Copies of the General Catalog are available for examination in Iowa high schools, offices of the county superintendents of schools, public libraries, junior and community colleges, major state government offices in Des Moines, and in each office of the University. Copies may be requested from the bookstore at the Iowa Memorial Union at a cost of $3. Reprints of individual sections of the Catalog are available free of charge.

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 the Catalog is prepared. However, information on regulations, policies, fees, curricula, courses, and other matters is subject to change any time during the period for which the Catalog is in effect.

Current information regarding fees, important dates, and which courses are offered in a particular semester is printed in the Schedule of Courses, which is available before each term begins. The publications The Iowa Book and The Graduate Experience also include information on admission, fees, scholarships, student financial aid, housing, and student personnel services.

The University of Iowa does not discriminate in its educational programs and activities on the basis of race, national origin, color, religion, sex, age, disability, or veteran status. The University also affirms its commitment to providing equal opportunities and equal access to University facilities without reference to affectional or associational preference. For additional information on nondiscrimination policies, contact the Coordinator of Title IX and Section 504 in the Office of Affirmative Action, The University of Iowa, 202 Jessup Hall, Iowa City, Iowa 52242-1316; telephone 319-335-0705.
University Calendar

Fall Semester
- Classes begin: August 22, 1994
- University holiday
- Thanksgiving recess: November 23-26, 1994
- University holidays
- Classes end: December 9, 1994
- Examination week: December 12-16, 1994
- Commencement ceremonies: December 16-17, 1994
- University holidays

Spring Semester
- University holiday
- Martin Luther King Day: January 2, 1995
- Foundation day: January 16, 1995
- Spring vacation
- Classes end: May 5, 1995
- Examination week: May 8-12, 1995
- Commencement ceremonies: May 12-13, 1995
- University holiday

Summer Session
- Registration
- Classes begin: June 12, 1995
- University holiday
- Classes end: August 4, 1995
- Commencement ceremonies: August 7-18, 1995
- Independent study unit for law and graduate students

1996
- Classes begin: August 21
- University holiday
- Thanksgiving recess: November 22-25
- University holidays
- Classes end: December 8
- Examination week: December 11-15
- Commencement ceremonies: December 15-16

Spring Semester
- University holiday
- Martin Luther King Day: January 1
- Foundation day: January 15
- Spring vacation
- Classes end: May 3
- Examination week: May 6-10
- Commencement ceremonies: May 10-11
- University holiday

Summer Session
- Registration
- Classes begin: June 10
- University holiday
- Classes end: August 2
- Commencement ceremonies: August 5-16
- Independent study unit for law and graduate students

Campus Visits
The best introduction to The University of Iowa is a visit to the campus. Come first to the John G. Bowman House Admissions Visitors Center, 230 N, Clinton. 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 1-800-553-IOWA (4692), statewide; direct dial 319-335-3847.
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What Iowa Is All About
The University of Iowa is a major national research university with a solid liberal arts foundation. Founded in 1847 as Iowa’s first public institution of higher education, it has won international recognition for its wealth of achievements in the arts, sciences, and humanities.

Iowa was the first U.S. public university to admit men and women on an equal basis and the first institution of higher education in the nation to accept creative work in theater, writing, music, and art as theses for advanced degrees. It established the first law school west of the Mississippi, broadcast the world’s first educational television programs, and developed and continued to hold preeminence in educational testing.

The home of pioneering space research, Iowa has designed and built research instruments carried aboard many major U.S. space missions, including the Galileo spacecraft currently on a six-year journey to Jupiter. Its research in hydraulics engineering is world renowned, as are its innovations in biocatalysis, biomedical engineering, agricultural medicine, and pharmacology education.

The University has one of the most extensive research library systems in the country and operates one of the nation’s largest university-owned teaching hospitals.

A member of the select Association of American Universities, an organization of institutions recognized for excellence in research, The University of Iowa maintains a balance between scholarly research and teaching. It places strong emphasis on undergraduate, international, and interdisciplinary education and brings undergraduate, graduate, and professional students together with distinguished teachers and scholars in a close-knit, intellectual community.

**Liberal Arts at Iowa: Education for Life**

A program of study in the liberal arts is considered “education for life” at The University of Iowa. The College of Liberal Arts has the largest enrollment among the University’s ten colleges and is the college in which most undergraduate students first enroll, including those who later transfer into one of the eight professional colleges.

