.
- 165:834 Environmental Studies in Slovenia** arr.
Short-term course at the School of Environmental Sciences, Nova Gorica, Slovenia; topics vary; taught in English. Offered summer session.
- 165:836 Semester in South India** arr.
Indian civilization and culture; science, technology, and sustainable development; women's studies; Kannada, Hindi or Sanskrit; internship or independent research project. Based in Mysore. Fall semester.
- 165:837 Iowa Regents Semester in Australia** arr.
Regular course work in humanities, social sciences, business, engineering, and physical sciences at the University of Newcastle and the University of Tasmania. Fall and spring semesters. Prerequisites: sophomore standing and g.p.a. of at least 2.50.
- 165:838 Irish Writing Program** arr.
Dublin, Ireland; writing workshops directed by Irish writers, literature courses taught by faculty. Summer.
- 165:839 International Student Exchange Program Direct** arr.
Study at some ISEP member institutions in Brazil, Chile, Costa Rica, Estonia, Ghana, Italy, Malta, The Netherlands, New Zealand, South Africa, Thailand, the United Kingdom; fields and terms vary.
- 165:840 Archaeological Field Work Abroad** arr.
Major salvage archaeology projects in the Netherlands excavating sites from 1000 B.C. to 1950 C.E. Summer.
- 165:841 International Perspectives: Engineering** arr.
Exploration of historical, cultural, social, economic, ethical, environmental, and/or political conditions that may affect engineering projects in a specific country or world region; location and topics vary.
- 165:842 Cross-Cultural Nursing Experience** arr.
Practical experience to build understanding of nursing roles and responsibilities in different cultures and health care systems; for advanced nursing students.
- 165:847 Japan Summer Language Institute** arr.
Development of strong communication skills and cultural awareness through integrated language study and homestay, cultural immersion; Hokkaido, eight weeks. Prerequisite: one semester college-level Japanese or equivalent.
- 165:848 University of KwaZulu-Natal Exchange** arr.
Introduction to South African culture from varied academic perspectives, summer session. Enrollment in regular University courses; fall and spring semesters.
- 165:849 Social Work International Travel/Study Seminar** arr.
Impact of socio/political economy on family and community systems in the country visited; seminars, guest speakers, field visits. Prerequisite: 042:143 or consent of instructor.
- 165:850 USAC Studies in Costa Rica** arr.
Intensive beginning-level Spanish language; advanced language, literature, civilization at third-year level; tropical ecology. Two program sites—Heredia and Puntarenas. Some courses taught in English. Prerequisite: g.p.a. of at least 2.50.

- 165:851 USAC Studies in Chile** arr.
Intensive beginning-level Spanish language; advanced language, literature, civilization at third-year level; area studies. Some courses taught in English. Prerequisite: g.p.a. of at least 2.50.
- 165:852 Study in Cuba** arr.
- 165:853 Creativity Workshop** 3 s.h.
Exercises in creative writing, memoir, drawing, collage, and storytelling to help participants learn how to catch moments of inspiration and develop them, combat writer's block, and trust their individual voices.
- 165:854 Undergraduate International Business Abroad** arr.
Study of the international business environment in one of the world's financial capitals. Course can be counted toward undergraduate business major or international business certificate. Winter and summer. Prerequisites: junior and good academic standing.
- 165:855 Sydney Internship Program** arr.
Internship (approximately 20 hours per week) with an Australian business/organization while taking courses on international business and trade and contemporary Australian culture.
- 165:856 Regents Hispanic Institute** arr.
Study of Spanish language and culture in Valladolid, Spain. Six weeks in summer. Prerequisite: four semesters of college-level Spanish or equivalent.
- 165:858 Summer Geography Program: Oaxaca, Mexico** arr.
Classroom-based instruction with field-based research opportunities; enrollment in Field Research Seminar and two other courses chosen from Culture, People and the Environment, Regional and Economic Development, and Spanish Communication Skills. Summer.
- 165:860 Crossing Borders Field Course** arr.
Hybrid aspects of cultural, economic, and social life in present-day island settings of the post-Colonial English-speaking Caribbean. Winter break. Prerequisite: 16W:051 or appropriate background and interest.
- 165:861 Iowa Summer Program in Brazil** arr.
Relationship between values, ideologies, and symbolic contents in development of areas in which practices of African origin have diversified and enriched Brazilian culture. Summer.
- 165:863 Audiology in China** arr.
Winter session program in Chengdu, China, led by a University of Iowa professor of audiology; lectures, observation, clinical practicum experiences in several hospital settings. Prerequisite: speech and hearing science major.
- 165:865 Iowa Regents Summer Program in France** arr.
Study of French language and culture in Lyon, France. Seven weeks in summer. Prerequisites: four semesters of college-level French and g.p.a. of at least 2.75.
- 165:866 Iowa Regents Semester in Ireland** arr.
Regular course work in all disciplines at University College Cork in Ireland. Fall and spring semesters. Prerequisites: sophomore standing and g.p.a. of at least 3.00.
- 165:867 American College of Thessaloniki Semester** arr.
Undergraduate studies in varied academic disciplines (business administration, history, international relations, psychology, fine arts, literature, philosophy) at the American College of Thessaloniki. Taught in English.
- 165:868 CIEE Latin America Programs** arr.
Course work in social sciences at the FLACSO institutes in Chile or Argentina; humanities curriculum at the Universidad de Buenos Aires and Universidad Católica de Argentina in Argentina, or at the Universidad de Chile, Universidad Católica de Chile, or Universidad de Santiago in Chile. Prerequisites: Spanish proficiency and g.p.a. of at least 2.75.
- 165:869 USAC Studies in France** arr.
Beginning through advanced French language study at the University of Pau; additional courses in French culture, literature, politics, history, and other disciplines. Taught in English and French. No previous study of French required. Prerequisite: g.p.a. of at least 2.50.
- 165:870 Exploring Health Care in Iceland** arr.
Exploration of the health care system and practices in Iceland. Two weeks in summer.
- 165:871 Study Abroad in Montpellier** arr.
Special courses for foreign students at Paul Valéry University; regular courses with French students at University of Montpellier; taught in French. Semester or academic year. Prerequisite: four semesters of French.
- 165:872 USAC Studies in Italy** arr.
Intensive beginning-level Italian; intermediate and advanced language; international business, art, architecture and Italian studies options in Turin; intensive language, humanities, and area studies in Viterbo.
- 165:873 USAC Direct Programs** arr.
Enrollment in a foreign university. Semester or academic year.
- 165:874 Victorian Literary London** arr.
How Victorian poets and novelists used London in their works; exploration of London's complex geography, art galleries and exhibitions, homes of 19th-century writers and artists.
- 165:875 Overseas Writers Workshop** arr.
Opportunity for students to meet with and have their creative nonfiction read and critiqued by prominent host country writers; location varies. Six weeks.
- 165:876 Nagoya University of Foreign Studies Exchange** arr.
Language instruction at all levels and Japanese studies taught in English at Nagoya University of Foreign Studies. Semester or year.
- 165:877 USAC Studies in Mexico** arr.
Universidad Iberoamericana in Puebla: intensive beginning and intermediate Spanish language; advanced language and literature; Mexican studies and Spanish for health care professionals. Summer or semester. Prerequisite: g.p.a. of at least 2.50.
- 165:878 Choral Music in England** arr.
Introduction to English choral music through exploration of history, culture, historic sites, concert halls, and cathedrals of England. Offered by UI School of Music.
- 165:879 Health Promotion in Great Britain** arr.
Health care as offered by Great Britain's National Health Service and private providers, compared to health care delivery systems in the United States.
- 165:880 Spanish Language and Service Learning in Peru** arr.
Spanish language course work (6 s.h.) and 100 hours of service learning in health care, education, social services, development projects, local businesses; Arequipa, Peru. Two months in summer. Prerequisite: two years of college-level Spanish or equivalent.
- 165:881 CIEE Monteverde Tropical Ecology and Conservation** arr.
Rain forest conservation in Monteverde, Costa Rica; intensive tropical fieldwork and science course work, excursions, independent project; homestays with local families. Courses taught in English. Prerequisite: environmental science or biology major.

Summer Medical Scientist Training Program

Web site: <http://www.medicine.uiowa.edu/mstp/sumr>

Courses

405:041 Summer Undergraduate MSTP Research 0 s.h.

The Summer Medical Scientist Training Program (MSTP) is an intensive eight-week experience for undergraduates interested in pursuing combined M.D./Ph.D. training. Participants gain experience in research laboratories and exposure to clinical medicine and medically relevant research in preparation for careers as physician-scientists.

Students conduct research in the laboratory of a biomedical sciences faculty member, shadow physician-scientists in clinical settings, participate in career development seminars, and attend a weekly seminar series focusing on the intersection of science and medicine.

Participants receive a stipend for the program and live on campus in University housing.

Applicants must be U.S. citizens or permanent residents who have completed their sophomore or junior year in a bachelor's degree program in the biological or physical sciences. Applicants should submit an application form (available on the program's web site); an official college transcript; and two letters of recommendation. Application deadline is early February for the following summer.

Contact the Medical Scientist Training Program, Carver College of Medicine, for more information.

University Housing

Assistant director: Kathleen A. Fitzgerald
Web site: <http://housing.uiowa.edu/>

University Housing courses are designed to help students involved in the resident assistant (RA) program become effective RAs. Students learn how to establish healthy student communities in the residence halls, how to confront crises and emergencies, and how to develop leadership skills. Enrollment is open only to students who have been selected to serve as resident assistants.

Courses

- 415:001 Issues in College Residence Halls I** 1 s.h.
Development of knowledge and skills required for work as a resident assistant; creating community, handling crises and emergencies; leadership.
- 415:002 Issues in College Residence Halls II** 1 s.h.
Continuation of 415:001.
- 415:003 Issues in College Residence Halls** 2 s.h.
Content of 415:001 and 415:002 in one semester; development of knowledge and skills required for work as a resident assistant; creating community, handling crises and emergencies; leadership.

University Libraries

Coordinator: Kathy Magarrell

Web site: <http://www.lib.uiowa.edu>

University Libraries offers an activity-based course that develops understanding of how library resources can be used to support individual courses of study. Designed for sophomores, juniors, and seniors, the course introduces students to the basic research process, research conventions in a specific field, and how to integrate information skills and concepts to accomplish course goals.

Subject-specialist librarians use lectures, in-class activities and assignments, and class discussion to present the course material.

Courses

417:001 Library Research in Context 1 s.h.