Professional education is provided through the Colleges of Business Administration, Dentistry, Education, Engineering, Law, Medicine, Nursing, and Pharmacy. The Graduate College provides leadership in development, review, and oversight of graduate programs.

The University of Iowa has a diverse and distinguished faculty, whose members bring outstanding backgrounds in research and education to their teaching assignments. Many have been recognized for their accomplishments as teachers and scholars with awards including Guggenheim Fellowships, senior fellowships from the National Endowment for the Humanities, and Fulbright scholarships for teaching and study abroad. Three are Howard Hughes Medical Institute (HHMI) investigators—one each in biochemistry, internal medicine, and physiology and biophysics.

The University reaches out to all segments of society. It seeks students who are high achievers, yet at the same time it serves a broad cross-section of students. Approximately 27,000 students enroll at Iowa during fall and spring semester. Nearly 66 percent come from Iowa, 19 percent from adjoining states, and 8 percent from the remaining states. International students from 101 countries make up 7 percent of the University’s enrollment.

**Wealth and Diversity of Programs, Services**

The Iowa Center for the Arts provides the stimulus and setting for professional-level theater, dance, and musical performances by students and faculty as well as by visiting artists from around the world. The Museum of Art displays outstanding permanent collections, works by faculty and students, and traveling exhibits year-round, and the world-renowned Writers’ Workshop and International Writing Program help make the University and Iowa City one of the nation’s most prominent arts communities.

The University of Iowa Hospitals and Clinics serves more than 466,000 persons from Iowa and other states every year. Specialized care is provided by nearly 1,300 physicians and dentists, 1,550 registered nurses, and 1,500 professional staff. Teams of faculty, clinical support specialists, and students study and learn as they care for patients. University Hospitals and Clinics keeps in close touch with community hospitals and health professionals throughout the state, continually sharing new knowledge with them.

In athletics, the Iowa Hawkeyes enjoy national recognition and enduring fan loyalty as leaders in football, basketball, wrestling, field hockey, swimming, and gymnastics. A member of the Big Ten athletic conference, Iowa offers 11 intercollegiate sports for women and ten for men.

The University’s 1,900-acre campus includes more than 110 major buildings, most within walking distance of each other and all accessible to persons with disabilities.

Overlooking the Iowa River is Old Capitol, the central landmark of the campus. Built in Greek revival style during the early 1840s, Old Capitol served as the last capitol building for Iowa’s territorial government from 1842 until 1846, and then housed the legislature and government offices for the state of Iowa until 1857, when state government moved to Des Moines. Various University offices and departments were housed in the building until it was restored as a National Historic Landmark and opened to the public in 1976.

A major attraction and educational facility at the University is Iowa Hall, a 6,000-square-foot gallery in the Museum of Natural History in Macbride Hall that presents life-like exhibits of scenes from Iowa’s four billion years of natural history. The museum itself houses more than one million specimens of plant and animal life.

In addition to the Iowa City campus, there are University research and field study facilities at nearby Oakdale, at the Macbride Nature Recreation Area north of Iowa City, and at the Lakeside Laboratory on Lake Okoboji in northwest Iowa.

**Iowa City**

A forward-looking community provides a special setting for The University of Iowa. Iowa City is casual and cosmopolitan, a meeting place for scholars, artists, and scientists. The relationship between Iowa City and the University is friendly, cooperative, and supportive. Faculty and staff share the responsibilities of community government and service with people outside the University. Together they create an environment for growth in learning and business, in health and social well-being.

A community of 60,000 people, Iowa City lies within 300 miles of Chicago, Minneapolis, and St. Louis. The city is accessible by airlines serving the Cedar Rapids airport, by major bus lines, and by car from major highways.

What Iowa Is All About
Learning at Iowa
The University of Iowa is one of Iowa’s three state universities. With Iowa State University and the University of Northern Iowa, it is governed by the State Board of Regents.

The College of Liberal Arts is the core of the University, with six schools and more than 50 departments and programs. It is closely linked with the professional colleges of Business Administration, Dentistry, Education, Engineering, Law, Medicine, Nursing, and Pharmacy, and with the Graduate College. All ten colleges are located on the Iowa City campus.

The University faculty includes some 1,700 full-time members, many of whom have established national and international reputations. Their effectiveness as teachers is enhanced by their involvement in scholarly and scientific research. Some faculty members from the University’s professional colleges also teach undergraduates, including a number of interdisciplinary courses in the College of Liberal Arts.

The University’s undergraduate student enrollment is about evenly divided between men and women. Approximately three out of four undergraduates are Iowa residents. The rest are students from the other 49 states and more than 101 foreign countries.

About 81 percent of the University’s entering freshmen had a 3.0 average or above in high school. Approximately 90 percent ranked in the upper half of their high school classes and about 23 percent ranked in the upper tenth.

The University of Iowa offers a comprehensive program of student financial aid. More than 50 percent of the University’s students have some form of employment; 40 percent have education loans; 20 percent of undergraduates have scholarships. Most University scholarships are awarded on the basis of demonstrated financial need and academic excellence, with a small number of grants awarded solely for scholarly achievement.

Reflecting a growing trend toward lifelong learning, the University in recent years has expanded educational programs substantially, both on and off campus, for individuals who cannot enroll as regular full-time students. These learning opportunities include minicourses, conferences, workshops, continuing education programs for professionals, Saturday and evening classes offered on campus, and credit courses taught off campus. In 1977 the University, in cooperation with Iowa’s other two state universities, introduced a Bachelor of Liberal Studies (B. L. S.) degree program designed for adults who want to earn a college degree but are unable to enroll in traditional on-campus study.

Degrees Offered

The University offers the following degrees. The major fields are listed in the various college sections of the Catalog:

Bachelor of Arts, Bachelor of Science, Bachelor of Music, Bachelor of Fine Arts, Bachelor of General Studies, Bachelor of Liberal Studies,

Bachelor of Business Administration, Bachelor of Science in Engineering, Bachelor of Science in Pharmacy, Bachelor of Science in Nursing, Bachelor of Science in Medicine, Doctor of Dental Surgery, Juris Doctor, Master of Comparative Law, Doctor of Medicine, Master of Arts, Master of Science, Master of Business Administration, Master of Fine Arts, Master of Social Work, Master of Physical Therapy, Master of Arts in Teaching, Education Specialist, Doctor of Musical Arts, Doctor of Pharmacy, and Doctor of Philosophy.

Accreditation and Associations

The University of Iowa has been accredited by the North Central Association of Colleges and Secondary Schools since the association’s organization in 1913. The University is a member of the Association of American Universities and is associated with Indiana, Michigan State, Northwestern, Ohio State, Pennsylvania State, and Purdue universities and the Universities of Illinois, Michigan, Minnesota, and Wisconsin in the Western (Big Ten) Conference. Along with the Big Ten universities, it is also associated with The University of Chicago in the Committee for Institutional Cooperation (CIC).

As shown below, various colleges and schools of the University are members of accrediting associations in their respective fields.

Colleges

Business Administration-American Assembly of Collegiate Schools of Business
Dentistry-Commission on Dental Accreditation
Law-American Bar Association; Association of American Law Schools
Medicine–Liaison Committee on Medical Education, representing the American Medical Association (AMA) and the Association of American Medical Colleges (AAMC)
Nursing-National League for Nursing; Iowa Board of Nursing
Pharmacy–American Council on Pharmaceutical Education

Schools

Journalism and Mass Communication–Accrediting Council on Education in Journalism and Mass Communication
Library and Information Science–American Library Association
Music–National Association of Schools of Music
Social Work–Council on Social Work Education

Departments and Programs

The undergraduate engineering programs of the Departments of Biomedical, Chemical and Biochemical, Civil and Environmental, Electrical and Computer, Industrial, and Mechanical Engineering–Engineering Accreditation

Commission of the Accreditation Board for Engineering and Technology (ABET)
Chemistry-American Chemical Society
Counselor Education–Council for Accreditation of Counseling and Related Educational Programs
Dietetics–American Dietetic Association
Hospital and Health Administration–Accrediting Commission on Education for Health Service Administration
Medical Technology–Committee on Allied Health Education and Accreditation of the American Medical Association; National Accrediting Agency for Clinical Laboratory Sciences
Nuclear Medicine Technology–Committee on Allied Health Education and Accreditation, and Council on Medical Education, both of the American Medical Association
Physical Therapy–American Physical Therapy Association
Physician Assistant Program–Committee on Allied Health Education and Accreditation of the American Medical Association
Psychology-American Psychological Association
Speech Pathology and Audiology-Educational Standards Board of the American Speech and Hearing Association
Theatre Arts-National Association of Schools of Theatre

Academic Sessions

The University’s academic year consists of two semesters of approximately 16 weeks each. The University also conducts an eight-week summer session and, following that, an Independent Study Unit of from one to three additional weeks for students in the Graduate College and the College of Law.