Academic research, effective use of the library and its resources, basic research methods, process of scholarly communication; content keyed to a discipline-specific course; research conventions of the discipline; students apply concepts and processes to their research projects.

Belin-Blank Center for Gifted Education

Director: Nicholas Colangelo

Web site: <http://www.education.uiowa.edu/belinblank>

The following programs are presented by the Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development. For more information about the center's programs, contact the Belin-Blank Center or visit the center's web site.

Asian and Pacific Studies Institute

The Asian and Pacific Studies Institute is a one-week residential summer program for gifted students in grades 9-11. The institute, a collaborative program of the UI Center for Asian and Pacific Studies and the Belin-Blank Center, provides talented students with an intensive and advanced educational experience designed to enhance intellectual and social growth. It enriches students' understanding of the Asia-Pacific region through examination of key historical and contemporary events and exploration of how other Asian nations have responded to the opportunities and challenges of modernity.

Blank Summer Institute

The Blank Summer Institute for the Arts & Sciences is a two-week residential summer program for gifted Iowa students. Institute participants engage in an intensive and advanced educational experience that enhances their intellectual and social growth. The plan of study complements the regular school curriculum and consists of six courses that cover advanced science, math problem solving, social sciences, creative writing, invention and innovation, and the arts. Institute instructors include outstanding Iowa teachers and University of Iowa faculty and staff.

Cultural and recreational activities are part of the program, and participants have access to the University of Iowa Libraries, computer facilities, and study areas. Housing and meals are provided at University residence halls.

To be eligible for the institute, students must have finished grade 7 or 8 and must be

nominated by their schools. Financial support is available.

Environmental Health Sciences Institute

The Environmental Health Sciences Institute for Rural Youth is a one-week residential summer program that offers talented students an intensive and advanced educational experience designed to enhance their intellectual and social growth. The institute's curriculum was developed by the University of Iowa's Environmental Health Sciences Research Center. Instruction is provided by the center's staff.

The institute's program integrates environmental health sciences topics and research, and provides varied learning activities, including didactic sessions, small-group discussions, laboratories, and field exercises. Students also engage in team-building activities and practical experiences with information technology.

Cultural and recreational activities round out the schedule. Participants have access to the University of Iowa Libraries, computer facilities, and study areas. Housing and meals are provided at University residence halls.

Students from rural communities (population 5,000 or less) who have completed grades 9-11 are eligible to attend the institute. A nomination packet is required.

Foreign Language Summer Institute

The Foreign Language Summer Institute (FLSI) is a one-week summer residential program at The University of Iowa for 16 gifted students in grade 9, 10, or 11. FLSI is a collaborative program between the University of Iowa International Programs and the Belin-Blank Center.

Iowa Governor's Institute

The Iowa Governor's Institute for the Gifted and Talented is a two-week residential summer program that provides exceptionally talented students with an intensive and advanced educational experience designed to enhance their intellectual and social growth. Participants enroll in one course, "Leadership for Students Who Want to Make a Difference."

In addition to academic study, participants enjoy a variety of cultural and recreational activities. They also have access to the University of Iowa Libraries, computer facilities, and study areas. Housing and meals are provided at University residence halls.

To be eligible for the institute, students must be from Iowa and must have finished grade 7 or 8. A nomination packet is required, and financial support is available.

Iowa Talent Project

The Belin-Blank Center and the Des Moines School District collaborate in the Iowa Talent Project (ITP) to identify underrepresented talented and gifted students who are taking upper-level or advanced courses as they progress through secondary school. The project’s goal is to help students recognize their potential and take advantage of rigorous courses of study that challenge them.

Student participants attend a residential summer program at The University of Iowa, which focuses on college preparation. They also enjoy recreational and cultural experiences while they are on campus. The cost of attending the session is covered by the University. Iowa Talent Project students also complete courses at the Des Moines Central Academy and take at least three AP exams.

Upon finishing high school, successful ITP students are admitted to The University of Iowa and are given financial aid based on need and merit. Once enrolled at the University, students must maintain a designated grade-point average while taking approved courses as full-time students and must meet other specified requirements.

Junior Scholars Academy

Students in grade 6, 7, or 8 may attend the Junior Scholars Academy (JSA), a one-week summer residential academic program at The University of Iowa for Belin-Blank Center students. JSA consists of 14 classes over four one-week sessions. Students take a single advanced course for the entire week and may apply for one, two, three, or four sessions.

National Scholars Academy

Students in grade 9, 10, or 11 may attend the National Scholars Academy (NSA), a one-week summer residential academic program at The University of Iowa for Belin-Blank Center

students. NSA consists of nine classes over two one-week sessions. Students take a single advanced course for the entire week and may apply for one or two sessions.

Courses

166:008 Iowa Talent Project	0 s.h.
166:009 Academy for Creative Engineering	0 s.h.
166:010 National Scholars Academy	0 s.h.
166:012 Blank Summer Institute for the Arts and Sciences	0 s.h.
166:031 Junior Scholars Academy	0 s.h.
166:033 Iowa Governor's Institute	0 s.h.
166:034 Advanced Placement Academy	0 s.h.
166:035 Environmental Health Sciences Institute for Rural Youth	0 s.h.
166:036 Wallace Summer Institute	0 s.h.
166:037 Asian and Pacific Studies Institute	0 s.h.
166:038 Academy for Legal Thought and Action	0 s.h.
166:039 Foreign Language Summer Institute	0 s.h.

Iowa Young Writers' Studio

Director: Stephen Lovely

Web site: <http://www.uiowa.edu/~iyws>

Courses

406:001 Iowa Young Writers' Studio

0 s.h.

The Iowa Young Writers' Studio is a two-week summer residential program for high school students who love to write. Students work with experienced writing teachers at the University and build a community of peers.

The studio offers three courses of study: poetry, fiction, and creative writing (a mix of poetry, fiction, and creative nonfiction). Each course consists of a seminar and a workshop. In seminars, students read literature by established writers. In workshops they share their own writing, get feedback from their classmates and teacher, and discuss issues of narrative and form.

The studio offers two 2-week sessions: one in June and one in July.

Young writers who have completed grade 10, 11, or 12 are eligible to attend the studio. Application materials include an application form, a creative writing sample, a statement of purpose, a high school transcript, and a letter of recommendation from an English teacher or another instructor familiar with the applicant's writing. For complete application information, contact the Iowa Young Writers' Studio or visit its web site.

Opportunity at Iowa Summer Programs

Director: Marcella David

Web site: <http://www.uiowa.edu/~provost/oi/index.html>

Opportunity at Iowa offers the following programs for precollege students.

Iowa First Nations

Web site: <http://www.uiowa.edu/~provost/oi/ifn>

The Iowa First Nations Comprehensive Enrichment Program was established to encourage Native Americans of secondary school age to aim for professional careers in the sciences, engineering, and related fields. The Iowa First Nations Program brings Native American students entering grades 9 or 10 to The University of Iowa for a three-week residential summer program that focuses on the environment, microbiology, and the relationship between science and Native American cultures. In addition to course work, students participate in varied social and recreational activities. For more information about Iowa First Nations, contact the Opportunity at Iowa Program.

Life Science Summer Program

Web site: <http://www.uiowa.edu/~provost/oi/lssp>

The Life Science Summer Program (LSSP) provides students who have just completed the eighth or ninth grade the opportunity for hands-on laboratory training and classroom instruction covering a wide range of topics in developmental biology. The curriculum also incorporates health issues and current events. For more information, contact the Opportunity at Iowa Program.

Courses

402:002 Life Science Summer Program	0 s.h.
402:023 Iowa First Nations	0 s.h.

Secondary Student Training Program

Director: William Swain

Web site: <http://www.continuetolearn.uiowa.edu/ccp/summer/sst.htm>

The Secondary Student Training Program provides opportunities for high school students to conduct research in a University of Iowa laboratory under the guidance of a faculty mentor. Students also attend faculty seminars and science communication workshops and participate in social and recreational activities during the six-week program.

Courses

418:001 Secondary Student Training Program 0 s.h.

Experience conducting research under the guidance of a faculty member; presentation of research findings at concluding seminar. Six weeks.

University of Iowa Upward Bound

Director: Jeanne Meyer

Web site: <http://upwardbound.uiowa.edu>

Courses

401:018 Upward Bound Project

0 s.h.

University of Iowa Upward Bound, a division of Support Service Programs, hosts a summer academic program for eligible high school students from five southeast Iowa communities. Upward Bound students who participate in the summer program reside on the University campus for six weeks. They take mathematics, science, language arts, and foreign language courses and participate in extracurricular activities and field trips. Bridge students (those who have graduated from high school) enroll in University course work for the eight-week summer session.

To be admitted to University of Iowa Upward Bound, students must:

- reside in the target area;
- be in the ninth or tenth grade;
- have a family income that meets U.S. Department of Education low-income guidelines;
- be potential first-generation college students; and
- show need for Upward Bound services.

Upward Bound provides services to students until they graduate from high school and enter a postsecondary education program of their choice. Participants receive all services at no cost.

Currently, University of Iowa Upward Bound serves students who attend target schools in Burlington, Columbus Junction, Davenport, Fort Madison, Muscatine, and West Liberty, Iowa. Other postsecondary institutions in Iowa also sponsor Upward Bound programs. High school students who do not attend target schools located in the communities served by The University of Iowa's program should ask their counselors whether an Upward Bound program serves their area.

For more information, contact University of Iowa Upward Bound, The University of Iowa.

Continuing Education

Dean: Chet S. Rzonca

Web site: <http://www.continuetolearn.uiowa.edu>

The Division of Continuing Education increases access to the services and resources of The University of Iowa. In partnership with the University's colleges and departments, the division provides high-quality credit and noncredit courses, workshops, and programs to traditional and nontraditional learners. Using a variety of locations, schedules, and technologies, including audiovisual and video services, the division helps provide a University of Iowa learning environment beyond the physical borders of campus.

The division's organization and services include the following.

Center for Conferences and Institutes

Director: Jo Dickens

Web site: <http://www.uiowa.edu/~confinst>

The Center for Conferences and Institutes (CCI) is the University's principal agency for initiating, coordinating, conducting, and supporting noncredit continuing education programs. The center also serves as the University of Iowa's Continuing Education Unit (CEU) database.

CCI coordinates conferences for University faculty, departments, colleges, administrative units, student groups and related academic societies, professional associations, and other groups sponsored by the University.

CCI provides logistical management and administration of conferences; program content is designed by the unit presenting the conference. The center uses conference facilities on the University of Iowa campus, as well as those located in Iowa City and Coralville, statewide, and nationwide. CCI also manages national and international programs for University faculty

members and departments. For more information, visit the Center for Conferences and Institutes web site.

Center for Credit Programs

Director: Doug Lee

Web site: <http://www.continuetolearn.uiowa.edu/ccp>

The Center for Credit Programs works with University of Iowa colleges and academic departments to offer for-credit courses in a variety of formats and schedules. Courses are offered on and off campus; formats include distance education and independent study. Courses may be open to University of Iowa students and to persons not formally admitted to a degree program. For more information, contact the Center for Credit Programs or visit its web site.

Saturday & Evening Classes

Web site: <http://www.continuetolearn.uiowa.edu/ccp/sande>

The Center for Credit Programs sponsors University courses on campus at times convenient for part-time or nontraditional students. Undergraduate and graduate course work is available in a wide range of academic disciplines. For more information, contact the Center for Credit Programs.

Summer and Winter Sessions

Director: Doug Lee

Web sites: <http://www.continuetolearn.uiowa.edu/ccp/summer>
<http://www.continuetolearn.uiowa.edu/ccp/winter>

The University of Iowa conducts a summer session through the Center for Credit Programs with terms of three, six, and eight weeks. Classes also are offered outside these normal summer session terms. A three-week winter session is offered during the break between the fall and spring semesters.

During the summer and winter sessions, students can take undergraduate and graduate course work. Classes during these sessions are taught mainly by University of Iowa faculty members, so students receive the same first-rate instruction provided during the spring and fall semesters. Courses are offered in a variety of formats both on and off campus. They are open to University of Iowa students and to persons not formally admitted to a degree program.

Distance Education Programs and Courses

Web site: <http://www.continuetolearn.uiowa.edu/ccp/de>

The Center for Credit Programs sponsors courses via several distance education formats.

Guided Independent Study courses are available through some 40 University departments. Students may enroll at any time, work at their own pace, and take up to nine months to complete a course. For a catalog providing course listings (including courses offered via the World Wide Web), procedures, and enrollment information, contact the Center for Credit Programs or visit the Guided Independent Study web site.

University extension classes are scheduled where they best serve off-campus students, at the request of public school officials, and/or where professional, business, industrial, or other qualified groups express a need for instruction. The center also sponsors courses via the Iowa Communications Network, microwave television, the Internet, and other technologies. For more information, contact the Center for Credit Programs or visit its web site.

Bachelor of Liberal Studies

Web site: <http://www.continuetolearn.uiowa.edu/ccp/bls>

The Bachelor of Liberal Studies (B.L.S.) is a baccalaureate degree offered by each of the three Board of Regents, State of Iowa universities (The University of Iowa, Iowa State University, and the University of Northern Iowa). It serves adults whose job, family, geographic location, or other personal circumstances prevent them from attending college as full-time, on-campus students. The program does not have a campus residence requirement.

Students may earn credit toward the degree in courses offered through the Center for Credit Programs, via campus-based or distance

education formats, or through daytime on-campus courses.

At The University of Iowa, the B.L.S. is awarded by the College of Liberal Arts and Sciences and administered by the Division of Continuing Education. For a more detailed program description, see Liberal Studies (College of Liberal Arts and Sciences) in the Catalog or visit the Center for Credit Programs web site.

Bachelor of Applied Studies

Web site: <http://www.continuetolearn.uiowa.edu/ccp/bas>

The Bachelor of Applied Studies (B.A.S.) is a baccalaureate degree designed for nontraditional students who are graduates of community college technical programs and wish to complete a bachelor's degree without interrupting their careers. Applicants should have a minimum of three years of work experience.

Students may earn credit toward the degree in courses offered through the Center for Credit Programs, via campus-based or distance education formats, or in daytime on-campus courses.

At The University of Iowa, the B.A.S. is awarded by University College and administered by the Division of Continuing Education. For a more detailed program description, see Applied Studies (University College) in the Catalog or visit the Center for Credit Programs web site.

Center for Media Production

Director: Daniel G. Lind

Web site: <http://ui.media.uiowa.edu>

The Center for Media Production provides professional services for development of media programs and materials that support the University's educational and promotional needs. It collaborates with University of Iowa faculty and staff members, offering consultation, planning, design, development, and marketing services. The center has received more than 40 major awards, including a regional Emmy, CINE Golden Eagles, and New York Festival World Medals.

The Center for Media Production provides the following services.

Video: The center designs and develops video programs and promotional messages and authors interactive media (DVD and CD-ROM). It offers

film-style video production; digitizing of video for web use; video editing, special effects creation, electronic graphics, art, and animation; transfer of 16mm film to video; and videotape and DVD duplication, including conversion to or from world television standards.

Photography: The center's staff provides location photography and printing services for promotions, portraits, conferences, summer camps, University administrators, visiting dignitaries, University events, University construction projects, and more. In-house processing and printing is available for black-and-white images and for color digital images of all sizes. Copy photography services include copying and enhancement of rare negatives and photos. The center also maintains an extensive archive of University of Iowa historical photos.

Audio: The center offers a wide range of professional services, including audio recording on location or in a studio sound stage, editing and sound mixing, audio noise reduction, and duplication of audiotapes and CDs. Projects include instructional and exam materials, radio programs, video soundtracks, audio for web courses and applications, and recording and editing of student audition tapes and faculty solo performances.

Graphics: Artistic services are available for development of posters and portable displays; large permanent displays; web site enhancements; lamination, certificates, and maps; and creation of designs, calligraphy, illustrations, conference materials, and University signs. Each year, the graphics staff designs and builds the University's 1,200-square-foot Iowa State Fair exhibit. The center also offers portable display units for rent by traveling faculty and staff.

Media publishing and marketing: The center markets and distributes media products originated at the University. Royalties are paid to sponsoring University departments and authors.

Labor Center

Director: Daniel J. Holub

Web site: <http://www.continuetolearn.uiowa.edu/laborctr>

The University of Iowa Labor Center provides educational and research services to Iowa trade unionists. The center offers a wide range of continuing and distance education programs on citizenship, collective bargaining, economics, globalization and human rights, grievance and

arbitration, labor and employment law, labor history, organization building and strategic planning, union leadership and administration, public policy, workplace health and safety, worker participation, and other areas relevant to union members. Courses are offered both on and off campus at times and locations convenient to working adults. The Labor Center also provides research assistance and technical information.

Institute of Public Affairs

The Institute of Public Affairs provides services and information to help officials maintain and strengthen the effectiveness of Iowa's state and local governments. The institute offers the following educational programs, information, and publications for Iowa citizens and government leaders.

Strategic planning for councils and boards: facilitation and expert guidance for policy leadership groups determining goals and priorities

Municipal Leadership Academy: an extensive training program for newly elected city council members and mayors

Iowa Municipal Management Institute: conference for city and county administrators

Municipal Policy Leaders' Handbook: basic guide for mayors and council members in Iowa

Administrative Officers

Board of Regents, State of Iowa

The Board of Regents, State of Iowa, governs The University of Iowa, Iowa State University of Science and Technology, the University of Northern Iowa, the Iowa Braille and Sight-Saving School, and the Iowa School for the Deaf. The Board consists of nine members.

President: Michael G. Gartner, Des Moines
Amir I. Arbisser, Davenport
Mary Ellen Becker, Oskaloosa
Tom W. Bedell, Spirit Lake
Robert N. Downer, Iowa City
Ruth R. Harkin, Cumming
Jenny Rokes, Cedar Falls
Rose Vasquez, Des Moines
Teresa Wahlert, West Des Moines

Executive director: Gary Steinke

Central Administration

Interim president: Gary C. Fethke

Executive vice president and provost:
Michael J. Hogan

Senior vice president and university treasurer:
Douglas K. True

Vice president for research: Meredith Hay

Vice president for student services and dean of students: Phillip E. Jones

General counsel: Marcus Mills

Special assistant to the president for equal opportunity and diversity and associate provost, and director of Opportunity at Iowa:
Marcella David

University ombudspersons: Cynthia Joyce,
Craig Porter

University relations director: Steven R. Parrott

Office of the Provost

Provost and executive vice president:
Michael J. Hogan

Vice provost: Patricia A. Cain

Associate vice president and director of administration and planning: Don J. Szeszycki

Associate provost for faculty: Susan R. Johnson

Associate provost for graduate education and dean of the Graduate College: John C. Keller

Associate provost for undergraduate education and dean of University College:
Thomas R. Rocklin

Associate provost and dean of international programs: William M. Reisinger

Associate provost and dean of continuing education: Chet S. Rzonca

Assistant provost for enrollment services and director of admissions: Michael Barron

Assistant provost for enrollment services and director of academic advising: Pat J. Folsom

Assistant provost for enrollment services and university registrar: Lawrence J. Lockwood

Assistant provost for enrollment services and director of student financial aid: Mark S. Warner

Henry B. Tippie College of Business
Dean: William C. Hunter

College of Dentistry
Dean: David C. Johnsen

College of Education
Dean: Sandra B. Damico

College of Engineering
Dean: P. Barry Butler

Graduate College
Dean: John C. Keller

College of Law
Dean: Carolyn C. Jones

College of Liberal Arts and Sciences

Dean: Linda Maxson

Roy J. and Lucille A. Carver College of Medicine

Dean: Jean E. Robillard

College of Nursing

Interim dean: Martha J. Craft-Rosenberg

College of Pharmacy

Dean: Jordan L. Cohen

College of Public Health

Dean: James A. Merchant

University College

Dean: Thomas R. Rocklin

Division of Continuing Education

Dean: Chet S. Rzonca

Academic Advising Center

Director: Pat Folsom

Admissions

Director: Michael Barron

Center for Credit Programs

Director: Douglas J. Lee

Center for Teaching

Director: Norbert J. Pienta

Information Technology Services

*University chief information officer and
associate vice president:* Steven R. Fleagle

International Programs

Dean and associate provost:
William M. Reisinger

International Writing Program

Director: Christopher Merrill

Libraries

University librarian: Nancy L. Baker

Museum of Art

Director: Howard C. Collinson

Office of the Registrar

University registrar: Lawrence Lockwood

Opportunity at Iowa

Director: Marcella David

Student Financial Aid

Director: Mark S. Warner

University Evaluation and Examination Service

Director: Joyce E. Moore

University of Iowa Press

Director: Holly Carver

Women in Science and Engineering

Director: Christine P. Brus

Research

Vice president: Meredith Hay

Senior associate vice president: David Wynes

Associate vice president: Francois M. Abboud

*Associate vice president for research and special
assistant to the president for governmental
relations:* Derek H. Willard