Academic Recognition

The University recognizes high scholastic achievement by awarding degrees “with distinction,” “with high distinction,” and “with highest distinction,” based on the following criteria.

All Undergraduate Colleges (except Pharmacy)

Highest distinction-highest 2 percent
High distinction-next highest 3 percent
Distinction-next highest 5 percent

College of Pharmacy

Highest distinction-grade-point average of 3.75 and above
High distinction-grade-point average of 3.50 to 3.74
Distinction-grade-point average of 3.25 to 3.49

Dean’s List

Liberal arts students who achieve grade-point averages of 3.50 or above during a given semester on 12 or more semester hours of graded work and who have no hours of I or O grades are recognized by inclusion on the Dean’s List for that semester.
Scholar Assistantships

The biggest reward from this ten-hour-a-week undergraduate assistants might help in doing scholarly work with faculty members from among undergraduates at the University, limited number of students with an opportunity to do scholarly work with faculty members from all areas of the University on projects that range from art to Spanish, from music to medicine.

For students who rank in the top one percent of the University Honors Program and have superior performance, assistants may be invited to continue their work throughout their college career, including any research activities. As long as they maintain their grade-point averages, with no hours of I or O grades, they have in important teaching and research activities. As long as their scholarly work and to cement the mentor relationship with their faculty member.

Honorary and Professional Societies

Phi Beta Kappa, Sigma Xi, Mortar Board, and Omicron Delta Kappa are among 64 national honorary and professional societies that have active chapters on The University of Iowa campus.

University Honors Program

The University of Iowa Honors Program offers special academic and extracurricular opportunities to outstanding students in the Colleges of Business Administration, Education, Engineering, Liberal Arts, Nursing, and Pharmacy. Freshmen and sophomores may take special College of Liberal Arts honors courses, which are taught at a level and pace appropriate to honors students. Honors courses include special honors sections of General Education Requirement courses and honors seminars taught by regular faculty members to small classes of first- and second-year honors students.

The honors seminars carry General Education Requirement credit and are numbered 143:50, 143:60, and 143:70.

Students can earn honors credit for courses that do not have honors sections through special arrangement with the professor (for example, by completing a special project). With permission from the University Honors Program and faculty, any course can be designated an “honors course” and will be noted as such on the student’s transcript.

Sophomores and juniors in the honors program who wish to work individually with faculty on research are invited to apply to be honors research scholars. Each awardee is matched with a faculty member whose research interests are complementary. Research scholars receive academic credit for the course 143: 100 Honors Research Practicum.

Seniors with an interest in exploring the teaching side of an academic career are invited to apply to be honors teaching interns. Each awardee is matched with a faculty member who is teaching a freshman- or sophomore-level course in which students might benefit from contact with teaching interns. Although their duties vary from course to course, interns are expected to maintain regular office hours for consultation with students and to conduct review sessions when appropriate. Honors teaching interns receive academic credit for the course 143:101 Honors Teaching Practicum.

At the junior and senior level, most departments offer honors seminars, independent research, and/or the opportunity to pursue an original senior project under the guidance of a faculty member. Successful completion of all departmental honors requirements leads to a baccalaureate degree with honors in the major. Students who graduate with honors receive special recognition during commencement ceremonies. Other student academic awards and accomplishments are celebrated during Honors Recognition Week in the spring.

The University Honors Program also helps students prepare to apply for a variety of local, national, and international scholarships and prizes.

Honors Center

The Shambaugh House Honors Center is a meeting place and study center for students in the honors program. It houses a reference library, study lounges, and computers, as well as the Austin Commons Room, which is used for meetings, receptions, and dinners. Each year the student association affiliated with the honors program, the Associated Iowa Honors Students, plans a variety of activities—recreational, social, cultural, and academic.

Entering students with strong academic records are invited to join the honors program, but any student whose grade-point average meets the required minimum (3.20) may join at any time. To remain in the program, students must maintain a 3.20 grade-point average.

For details of admission requirements for entering students and for more information about other aspects of the program, contact the University Honors Program.

The following are University Honors Program courses.

143:60 Honors Seminar in the Social Sciences 3 s.h.
Small class with faculty member; central topic. Open only to honors students. GER: social sciences.

143:70 Honors Seminar in the Natural Sciences 3 s.h.
Small class with faculty member; central topic. Open only to honors students. GER: natural sciences.

143:100 Honors Research Practicum 1-3 s.h.
Individual research in conjunction with a faculty member’s research. Open only to honors students.

143:101 Honors Teaching Practicum 3 s.h.
Teaching internship in freshman and sophomore liberal arts courses.

University Marking System

Grade (Definition) 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

*H = honors
*I = incomplete
*N = nonpass
*O = no grade
*P = passing
*R = audit
*S = satisfactory
*U = unsatisfactory (Graduate College only)
*W = withdrawn

Not used in computing grade-point averages

Grade-point averages displayed at the bottom of students’ grade reports are truncated so as not to exceed 4.00.

The College of Law uses a numeric grading system.

Numbering of Courses

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, “2: 1” is the code for the course numbered 1 in the Department of Biological Sciences (2), entitled “Introduction to Botany.” Course numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduates, and numbers 200 and above designate courses primarily for graduates.

143:50 Honors Seminar in the Humanities 3 s.h.
Small class with faculty member; central topic. Open only to honors students. GER: humanities.
Academic Programs ● Learning at Iowa

College of Business Administration

6A Accounting
6B Business Administration
6E Economics
6F Finance
6J Management and Organizations
6K Management Sciences
6M Marketing
6N M.B.A. Program

College of Dentistry

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

College of Education

7C Counselor Education
7D Educational Administration
7E Elementary Education
7F Social Foundations of Education
7H Higher Education
7P Educational Psychology, Measurement, and Statistics
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
58 Mechanical Engineering

91 College of Law

College of Liberal Arts

000 Nondepartmental
BLS Bachelor of Liberal Studies
L Lakeside Laboratory

1A Fundamentals of Art
1B Elements of Art
1C Ceramics
1D Design
1E Art Education
1F Drawing
1G Metalworking and Jewelry
1H Art History
1I Multimedia and Video Art
1J Painting
1K Photography
1L Printmaking
1M Sculpture
1N Art Interdepartmental
1O Papermaking
1P Studio
1Q Biological Sciences
1R Speech Pathology and Audiology
1S Chemistry
1T Probusiness
1U English
1V General Education–Literature
1W English Language and Linguistics
1X Instruction
1Y English Professional
1Z English Writing
2 French
2A Rhetoric
2B Geology
2C German
2D Greek
2E Open Major
2F History
2G American History
2H European History
2I Italian
2J Journalism and Mass Communication
2K Latin
2L Library and Information Science
2M Applied Mathematical and Computational Sciences
2N Computer Science
2O Mathematics
2P Statistics and Actuarial Science
2Q Military Science
2R Aerospace Military Studies
2S Museum Studies
2T Music
2U Philosophy
2V Exercise Science
2W Sport, Health, Leisure, and Physical Studies
2X Physical Education Skills
2Y Physics and Astronomy
30 Political Science
31 Psychology
32 Religion
33 Literature, Science, and the Arts
34 Sociology
35 Spanish
36 Communication Studies
36C Communication
36D Production Studies
36F Film Studies
36M Media Studies
36R Rhetorical Studies
38 Portuguese
39 Asian Languages and Literature
39J Japanese
41 Russian
41S Russian, East European, and Eurasian Studies
42 Social Work
44 Geography
45 American Studies
47 Global Studies Program
48 Comparative Literature
49 Theatre Arts
61 Microbiology
97 Science Education
98 Social Studies
99 Biochemistry
102 Urban and Regional Planning
103 Linguistics
108 Letters
113 Anthropology
127 Genetics
129 African-American World Studies
130 Latin American Studies
131 Women’s Studies
132 Honors Program
133 American Indian and Native Studies
134 Interdepartmental Studies
135 Interdepartmental Studies
136 Third World Development Support
Admissions

High School Preparation

Appropriate academic preparation for college-level studies is important. Students who enter with a strong college preparatory curriculum have a better chance to succeed academically and are more likely to be admitted to the programs of their choice.