*Associate vice president for research, economic
development:* Thomas Sharpe

*Associate vice president for research,
development for arts, humanities, and social
sciences:* Jay M. Semel

*Associate vice president for research,
development for biological, mathematical, and
physical sciences:* Richard Hichwa

Senior associate counsel: Grainne P. Martin

*Assistant vice president and director, sponsored
programs:* Twila Fisher Reighley

Conflict of interest and research integrity officer:
Richard Hichwa

Animal Resources

Director and university veterinarian:
Paul S. Cooper

Clinical Trials Office

Director: Charlotte Talman

Corporate Partnerships

Director: Diane Gallagher

Health Protection Office

Director: James C. Walker

Human Subjects Office

Director: Martha F. Jones

Hygienic Laboratory

Director: Mary J.R. Gilchrist

Oakdale Research Campus

Oakdale Research Park

Associate director: Tom Bauer

Obermann Center for Advanced Studies

Director: Jay M. Semel

Office of the State Archaeologist

Interim director: Stephen C. Lensink

Pentacrest Museums (Museum of Natural
History, Old Capitol Museum)

Director: Pamela Trimpe

Public Policy Center

Director: David J. Forkenbrock

Sponsored Programs

Director: Twila Fisher Reighley

Technology Innovation Center

Associate director: Tom Bauer

University of Iowa Research Foundation

Executive director: Pamela K. York

Student Services

Vice president for student services and dean of students: Phillip E. Jones

Assistant vice president: Belinda Lantz Marner

Associate dean of students: Thomas R. Baker

Alumni Association

President: Vincent C. Nelson

Hancher Auditorium

Artistic director: Judith Hurtig

Executive director: Charles Swanson

Recreational Services

Director: Harry R. Ostrander

Student Disability Services

Director: Dau-shen Ju

Student Health Educational Services

Director: Mary Khowassah

Support Service Programs

Director: Sheila K. Vedder

University Counseling Service

Director: Sam V. Cochran

University Housing

Director: Von Stange

University Life Centers/Iowa Memorial Union

Director: David L. Grady

Women's Resource and Action Center

Director: Monique DiCarlo

Finance and Operations

Senior vice president and university treasurer: Douglas K. True

Associate vice president: Dennis Domsic

Associate vice president and director, facilities services group: Donald Guckert

Associate vice president and director, human resources: Susan Buckley

Assistant vice president and director, business services: Mary Jane Beach

Assistant vice president and director, public safety: Charles Green

Assistant vice president and university controller: Terry L. Johnson

Tax manager and director of environmental compliance: Andrew Ives

University business manager: George Hollins

Director, treasury operations: Cynthia Bartels

Director, financial management and budget, and university secretary: Douglas M. Young

Health Care**Center for Disabilities and Development**

Director: Dennis C. Harper

Child Health Specialty Clinics

Director: Jeffrey G. Lobas

Health Science Relations

Associate dean for communications and advancement: Steven Maravetz

Roy J. and Lucille A. Carver College of Medicine

Dean: Jean E. Robillard

Student Health Service

Director: Mary L. Khowassah

University of Iowa Hospitals and Clinics

Director and chief executive officer:

Donna M. Katen-Bahensky

University of Iowa Foundation

President: Lynette L. Marshall

University Relations

Director: Steven R. Parrott

Associate director, marketing communications: Scott A. Ketelsen

Associate director, public affairs and media relations: Linda S. Kettner

Faculty

The following persons held University of Iowa faculty appointments with the rank of instructor, assistant professor, associate professor, or professor JUNE 28, 2006. In this listing, the year of first appointment follows the departmental identification, and the year of present appointment is given in parentheses.

- Abbas, Paul J.**, BS Massachusetts Inst of Technolo, 1969, PHD Johns Hopkins, 1974; *Professor, Speech Pathology & Audiology/Otolaryngology-Head & Neck Surgery*, 1974 (1984)
- Abbott, Linda I.**, BSN University of Iowa, 1980, MSN Iowa, 1996; *Adjunct Clinical Instructor, Nursing*, 2000 (2000)
- Abboud, Francois**, BS Christian Brothers' Schl-Egypt, 1948, PNS Cairo, 1949, MBCHB Ain Chams-Egypt, 1955, MBCHB Ain Chams-Egypt, 1955; *Professor, Internal Medicine/Physiology*, 1961 (1968)
- Abdel-Malek, Karim**, BS JORDAN, 1988, MS PENNSYLVANIA, 1990, PHD PENNSYLVANIA, 1993; *Associate Professor, Biomedical Engineering*, 1994 (2001)
- Abdo, Yvonne Marie**, BSN MERCY COLLEGE OF DETROIT, 1970, MSN WAYNE STATE, 1972, PHD MICHIGAN, 1987; *Adjunct Assistant Professor, Nursing*, 2003
- Abiose, Ademola K.**, MBBS Lagos, 1985;
- Abrahamson, Timothy Garth**, BA WARTBURG, 1993, MD IOWA, 1997; *Adj Clinical Asst Professor, Dermatology*, 2002
- Abramoff, Michael David**, MS Amsterdam, 1989, MD Amsterdam, 1994, PHD University of Utecht, 2001;
- Abramowitz, Paul W.**, BA Indiana, 1972, BS Toledo, 1977, PHAR Michigan, 1979; *Professor, Pharmacy*, 1998 (1998)
- Abu-Hasan, Mutasim N.**, MBBS Jordan, 1991; *Assistant Professor(Clinical), Pediatrics*, 2000 (2000)
- Abu-Yousef, Monzer M.**, MBCHB Cairo-Egypt, 1970; *Professor, Radiology*, 1976 (1991)
- Acarregui, Michael J.**, BA Oregon, 1981, MD Oregon, 1985; *Associate Professor, Pediatrics*, 1991 (1999)
- Achepohl, Keith A.**, BA Knox, 1956, MFA Iowa, 1960; *Professor Emeritus, Art & Art History*, 1973 (1981)
- Achutan, P Chandran**, BSC SAINS MALAYSIA, 1991, MS IOWA, 1996, PHD IOWA, 2001; *Adjunct Assistant Professor, Occupational & Environmental Health*, 2002
- Ackelson, Susan Jane**, BA NORTHERN IA, 1972, MSW IOWA, 1993; *Adjunct Instructor, Social Work*, 2004
- Acton, Patricia Jo Nassif**, BA IOWA, 1971, JD IOWA, 1974; *Adjunct Clinical Professor*, , 1981 (1985)
- Adamek, Mary**, BM Virginia Commonwealth, 1977, MM Miami, 1981, PHD Minnesota, 1993; *Associate Professor(Clinical), Music*, 1996
- Adams, Brian D.**, BS Nebraska, 1978, MD Nebraska, 1982; *Professor, Orthopaedics and Rehabilitation*, 1992 (1996)
- Adams, Charlotte**, BA Appalachian State, 1976, MA Arizona, 1984, MFA Arizona, 1995; *Associate Professor, Dance*, 1998 (2003)
- Adams, Harold P.**, BA Drake, 1966, BS South Dakota-Vermillion, 1968, MD Northwestern, 1970; *Professor, Neurology*, 1976 (1985)
- Adams, Lafayette B.**, BA Duke, 1985, MA Virginia, 1987, PHD Virginia, 1993; *Associate Professor, English/American Studies*, 1994 (2001)
- Adams, Molly M.**, PHARMD DRAKE, 1999;
- Adams, Russell**, MD IOWA, 1979; *Adj Clinical Assoc Professor, Internal Medicine*, 2000 (2004)
- Adams, Sarah Margaret**, BA Wellesley, 1994, MA Yale, 1997; *Assistant Professor, Art & Art History/International Programs-Grants*, 2001 (2002)
- Adamson, Timothy L.**, BA CHICAGO, 1988, MA Wesley Theological Seminary, 1994, PHD Oregon, 2002;
- Adcock, Craig**, BFA Colorado, 1971, MA University of Colorado, 1974, PHD Cornell University, 1981; *Professor, Art & Art History*, 1994 (2001)
- Addis, Laird C.**, BA Iowa, 1959, MA Brown, 1960, PHD Iowa, 1964; *Professor Emeritus, Philosophy*, 1963 (1974)
- Adolphs, Ralph**, BSC Stanford, 1986, MSC Stanford, 1986, PHD California Technology of Tech, 1992; *Associate Professor, Neurology/Surgery*, 1997 (2003)
- Adrain, Jonathan M.**, BS Alberta, 1989, PHD Alberta, 1993; *Associate Professor, Geoscience*, 1999 (2004)
- Adrain, Tiffany Sara**, BA EXETER, 1988, BS LONDON, 1995, MS IOWA, 2003; *Adjunct Instructor, Geoscience*, 2004
- Afiñ, Adel Kasim**, BA American University of Beirut, 1951, MD American University of Beirut, 1957, MS Iowa, 1965; *Professor, Pediatrics/Anatomy & Cell Biology/Neurology*, 1973 (1980)
- Agrawal, Yashpal D.**, MBBS Baroda, 1983, PHD Kuopio, 1987; *Assistant Professor, Pathology*, 2001 (2001)
- Agrell, Jeffrey**, BA ST OLAF, 1970, MM WISCONSIN, 1974; *Assistant Professor, Music*, 2000 (2000)
- Aguiar, Agustin**, BS Emory, 1978, MD Univ Autonoma de Guadalajara, 1982; *Assistant Professor(Clinical), Program in Emergency Medicine*, 1988 (1995)