Students entering the University must have completed the following set of high school courses (units) or their equivalents. These high school unit requirements apply to entering freshmen who graduated from high school after 1985; liberal arts transfer students with fewer than 24 semester hours of transferable credit who graduated from high school after 1991 or after. Certain requirements vary for students enrolling in the College of Engineering (noted in italics).

Four years of English/language arts, with emphasis on writing, speaking, and reading, as well as understanding and appreciation of literature.

Appropriate collegiate sections of the Catalog.

ACT and SAT Scores

All entering freshmen and undergraduate transfer students who present fewer than 24 semester hours of transferable work are required to complete the American College Test (ACT) or Scholastic Assessment Test (SAT I) and have their scores reported to the University in support of their application for admission. The Office of Admissions recommends that students complete the ACT or SAT I during the spring of their junior year of high school or the following summer.

The scores from these exams are used as a criterion for admission, for placement purposes, for advising, and for awarding University-administered scholarships and loans.

Graduate and Professional College Examinations

Prospective Graduate College applicants are required to take the Graduate Record Examination (GRE) General Test or, if applying for admission to a program in the College of Business Administration other than economics, the Graduate Management Admission Test (GMAT). Prospective students of the Colleges of Dentistry, Law, or Medicine are required to take admission tests of the respective colleges.

Application Fees

A $20 application fee must accompany applications submitted by prospective students not previously enrolled in a degree program at the University. The application fee for foreign students is $30. Application fees are not refundable.

Re-entry

Undergraduate students who have been absent from the University for 12 months or more and graduate students who have been absent for 36 months or more must apply to the Office of Admissions for re-entry.

Students who have been enrolled in another college or university after leaving The University of Iowa are required to submit official transcripts along with their application for re-entry. A $20 re-entry application fee is assessed to re-entry students when they enroll.

Application Deadlines

U.S. Citizens

Entering freshmen are urged to apply early in the fall of their senior year to arrange for University housing and to apply for financial aid. Entering transfer students and graduate students are encouraged to apply well in advance of the session in which they plan to enroll. All application materials are due in the Office of Admissions by the deadlines listed below.

Foreign students have earlier application deadlines (see “Foreign Students,” below).

College of Liberal Arts: May 15 for summer session, May 15 for fall semester, November 15 for spring semester.

College of Business Administration: May 1 for summer session, May 1 for fall semester, December 1 for spring semester.

College of Dentistry: D.D.S. program, fall admission only; preliminary applications must be on file with the American Association of
Dental Schools Application Service by December 1.

**College of Engineering:** May 15 for summer session, May 15 for fall semester, November 15 for spring semester; early application is advised since enrollment may reach capacity far in advance of the beginning of classes.

**Graduate College:** General Graduate College deadlines are May 1 for summer session, July 15 for fall semester, December 1 for spring semester. Individual departments and programs may have earlier deadlines, which are indicated in their materials. All departmental materials should be reviewed carefully for information about early deadlines. To be considered for graduate awards, students must apply by February 1 for the fall semester.

**College of Law:** J.D. program, March 1 for summer or fall admission; LLM program, March 1 for fall or spring admission.

**College of Medicine:** M.D. program, fall admission only; preliminary applications must be submitted to the American Medical Colleges Application Service by November 15 (August 1 if applying through the Early Decision Plan).

**College of Nursing:** March 1 for summer session (R.N. standing required for summer admission); March 1 for fall semester, October 1 for spring semester.

**College of Pharmacy:** February 1, fall semester only; Pharm.D. program, February 1, fall session only.

**Teacher Education Program:** March 15 for summer session, June 15 for fall semester, October 15 for spring semester.

**Foreign Students**

Foreign students should begin the process of applying for admission at least 12 months prior to enrollment. Applicants must satisfy all application procedures and submit their complete application file to the Office of Admissions by the following dates.

**Graduate College:** For students applying to The University of Iowa for financial assistance (scholarships, fellowships, assistantships), February 1 for summer session or fall semester, October 1 for spring semester; for students applying for financial support, March 1 for summer session, April 15 for fall semester, October 1 for spring semester.