- Ahmed, Azeemuiddin**, BA Augustana, 1996, MD IOWA, 2000;
- Ahn, Joong**, MD SEOUL NATIONAL, 1989, MS SEOUL NATIONAL, 1994, PHD SEOUL NATIONAL, 1999;
- Ahrens, Richard C.**, BS Wisconsin-Madison, 1969, MD Medical College of Wisconsin, 1973, MS Iowa, 1980; *Professor, Pediatrics, 1980 (2002)*
- Aikin, Judith P.**, BA Oregon, 1968, MA Oregon, 1969, PHD California-Berkeley, 1974; *Professor, German, 1975 (1988)*
- Ajluni, Nader**, DO OSTEOPATHIC MEDICINE, 1985; *Adj Clinical Asst Professor, Pediatrics, 1999 (1999)*
- Akbar, Raja M.**, MD KING EDWARD MEDICAL, 1971; *Adj Clinical Asst Professor, Psychiatry, 1999 (1999)*
- Akridge, Jay Taylor**, BS MURRAY STATE, 1982, MS PURDUE, 1983, PHD PURDUE, 1986;
- Aksan, Nazan Suheyla**, BS IOWA, 1993, PHD WISCONSIN, 2001;
- Al-Shawwa, Baha'Uddin A.**, MD University of Jordan, 1995;
- Albers, Gary Ronald**, BS IOWA, 1975; *Adjunct Instructor, Pharmacy, 1997 (1997)*
- Albonetti, Celesta A.**, BA Missouri-St. Louis, 1973, MA Missouri-St. Louis, 1975, PHD Wisconsin-Madison, 1984; *Professor, Sociology/, 1998 (2000)*
- Albrecht, William P.**, AB Princeton, 1956, MA South Carolina, 1962, MA Yale, 1963, PHD Yale, 1965; *Professor, Economics/International Programs-Grants, 1965 (1982)*
- Albright, John P.**, BA Illinois, 1963, MD Loyola, 1967; *Professor, Orthopaedics and Rehabilitation/Exercise Science, 1972 (1981)*
- Alderton, Megan Elaine**, PHARMD DRAKE, 2001; *Adjunct Assistant Professor, Pharmacy, 2003*
- Alessi, Stephen M.**, BA ROCHESTER, 1973, MA ILLINOIS, 1976, PHD ILLINOIS, 1979; *Associate Professor, Psych & Quant Foundations, 1982 (1988)*
- Alexander, Bruce**, BS Drake, 1974, PHARMD Minnesota, 1976; *Professor(Clinical), Pharmacy/Psychiatry, 1976 (2000)*
- Alexander, Saramma J.**, MBBS CHRISTIAN MED SCHOOL-INDI, 1965; *Adj Clinical Asst Professor, Internal Medicine, 1979 (1979)*
- Algan, Ece**, BS ISTANBUL TEKNIK, 1994, MA MARMARA, 1996, PHD Ohio University, 2003; *Assistant Professor, Communication Studies, 2002*
- Ali, Saba Rasheed**, BA WEST VIRGINIA, 1992, MA LOLOYA, 1996, PHD OREGON, 2001; *Assistant Professor, Psych & Quant Foundations, 2003*
- Ali, Sheharyar**, FSC Sir Syed College, Rawalpindi, 1991, MBBS King Edward Medical College, 1997; *Adj Clinical Asst Professor, Internal Medicine, 2003 (2003)*
- Alipour-Haghighi, F**, BS TEHRAN, 1971, MS TEHRAN, 1971, PHD IOWA, 1981; *Adjunct Professor, Speech Pathology & Audiology, 1985 (2004)*
- Allbaugh, Laurie Beth**, BS IOWA, 1978; *Adjunct Instructor, Pharmacy, 2002*
- Allen, Daniel P.**, MD IOWA, 1983; *Adj Clinical Asst Professor, Internal Medicine, 1987 (1989)*
- Allen, John S.**, BA St. Olaf, 1977, JD Illinois, 1980; *Adj Clinical Assoc Professor, 1991 (1991)*
- Allen, Larry L.**, MSW IOWA, 1977; *Adjunct Assistant Professor, Social Work, 1987 (1996)*
- Allen, Lee-Ann**, BS California-Riverside, 1982, MS California-Riverside, 1983, PHD Wisconsin-Madison, 1990; *Associate Professor, Internal Medicine/Microbiology, 1996 (2003)*
- Allyn, Jeffery Lynn**, MD TULANE, 1985; *Adj Clinical Asst Professor, Family Medicine, 2001 (2001)*
- Almen-Whittaker, Susan**, BA GUSTAVUS ADOLPHUS, 1993, MA WISCONSIN, 1998; *Adjunct Instructor, Linguistics, 2000 (2000)*
- Alonzo, Alicia Cristina**, BS Cornell, 1993, MS California Inst of Technology, 1995, PHD California Inst of Technology, 1999;
- Altmaier, Elizabeth M.**, BA WHEATON, 1973, MA OHIO STATE, 1975, PHD OHIO STATE, 1977; *Professor, Psych & Quant Foundations/Community & Behavioral Health, 1980 (1989)*
- Altman, Charles**, AB DUKE, 1966, MA DUKE, 1966, PHD YALE, 1971; *Professor, Cinema & Comparative Literature, 1974 (1986)*
- Altman, Janet G.**, BA Duke, 1967, MPH Yale, 1970, PHD Yale, 1973; *Professor Emeritus, French & Italian, 1974 (1991)*
- Alton, Donald A.**, BA RICE, 1965, PHD CORNELL, 1970; *Professor Emeritus, Computer Science, 1970 (1981)*
- Alton, Everett D.**, BA IOWA STATE TEACHERS, 1939, MSEE IOWA, 1955; *Associate Professor Emeritus, Electrical-Computer Engineering, 1955 (1967)*
- Alward, Wallace L.**, BA Kenyon, 1973, MD Ohio State, 1976; *Professor, Ophthalmology & Visual Science, 1987 (1996)*
- Amad, Paula T.**, BA MELBOURNE, 1990, MA MELBOURNE, 1990, PHD CHICAGO, 2002; *Assistant Professor, Cinema & Comparative Literature, 2004*
- Amada, Kenneth**, *Professor Emeritus, Music, 1967 (1976)*
- Amendola, Annunziato**, BS Western Ontario, 1980, MD Western Ontario, 1984; *Professor, Orthopaedics and Rehabilitation/Exercise Science, 2001 (2004)*
- Amert, Kay L.**, BGS Iowa, 1972; *Professor, Journalism & Mass Communication, 1972 (1994)*
- Amos, James John**, BS Iowa State, 1985, MD Iowa, 1992; *Associate Professor(Clinical), Psychiatry, 1996*
- An, Hyonggin**, BS Korea, 1996, MS Chicago, 1998, PHD Michigan, 2004;
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- Henderson, Scott Thomas**, BA MISSOURI, 1983, MD MISSOURI, 1984; *Adj Clinical Assoc Professor, Family Medicine, 2003 (2003)*
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- Herbert, Kelly Christine**, PHARMD IOWA, 2003;
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- Herman, Craig**, PHARMD IOWA, 2002; *Adjunct Assistant Professor, Pharmacy, 2003*
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- Herman, Ted**, BS Nebraska, 1975, PHD Texas-Austin, 1991; *Associate Professor, Computer Science, 1991 (2000)*
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- Woodman, Catherine L.**, BA Brown, 1981, MD Brown, 1985; *Associate Professor, Psychiatry/Family Medicine, 1990 (2000)*
- Woodworth, George**, BA Carleton, 1962, PHD Minnesota, 1966; *Professor, Statistics & Actuarial Science/Biostatistics, 1971 (1996)*
- Woodridge, James Edward**, AB WILLIAM JEWELL, 1988, MD TULANE, 1992; *Assistant Professor, Internal Medicine, 2002*
- Woolson, Robert F.**, BA DELAWARE, 1967, PHD NORTH CAROLINA, 1972; *Professor Emeritus, Biostatistics/Statistics & Actuarial Science/Epidemiology, 1972 (1981)*
- Workman, Douglas M.**, MD IOWA, 1989; *Adj Clinical Asst Professor, Family Medicine, 1995 (2001)*
- Worrell, James Blaise**, BA IOWA, 1964, MD IOWA, 1967; *Associate Professor(Clinical), Neurology, 2001 (2001)*
- Wrenn, Douglas Edward**, BS IOWA, 1981; *Adjunct Instructor, Pharmacy, 1997 (1997)*
- Wright, Arlene**, BSPH DRAKE, 1981; *Adjunct Instructor, Pharmacy, 1997 (1997)*
- Wright, Diana Lee**, MD IOWA, 1978; *Adjunct Clinical Instructor, Internal Medicine, 2001*
- Wright, Kaye L.**, BSPH DRAKE, 1980; *Adjunct Instructor, Pharmacy, 1997 (1997)*
- Wu, Chun-Fang**, BS Tunghai-Taiwan, 1969, PHD Purdue, 1976; *Professor, Biological Sciences, 1979 (1989)*

- Wu, Han-Chin**, BS National Taiwan, 1960, MS Rhode Island, 1965, MS Yale, 1967, PHD Yale, 1970; *Professor, Civil-Environmental Engineering/Mechanical Engineering, 1970 (1981)*
- Wu, Shih-Yen**, *Professor Emeritus, Economics, 1964 (1968)*
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- Wu, Ying-Qing**, BS Hehai-China, 1982, MS Beijing-China, 1984, PHD Beijing-China, 1987; *Professor, Mathematics, 1993 (2001)*
- Wulf, Joel D.**, BA IOWA, 1978, MSW IOWA, 1992; *Adjunct Instructor, Social Work, 2003*
- Wunder, Charles C.**, AB WASHINGTON & JEFFERSON, 1949, MS PITTSBURGH, 1952, PHD PITTSBURGH, 1954; *Professor Emeritus, Physiology, 1954 (1971)*
- Wurster, Dale E.**, BS WISCONSIN, 1942, PHD WISCONSIN, 1947; *Professor Emeritus, Pharmacy, 1972 (1972)*
- Wurster, Dale Eric**, BS Wisconsin, 1974, PHD Purdue, 1979; *Professor, Pharmacy, 1982 (1996)*
- Wurster, Laurie Nicole**, BS IOWA, 1993; *Adjunct Instructor, Pharmacy, 1998 (1998)*
- Wyman, Christopher Ryan**, BS MINNESOTA, 1999, PHD Univ. of Utah, 2004;
- Xiao, Shaoping**, BS UNI SCI & TECH CHINA, 1995, MS UNI SCI & TECH. CHINA, 1998, PHD NORTHWESTERN, 2002; *Assistant Professor, Mechanical Engineering, 2003*
- Xing, Yi**, BE Univ of Science and Tech China, 2001, BS Univ of Science and Tech China, 2001, PHD ULCA, 2006;
- Xiong, Jinhui**, MEE Tsinghua Beijing, 1986, PHD TEXAS, 1995; *Associate Professor, Radiology/Biomedical Engineering, 2003*
- Yablon, Nicholas**, BA BIRMINGHAM, ENGLAND, 1994, PHD CHICAGO, 2002; *Assistant Professor, American Studies, 2003*
- Yack, H John**, BS NEW HAMPSHIRE, 1973, MS NORTH CAROLINA, 1981, PHD WATERLOO-CANADA, 1987; *Associate Professor, Physical Therapy, 1994 (1994)*
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- Yamada, Thoru**, MD Nagoya, 1966; *Professor, Neurology, 1975 (1984)*
- Yan, Jun**, MA RENMIN CHINA, 1996, MA MIAMI, 1998, PHD WISCONSIN, 2003; *Assistant Professor, Statistics & Actuarial Science, 2003*
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- Yans, Javad**, MD TABRIZ IRAN MEDICAL SCHOO, 1965; *Adj Clinical Assoc Professor, Internal Medicine, 1973 (1983)*
- Yao, Min**, MD SUN YAT-SEN MEDICAL, 1984, MS TONGJI MEDICAL, 1987, PHD VERMONT, 1995; *Assistant Professor, Radiation Oncology, 2002*
- Yarbrough, Donald B.**, BA HENDRIX, 1971, MA KENTUCKY, 1973, PHD GEORGIA, 1982; *Associate Professor, Psych & Quant Foundations/Educ Policy & Leadership Studies, 1982 (1992)*
- Ye, Yango**, BS QingHua-China, 1981, MA Columbia, 1982, MPH Columbia, 1986, PHD Columbia, 1986; *Professor, Mathematics/Radiology, 1990 (1999)*
- Yeager, Anson**, BA AUGUSTANA, SD, 1976, BS SOUTH DAKOTA MED, 1978, MD TUFTS MED, MA, 1980; *Adj Clinical Asst Professor, Surgery, 2004*
- Yeakel, Gregory J.**, BSPH DRAKE, 1974;
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Iowa Administrative Code: Board of Regents

The following is extracted from the Board of Regents section of the Iowa Administrative Code as of April 21, 2006.

Admission Rules Common to the Three State Universities

681—1.1(262) Admission of undergraduate students directly from high school

Students desiring admission to the University of Iowa, Iowa State University, or the University of Northern Iowa must meet the requirements in this rule and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with the appropriate application fee as approved by the state board of regents pursuant to Iowa Code subsection 262.9(18) and detailed in rule 681-1.7(262), and have their secondary school provide a transcript of their academic record, including credits and grades, rank in class, and certification of graduation. Applicants must also submit scores from the American College Test (ACT) or the Scholastic Aptitude Test (SAT), or the equivalent, as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English. Applicants may be required to submit additional information or data to support their applications.

1.1(1) Graduates of approved Iowa high schools who have the subject matter background as recommended by each university and who rank in the upper one-half of their graduating class will be admitted. Applicants who are not in the upper one-half of their graduating class may, after a review of their academic and test records, and at the discretion of the admissions officers:

- a. Be admitted unconditionally,
- b. Be admitted conditionally,
- c. Be required to enroll for a tryout period during a preceding summer session, or
- d. Be denied admission.

1.1(2) Graduates of accredited high schools in other states may be held to higher academic standards, but must meet at least the same requirements as graduates of Iowa high schools. The options for conditional admission or summer tryout enrollment may not necessarily be offered to these students.

1.1(3) Applicants who are graduates of nonapproved high schools will be considered for admission in a manner similar to applicants from approved high schools, but additional emphasis will be given to scores obtained on standardized examinations.

1.1(4) Applicants who are not high school graduates, but whose classes have graduated, may be considered for admission. They will be required to submit all academic data to the extent that it exists and achieve scores on standardized examinations which will demonstrate that they are adequately prepared for academic study.

Students with superior academic records may be admitted, on an individual basis, for part-time university study while enrolled in high school or during the summers prior to high school graduation.

In rare situations, exceptional students may be admitted as full-time students to a regent university before completing high school. Early admission to a regent university is provided to serve persons whose academic achievement and personal and intellectual maturity clearly suggest readiness for collegiate level study. Each university will specify requirements and conditions for early admission.

This rule is intended to implement Iowa Code section 262.9(3).

681—1.2(262) Admission of undergraduate students by transfer from other colleges

Students desiring admission to the University of Iowa, Iowa State University, or the University of Northern Iowa must meet the requirements in this rule and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with the appropriate application fee as approved by the state board of regents pursuant to Iowa Code subsection 262.9(18) and detailed in rule 681-1.7(262), and request that each college they have attended send an official transcript of record to the admissions office. High school academic records and standardized test results may also be required. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English.

1.2(1) Transfer applicants with a minimum of 24 semester hours of graded credit from regionally accredited colleges or universities, who have achieved for all college work previously attempted the grade point required by each university for specific programs, will be admitted. Higher academic standards may be required of students who are not residents of Iowa.

Applicants who have not maintained the grade point required by each university for specific programs or who are under academic suspension from the last college attended may, after a review of their academic and test records, and at the discretion of the admissions officers:

- a. Be admitted unconditionally,
- b. Be admitted conditionally,
- c. Be required to enroll for a tryout period during a preceding summer session, or
- d. Be denied admission.

1.2(2) Admission of students with fewer than 24 semester hours of college credit will be based on high school academic and standardized test records in addition to review of the college record.

1.2(3) Transfer applicants under disciplinary suspension will not be considered for admission until information concerning the reason for the suspension has been received from the college assigning the suspension. Applicants granted admission under these circumstances will be admitted on probation.

1.2(4) Transfer applicants from colleges and universities not regionally accredited will be

considered for admission on an individual basis taking into account all available academic information.

This rule is intended to implement Iowa Code section 262.9(3).

681—1.3(262) Transfer credit practices

The regent universities endorse the Joint Statement on Transfer and Award of Academic Credit approved in 1978 by the American Council on Education (ACE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and the Council on Postsecondary Accreditation (COPA). The current issue of Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and publications of the Council on Postsecondary Accreditation (COPA) are examples of references used by the universities in determining transfer credit. The acceptance and use of transfer credit is subject to limitations in accordance with the educational policies operative at each university.

1.3(1) Students from regionally accredited colleges and universities

Credit earned at regionally accredited colleges and universities is acceptable for transfer except that credit in courses determined by the receiving university to be of a remedial, vocational, or technical nature, or credit in courses or programs in which the institution granting the credit is not directly involved, may not be accepted, or may be accepted to a limited extent.

Of the course work earned at a two-year college, students may apply up to one-half but no more than 65 hours of the credits required for a bachelor's degree toward that degree at a regent university. This policy became effective September 29, 1993.

1.3(2) Students from colleges and universities which have candidate status

Credit earned at colleges and universities which have become candidates for accreditation by a regional association is acceptable for transfer in a manner similar to that from regionally accredited colleges and universities if the credit is applicable to the bachelor's degree at the receiving university.

Credit earned at the junior and senior classification from an accredited two-year college which has received approval by a regional accrediting association for change to a four-year college may be accepted by a regent university.

1.3(3) Students from colleges and universities not regionally accredited

When students are admitted from colleges and universities not regionally accredited, they may validate portions or all of their transfer credit by satisfactory academic study in residence, or by examination. Each university will specify the amount of the transfer credit and the terms of the validation process at the time of admission.

In determining the acceptability of transfer credit from private colleges in Iowa which do not have regional accreditation, the regent committee on educational relations, upon request from the institutions, evaluates the nature and standards of the academic program, faculty, student records, library, and laboratories.

In determining the acceptability of transfer credit from colleges in states other than Iowa which are not regionally accredited, acceptance practices indicated in the current issue of Transfer Credit Practices of Selected Educational Institutions will be used as a guide. For institutions not listed in the publication, guidance is requested from the designated reporting institution of the appropriate state.

1.3(4) Students from foreign colleges and universities

Transfer credit from foreign educational institutions may be granted after a determination of the type of institution involved and after an evaluation of the content, level, and comparability of the study to courses and programs at the receiving university. Credit may be granted in specific courses, but is frequently assigned to general areas of study. Extensive use is made of professional journals and references which describe the education systems and programs of individual countries.

This rule is intended to implement Iowa Code section 262.9(3).

Residence

681—1.4(262) Classification of residents and nonresidents for admission, tuition, and fee purposes

1.4(1) General

a. A person enrolling at one of the three state universities shall be classified as a resident or nonresident for admission, tuition, and fee purposes by the registrar or someone designated by the registrar. The decision shall be based upon

information furnished by the student and other relevant information.

b. In determining resident or nonresident classification, the issue is essentially one of why the person is in the state of Iowa. If the person is in the state primarily for educational purposes, that person will be considered a nonresident. For example, it may be possible that an individual could qualify as a resident of Iowa for such purposes as voting, or holding an Iowa driver's license, and not meet the residency requirements as established by the Board of Regents for admission, tuition, and fee purposes.

c. The registrar, or designated person, is authorized to require written documents, affidavits, verifications, or other evidence deemed necessary to determine why a student is in Iowa. The burden of establishing that a student is in Iowa for other than educational purposes is upon the student.

A student may be required to file any or all of the following:

- (1) A statement from the student describing employment and expected sources of support;
- (2) A statement from the student's employer;
- (3) A statement from the student's parents verifying nonsupport and the fact that the student was not listed as a dependent on tax returns for the past year and will not be so listed in future years;
- (4) Supporting statements from persons who might be familiar with the family situation;
- (5) Iowa state income tax return.

d. Change of classification from nonresident to resident will not be made retroactive beyond the term in which application for resident classification is made.

e. A student who gives incorrect or misleading information to evade payment of nonresident fees shall be subject to serious disciplinary action and must also pay the nonresident fees for each term previously attended.

f. Review Committee. These regulations shall be administered by the registrar or someone designated by the registrar. The decision of the registrar or designated person may be appealed to a university review committee. The finding of the review committee may be appealed to the state board of regents.

1.4(2) Guidelines

The following guidelines are used in determining the resident classification of a student for admission, tuition, and fee purposes:

a. A financially dependent student whose parents move from Iowa after the student is enrolled remains a resident provided the student maintains continuous enrollment. A financially dependent student whose parents move from Iowa during the senior year of high school will be considered a resident provided the student has not established domicile in another state.

b. In deciding why a person is in the state of Iowa, the person's domicile will be considered. A person who comes to Iowa from another state and enrolls in any institution of postsecondary education for a full program or substantially a full program shall be presumed to have come to Iowa primarily for educational reasons rather than to establish a domicile in Iowa.

c. A student who was a former resident of Iowa may continue to be considered a resident provided absence from the state was for a period of less than 12 months and provided domicile is reestablished. If the absence from the state is for a period exceeding 12 months, a student may be considered a resident if evidence can be presented showing that the student has long-term ties to Iowa and reestablishes an Iowa domicile.