**Note:** The preceding deadlines are general Graduate College deadlines. Individual departments and programs may have earlier deadlines, which are indicated in their materials. All departmental materials should be reviewed carefully for information about early deadlines.

**College of Business Administration:** March 1 for summer session, March 1 for fall semester, September 1 for spring semester.

**College of Dentistry:** D.D.S. program, fall admission only; preliminary applications must be on file with the American Association of Dental Schools Application Service by December 1.

**College of Engineering:** March 1 for summer session, March 1 for fall semester, September 1 for spring semester.

**College of Law:** J.D. program, March 1 for summer or fall admission; LLM program, March 1 for fall or spring admission.

**College of Liberal Arts:** March 1 for summer session, April 15 for fall semester, October 1 for spring semester.

**College of Nursing:** March 1 for fall semester, October 1 for spring semester.

**College of Pharmacy:** February 1 for fall semester; Pharm.D. program, February 1, fall admission only.

**Determining Residence**

Each person enrolling at The University of Iowa is classified as a resident or nonresident for admission, tuition, and fee purposes. The classification is made by the University registrar or some one designated by the University registrar, according to criteria established by the State Board of Regents and on the basis of information provided by the student and all other relevant information. The criteria may be found under “Iowa Administrative Code: Board of Regents” at the back of the Catalog.

**English Proficiency**

**Non-Native speakers**

The University’s English proficiency requirement assures that non-native speakers know English well enough to study without being hindered by language problems, to understand lectures, and to participate successfully in class discussions.

**U.S. Citizens and Permanent Residents**

**UNDERGRADUATE APPLICANTS-REGULAR ADMISSION**

A minimum TOEFL score of 530 is required to be considered for regular admission to the University and to begin study in a degree program. Newly admitted undergraduate students whose TOEFL scores are 600 or above may begin academic course work without restriction. Admitted students whose TOEFL scores fall between 530 and 599 are required to complete an English proficiency evaluation before their first registration for courses.

Based on the results of the evaluation, these students may

- be allowed to take a full academic course load, excluding English as a Second Language (ESL) courses;
- be required to enroll in credit-bearing ESL courses; or
- be required to enroll in the Iowa Intensive English Program until their language proficiency reaches an appropriate level.

**UNDERGRADUATE APPLICANTS-CONDITIONAL ADMISSION**

Applications for IIEP should be submitted two months before the beginning of the term to allow time for admission, obtaining a student visa, and making travel arrangements. Students may begin IIEP studies in August, January, or May. For more information and IIEP application
work in English as a Second Language.

On-campus proficiency evaluations for newly admitted graduate students whose TOEFL scores are below 530. Newly admitted graduate students whose TOEFL scores are below 600 are required to complete an English proficiency evaluation before their first registration for courses. Some departments may require students to complete an English proficiency evaluation regardless of TOEFL score and to enroll in English as a Second Language courses until their English proficiency reaches the appropriate level.

Graduate students should consult their departmental academic advisers to determine whether or not they should enroll in course work in English as a Second Language.

English Evaluations

On-campus proficiency evaluations for newly admitted students are conducted by the Department of Linguistics. If such evaluation work is done, students are required to enroll either in credit-granting courses in English as a Second Language or in the noncredit Iowa Intensive English Program until their language proficiency reaches the appropriate level. Once such proficiency has been established, students are allowed to take a full academic course load, exclusive of English as a Second Language courses. Such students may begin their academic course work only upon the written recommendation of the coordinator of English as a Second Language. (Courses for non-native speakers of English are described under “Linguistics” in the College of Liberal Arts section of the Catalog.)

Medical Information

The Student Health Service provides health care for registered students. After students are admitted to the University, they receive a medical history form, which they must complete, including all information about immunizations. Proof of immunity to measles is a prerequisite to registration. Completed medical history forms should be returned to the Student Health Service. For students who have health problems, the University recommends that the attending physician send a report to the Student Health Service so that continuing care can be provided.

Foreign students at the University are required to have health insurance. A reasonably priced group insurance plan is available through the University.

Campus Visits

The best introduction to The University of Iowa is a visit to the campus. Students and their parents are encouraged to visit on a weekday when classes are in session.