A person or the dependent of a person whose domicile is permanently established in Iowa, who has been classified as a resident for admission, tuition, and fee purposes, may continue to be classified as a resident so long as domicile is maintained, even though circumstances may require extended absence of the person from the state. It is required that a person who claims Iowa domicile while living in another state or country will provide proof of the continual Iowa domicile as evidence that the person:

- (1) Has not acquired a domicile in another state,
- (2) Has maintained a continuous voting record in Iowa, and
- (3) Has filed regular Iowa resident income tax returns during absence from the state.

d. A student who moves to Iowa may be eligible for resident classification at the next registration following 12 consecutive months in the state provided the student is not enrolled as more than a half-time student (6 credits for an undergraduate or professional student, 5 credits for a graduate student) in any academic year term, is not enrolled for more than 4 credits in a summer term for any classification, and provides sufficient evidence of the establishment of an Iowa domicile.

e. A student who has been a continuous student and whose parents move to Iowa may become a resident at the beginning of the next term provided the student is dependent upon the parents for a majority of financial assistance.

f. A person who is moved into the state as the result of military or civil orders from the government for other than educational purposes, or the dependent of such a person, is entitled to resident status. However, if the arrival of the person under orders is subsequent to the beginning of the term in which the student is first enrolled, nonresident fees will be charged in all cases until the beginning of the next term in which the student is enrolled. Legislation, effective July 1, 1977, requires that military personnel who claim residency in Iowa (home of record) will be required to file Iowa resident income tax returns.

g. A person who has been certified as a refugee or granted asylum by the appropriate agency of the United States who enrolls as a student at a university governed by the Iowa state board of regents may be accorded immediate resident status for admission, tuition, and fee purposes where the person:

- (1) Comes directly to the state of Iowa from a refugee facility or port of debarkation; or
- (2) Comes to the state of Iowa within a reasonable time and has not established domicile in another state.

Any refugee or individual granted asylum not meeting these standards will be presumed to be a nonresident for admission, tuition, and fee purposes and thus subject to the usual method of proof of establishment of Iowa residency.

h. An alien who has immigrant status establishes Iowa residency in the same manner as a United States citizen.

i. At the regent institutions, American Indians who have origins in any of the original people of North America and who maintain a cultural identification through tribal affiliation or community recognition with one or more of the tribes or nations connected historically with the present state of Iowa, including the Iowa, Kickapoo, Menominee, Miami, Missouri, Ojibwa (Chippewa), Omaha, Otoe, Ottawa (Odawa), Potawatomi, Sac and Fox (Sauk, Meskwaki), Sioux, and Winnebago (Ho Chunk), will be assessed Iowa resident tuition and fees.

1.4(3) Facts

a. The following circumstances, although not necessarily conclusive, have probative value in support of a claim for resident classification:

- (1) Reside in Iowa for 12 consecutive months, and be primarily engaged in activities other than those of a full-time student, immediately prior to the beginning of the term for which resident classification is sought.

- (2) Reliance upon Iowa resources for financial support.
- (3) Domicile in Iowa of persons legally responsible for the student.
- (4) Former domicile in the state and maintenance of significant connections therein while absent.
- (5) Acceptance of an offer of permanent employment in Iowa.
- (6) Other facts indicating the student's domicile will be considered by the universities in classifying the student.

b. The following circumstances, standing alone, do not constitute sufficient evidence of domicile to effect classification of a student as a resident under these regulations:

- (1) Voting or registration for voting.
 - (2) Employment in any position normally filled by a student.
 - (3) The lease of living quarters.
 - (4) Admission to a licensed practicing profession in Iowa.
 - (5) Automobile registration.
 - (6) Public records, for example, birth and marriage records, Iowa driver's license.
 - (7) Continuous presence in Iowa during periods when not enrolled in school.
 - (8) Ownership of property in Iowa, or the payment of Iowa taxes.
- This rule is intended to implement Iowa Code section 262.9(3).

681—1.5(262) Registration and transcripts—general

A person may not be permitted to register for a course or courses at a state board of regents institution until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent have been paid.

A state board of regents institution may withhold official transcripts of the academic record of a person until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent have been paid.

This rule is intended to implement Iowa Code section 262.9.

Supplemental Specific Rules to The University of Iowa

681—1.6(262) College-bound program

1.6(1) Definitions.

“Accredited private institution” means an institution of higher education as defined in Iowa Code section 261.9, subsection 5.

“Commission” means the college aid commission.

“Financial need” means the difference between the student's financial resources, including resources available from the student's parents and the student, as determined by a completed parents' financial statement and including any non-campus-administered federal or state grants and scholarships, and the student's estimated expenses while attending the institution. A student shall accept all available federal and state grants and scholarships before being considered eligible for grants under the Iowa minority academic grants for economic success program. Financial need shall be reconsidered on at least an annual basis.

“Full-time student” means an individual who is enrolled at an accredited private institution or board of regents university for at least 12 semester hours or the trimester or quarter equivalent.

“Minority person” means an individual who is black, Hispanic, Asian, or a Pacific Islander, American Indian, or an Alaskan Native American.

“Part-time student” means an individual who is enrolled at an accredited private institution or board of regents university in a course of study including at least three semester hours or the trimester or quarter equivalent of three semester hours.

“Program” means the Iowa minority academic grants for economic success program established in this division.

1.6(2) Policy on college-bound program.

a. The regent institutions will cooperate with other state and local agencies, including the department of education, the college aid commission, and educational institutions in implementing the college-bound program.

b. The universities will develop programs for elementary, middle and secondary school students and their families in the following areas:

- (1) Encouragement to consider attending a postsecondary institution;
- (2) Enrichment and academic preparation;
- (3) Information about how to apply for admission.

c. College-bound program vouchers will be awarded to students on the basis of the participation of the student and the student's family in the college-bound program. One voucher will be awarded for participation in each college-bound program sponsored by a university.

(1) Each university will maintain records concerning those students who participate in the college-bound program, according to its established policies and procedures. The records will include information on those students who have received college-bound program vouchers which are described in Iowa Code section 262.92(2). The University of Iowa will maintain a central record on all students who have received college-bound program vouchers on behalf of all regent institutions and will make appropriate information available to the college aid commission.

(2) College-bound program vouchers may be used by students enrolled at a regent institution or at a private college or university in Iowa.

(3) A student holding vouchers and enrolling at a regent institution will receive priority in the award of funds under the Iowa minority academic grants for economic success (IMAGES) program. Awards under the IMAGES program are made on the basis of financial need. A student may be eligible for an additional award from the institution in which the student is enrolled.

(4) A student holding vouchers and enrolling at a private college or university in Iowa will receive priority in the award of funds under the Iowa minority academic grants for economic success program as provided by the rules of the college aid commission.

(5) The presidents, or their designees, will administer and coordinate the college-bound program at the universities. As part of the coordination, they will establish liaison with the appropriate state and local agencies, serve as the university contact and promote collaborative efforts among the regent universities and other appropriate agencies and institutions. Annual reports to the board of regents shall be prepared by each regent university. The reports shall contain relevant information as to the accomplishments of the program in the past year and a plan of action with goals and objectives for

the forthcoming year. Reports shall be submitted to the board of regents on October 1 of each year.

This rule is intended to implement Iowa Code section 262.92.

681—1.7(262) Application fees

Application fees required for admission to the University of Iowa, Iowa State University and the University of Northern Iowa are as follows:

University of Iowa

- Undergraduate domestic student: \$40
- Undergraduate international student: \$60
- Graduate/professional domestic student: \$60
- Graduate/professional international student: \$85
- Re-entry fee: \$20

This rule is intended to implement Iowa Code section 262.9(3).

681—2.1(262) Formal application for admission

All applicants for admission to any college of the University of Iowa must submit a formal application for admission with the required official transcripts and other supporting material as required to the director of admissions. Students may not be registered until they have been issued an admission statement by the director of admissions.

681—2.3(262) College of Business Administration

2.3(1) Application for admission

Applications for admission to the college of business administration should be submitted to the director of admissions.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

2.3(2) Requirements for admission

For admission to the college of business administration an applicant must have—

- a. Completed specific course work as prescribed by the faculty of the college.
- b. Attained satisfactory scores on the university's required admission examinations.
- c. Maintained a satisfactory grade-point average on all courses undertaken, and on all courses

undertaken at the University of Iowa, and on all courses undertaken in business and economics.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or probationary admissions.

Fulfillment of the minimal requirements listed above, however, does not assure admission to the college of business administration. From those applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

681—2.4(262) College of Dentistry

2.4(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Applicants for admission to dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dentistry. Applicants should consider a combined program of liberal arts and dentistry which would qualify them for a baccalaureate degree upon the completion of the freshman year in dentistry. Preference will be given to students who have the baccalaureate degree or who have completed the requirements for the degree in a combined program.

Fulfillment of the specific requirements for admission listed does not ensure admission to the college of dentistry. From the applicants meeting the minimum requirements, the admissions committee will select the applicants who in their judgment appear to be best qualified for the study and practice of dentistry.

Each applicant must place on file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college work outlined below will suffice to meet the minimal academic requirements for admission to the college of dentistry.

The college curriculum must include at least three academic years of accredited work comprising not less than 96 semester hours and including specific required science courses as prescribed by the faculty of the college. Electives should be chosen so as to give the applicant a well-rounded educational background.

In order to meet minimum scholarship requirements, the applicant should attain a cumulative grade-point average of 2.5. Since the quality of course work in pre-dental science is basic to success in dentistry, special consideration to such college work is given by the admissions committee. The grade-point average is based upon the University of Iowa's marking system in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on admissions of the college of dentistry.

Applicants who have completed the requirements for admission to dentistry five or more years prior to seeking admission to this college of dentistry will be considered by the admissions committee only under exceptional conditions.

Preference will be given to applicants who are residents of Iowa, but consideration will also be given to outstanding nonresidents.

Personal interviews will be required of applicants for admission to the college of dentistry. Applicants will be notified when they should appear for the required interviews with members of the admissions committee.

All applicants must complete the dental aptitude tests sponsored by the council on dental education of the American Dental Association. Tests are given three times annually. The University of Iowa is a testing center.

To facilitate early selection, applicants for admission to the college of dentistry are urged to complete the aptitude test no later than October to enable the admissions committee to begin its selection in December.

Accepted applicants are required to make the required deposit within two weeks after notification of favorable action on their applications. This deposit is not refundable but is credited toward the first fee payment. The applicant who fails to make the deposit within the time specified forfeits a place in the entering class.

Applicants accepted for admission are required to submit a satisfactory physical examination report to the university student health service within two weeks following notification of acceptance.

All applicants must also complete, through student health service, an X-ray film of the chest and a successful vaccination against smallpox prior to registration.

2.4(2) Advanced standing

Applications for admission with advanced standing are handled as individual cases.

681—2.5(262) College of Engineering

Address all inquiries regarding admission to the Director of Admissions, University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced well in advance of the opening date of any session.

2.5(1) Admission of freshman students

The applicant must submit a formal application for admission and must have the secondary school provide a certificate of high school credits, including a complete statement of the applicant's high school record, rank in class, scores on standardized tests, and certification of high school graduation. The applicant must also submit any other evidence such as a certificate of health that may be required by this university.

Each applicant must have attained satisfactory scores on the university's required admission examinations, maintained a satisfactory cumulative grade-point average, achieved satisfactory rank in graduating class, and successfully completed all prerequisite courses. The university with the approval of the state board of regents shall establish and periodically review specific minimum requirements for admission to the college of engineering. Among the items to be so determined are test score, grade-point average, class rank and prerequisite courses. These specific determinations will be published in the university catalog.

From applicants who do not meet minimum admission requirements, the director of admissions may after a review of the applicant's record: (a) Admit unconditionally, (b) admit on probation, (c) require enrollment for a tryout period during a preceding summer session, or (d) deny admission.

2.5(2) Admission of undergraduate students by transfer

The applicant must submit a formal application and official transcript of college work. Each applicant should have:

- a. Maintained satisfactory progress in mathematics.
- b. Attained satisfactory scores on the university's required admission examinations.
- c. Maintained a satisfactory cumulative grade-point average on all college work undertaken.

From applicants who do not meet recommended requirements, the director of admissions will review individual records and may offer probationary admission.

681—2.6(262) Graduate College

Graduates of any college or university accredited by regional accrediting associations may if the academic record is satisfactory be admitted to the graduate college. Admission to the graduate college is not the equivalent of acceptance as a candidate for an advanced degree. Such acceptance is given usually after the completion in residence of work at the university and upon recommendation of the major department and approval by the dean of the graduate college. The acceptance of a student as a degree candidate is determined upon the merits of each individual case.

A student who is within four semester hours of having satisfied all the requirements for the bachelor's degree at the University of Iowa may be given a tentative admission to the graduate college.

681—2.7(262) College of Law

2.7(1) Application for admission

Address all inquiries concerning admission to the Director of Admissions, University of Iowa, Iowa City, Iowa. Beginning students may enter the college of law only in the summer session or the fall semester. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

To be considered for admission, an applicant should have attained a cumulative grade-point average of at least 2.3 on all college work undertaken. The grade-point average is based upon the University of Iowa's marking system in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated by the office of admissions.

Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the college of law.

Each applicant for admission must take the Law School Admission Test administered by the Educational Testing Service, Princeton, New Jersey, and have the score forwarded to the college of law. The test is given several times per year and may be taken at numerous locations in the United States and throughout the world. Applicants are urged to take the test in the fall or winter preceding the fall semester for which they are making application. Except upon a showing acceptable to it, the admissions committee will not consider applications from students who fail to take the test prior to the June 1 preceding the fall semester in which they wish to enter.

Fulfillment of the specific requirements for admission listed above does not ensure admission to the college of law. From the applicants meeting the minimum requirements, the admissions committee of the college of law will select those applicants who, in their judgment, appear to be best qualified for the study and practice of law. The law admissions committee may require personal interviews of applicants.

2.7(2) Admission with advanced standing

A transfer student may be eligible for admission if the student (a) has attended a school approved by the Association of American Law Schools; (b) is in good standing at the time of withdrawal (evidenced by a letter from the dean of the school from which transferring); (c) meets the admission requirements for beginning students; and (d) has done substantially above average work in the law school the student attended. Where an applicant has completed more than one year of law study, advanced standing will be permitted only in exceptional cases. Applicants for admission with advanced standing should comply with the procedures required for admission to the first-year class.

681—2.8(262) College of Medicine

2.8(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Fulfillment of the specific requirements for admission listed below does not ensure admission to the college of medicine. From the applicants meeting the specific requirements, the

admissions committee of the college of medicine will select those applicants who in their judgment appear to be best qualified for the study and practice of medicine.

Prior to entrance an applicant must:

- a. Have received the baccalaureate degree; or
- b. Have completed three years of a combined baccalaureate-medicine curriculum which qualifies the applicant to receive the baccalaureate degree on completion of the first year in medicine; or
- c. Have completed three years of a baccalaureate program which includes the general graduation requirements of the college of liberal arts of the University of Iowa for the combined baccalaureate degree.

Each applicant must place on file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college work as outlined below will suffice to meet the minimal academic requirements for admission to the college of medicine.

Applicants who have completed the baccalaureate degree and required courses five or more years prior to seeking admission to this college of medicine will be considered by the admissions committee only under exceptional conditions.

The college curriculum must include at least three years (equivalent to 96 semester hours) including specific required science courses as prescribed by the faculty of the college.

Students planning to study medicine should bear in mind that other college work is required in addition to prerequisite sciences because it offers an opportunity to secure a well-rounded education, which is of special importance to those entering the medical profession. In the selection of applicants, preference will be given to those who give evidence of having obtained such a broad education.

To be considered for admission, an applicant must have attained a grade-point average of at least 2.5 for all college work undertaken. As the quality of work in premedical science is very basic to success in medicine, special attention will be given by the admissions committee to grades in science. The grade-point average is based upon the University of Iowa's marking system in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on admissions of the college of medicine.

Preference will be given to applicants with high scholastic standing who are residents of Iowa, and consideration will also be given to outstanding nonresidents. Applicants for admission are required to take the medical college admissions test which is administered for the Association of American Medical Colleges. Applicants are requested to complete this test in May or October of the year preceding that for which they are applying for admission. Students may make arrangements to apply for this examination through the university examination service, the University of Iowa.

Personal interviews will be required. Applicants will be contacted for the appointment for required interviews.

Applicants accepted for admission are required to submit a satisfactory physical examination report to the university student health service within two weeks following notification of acceptance.

All applicants must also complete, through student health service, an X-ray film of the chest and successful vaccination against smallpox prior to registration.

2.8(2) Admission to advanced standing

If their work preparatory to entering a college of medicine would have met entrance requirements of this college, students from other approved medical colleges may be admitted to advanced standing according to the following conditions:

Only applicants of high scholastic standing will be considered.

They must present certificates showing that they have satisfactorily completed courses equivalent to those already pursued by the class they wish to enter.

The committee on admission to advanced standing will decide in each case whether examinations in the various subjects will be required.

Applications will be considered only upon receipt of a statement from the dean or registrar of the college from which the applicant comes, showing the actual amount of time the student has spent in the study of medicine, the courses taken, and the grades received, together with a statement of the work preparatory to entering upon the course in medicine.

No advanced standing will be granted to students from other than approved medical schools. Students may be granted subject credit upon recommendation of the head of the department concerned, for work taken in other than medical schools.

2.8(3) Unclassified students

Applicants for admission to the college of medicine who are not candidates for a degree but who desire to register for special subjects, will be admitted to any lecture or laboratory course only upon complying with all the regular requirements for admission to such course or by action of the faculty upon recommendation of the professor in charge of the course.

681—2.9(262) College of Nursing

Applications for admission to the college of nursing should be submitted to the Director of Admissions, The University of Iowa, Iowa City, Iowa. Applicants for admission to the undergraduate program in nursing must present a minimum of 30 semester hours completed in an accredited college. For admission to the college of nursing an applicant must have:

1. Completed specific course work as prescribed by the faculty of the college. The director of admissions will provide a list of the course work required.
2. Completed the American College Tests.
3. Performed satisfactorily on all courses undertaken.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and, upon favorable recommendation of the committee, such students may be granted conditional or probationary admissions.

Fulfillment of the minimum requirements listed above, however, does not assure admission to the college of nursing. From those applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

681—2.10(262) College of Pharmacy

2.10(1) General basis for admission

Fulfillment of the specific requirements for admission does not ensure admission to the college of pharmacy. From the applicants meeting the specific requirements, the admissions committee will select those applicants who in their judgment appear to be best qualified. Applicants for admission to pharmacy should have graduated from an approved high school or have an equivalent amount of training.

2.10(2) College work

The college work as outlined below will meet the minimum academic requirements for admission to the college of pharmacy. The minimum should include 32 semester hours of college level work exclusive of credit in military and air science and physical education. The 32 semester hours must include:

Communication skills. Applicants must have demonstrated satisfactory achievement in communication skills according to the requirements of the college of liberal arts at the state University of Iowa. Applicants from other institutions may meet this requirement by presenting six semester hours of credit in English composition and rhetoric and two semester hours of credit in speech or an eight-semester-hour year course in communication skills.

Inorganic chemistry and qualitative analysis, eight semester hours.

College mathematics, eight semester hours.

Physics or zoology, eight semester hours.

Students from other institutions may substitute a comparable eight-semester-hour course in biology in lieu of zoology.

Military or air science (if available), zero to two semester hours.

Students who present minor deficiencies in meeting the above requirements may be admitted to the college of pharmacy upon the recommendation of the dean of admissions and the college of pharmacy.

2.10(3) Scholarship and application deadline

To be considered for admission to the college of pharmacy, students must have earned a 2.0 or "C" average on all collegiate work undertaken. The minimum grade-point average of 2.0 is based on the state University of Iowa's marking system in which the grade of "A" is equivalent to four points. Applications for admission and the required official transcripts should be filed before March 1 for the class to enter pharmacy in September.

2.10(4) Required tests

Applicants for admission are required to take the American College Testing Program test.

2.10(5) Current requirements

Applicants who have completed work in a college of pharmacy accredited by the American Council on Pharmaceutical Education may if their college academic average is acceptable be

admitted and granted advanced standing toward the degree of bachelor of science in pharmacy.

681—2.11(262) College of Liberal Arts and Sciences

Applicants for admission to liberal arts and sciences must meet the rules that are common to the three state institutions in Iowa as listed in 681—1.1(262), 1.2(262) and 1.3(262).

681—2.12(262) College of Education

Students at the university desiring professional work in education are registered in the college of liberal arts and sciences or the graduate college. Requirements for permission to take teacher-training courses are listed in the university catalog.



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