Campus visits might include a meeting with an admission counselor, a group information session, a campus or residence hall tour, and an appointment with a faculty member or academic adviser in a particular area of study; or some visitors might prefer one of the day-long Hawkeye Visit Day programs. Answers are provided to questions about academic programs, admission requirements, financial aid, campus life, housing, and the many student services available at the University. Students also can explore University museums, libraries, and downtown Iowa City.

Campus visits start at the John G. Bowman House Admissions Visitors Center. Contact the Office of Admissions to arrange a visit.

Orientation Services

With the aid of representative student, faculty, and staff personnel, Orientation Services designs and conducts a wide variety of year-round programs to help new freshmen, transfer students, and foreign students make a successful transition to University life.

Once admitted to the University, students are required to attend an orientation/registration program before they begin classes. During orientation, new students learn about academic policies and procedures, take placement tests, meet with their academic advisers, complete their first registration, and become acquainted with faculty, staff, and other students. Parents are encouraged to attend special parent orientation sessions conducted concurrently with the student programs.

Freshmen students admitted for fall semester attend an orientation/registration program held during the summer or just before classes begin in August. Transfer students admitted for the fall semester attend an orientation/registration program during the spring or summer or before classes begin in August. Students admitted for the spring semester attend a session in December or during the week before the semester opens in January. Students admitted for summer session attend an orientation program during the spring or just before classes begin in June. New foreign students attend an orientation/registration program just before classes begin.

Services for Transfer Students

The Office of Admissions provides a variety of services to help prospective transfer students make a smooth transition to University life. Students are encouraged to contact the office with questions concerning admissions criteria, programs of interest, and course equivalences.

Admissions representatives annually visit each Iowa area community college and are available to answer questions via scheduled appointments, special transfer visit programs, written correspondence, or by telephone. A variety of written materials is available to help students understand programs and policies.

The Office of Admissions also maintains a transfer course equivalency system that provides accurate and consistent information on how individual courses from specific transfer institutions fit various degree programs at The University of Iowa. Admitted students receive a summary of this evaluation prior to their first registration.

Records

All academic records are maintained by the Office of the Registrar and are not released without permission of the student.

Regents Exchange Program

University of Iowa students may take courses at either of the other two Regents universities for University of Iowa resident credit. Regular, degree-bound students in good standing at any of the three Regents universities may attend another Regents university for a maximum of two semesters; the credits earned at the other university are counted as resident credit at the home institution.

Approval for participation and credit in the exchange program must be obtained well in advance of registration. The department head must approve the acceptance of such credits if they are to apply to the major, and time must be allowed to ensure complete processing of the application between the cooperating universities within the dates specified for enrollment. Detailed information and application forms for the exchange program are available from the Office of the Registrar.

Registration

All persons who attend University classes must first be admitted to the University and are required to register and pay the established tuition and fees. Students in the Graduate College and the Colleges of Business Administration, Engineering, Liberal Arts, Pharmacy, Dentistry, Law, Medicine, and Nursing may audit courses with proper approval. Students who audit courses are assessed a fee based on the lowest number of semester hours for which the course is offered that semester.

Late Registration

Students are not permitted to register after the third week of the fall or spring semester or the first one-and-one-half weeks of the summer session.

Tuition and Fees

The University’s schedule of tuition and fees for full-time students, per semester, for the academic year 1994-95 is stated below. Extension courses are $152 per semester hour for graduate students and $96 per semester hour for undergraduates; M.B.A. extension courses are $198 per semester hour. Correspondence courses are $71 per semester hour. All fees are subject to change by action of the State Board of Regents.

Undergraduate

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<thead>
<tr>
<th>Status</th>
<th>Resident</th>
<th>Nonresident</th>
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<td>$1,145.50</td>
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Financial Aid

Refund Schedule

Students who withdraw registration during a regular semester receive reduction of fees assessed as follows: during the first week of classes—90 percent; during the second week—75 percent; during the third week—50 percent; during the fourth week—25 percent. There is no reduction of fees for withdrawals after the fourth week of classes.

FINANCIAL AID

The University of Iowa has an excellent record of helping its students obtain scholarships, grants, loans, and other forms of financial assistance. Approximately 75 percent of Iowa students receive some form of aid. The Office of Student Financial Aid helps students sort through the many forms of aid available.

Application Procedure

Students must be accepted for admission to be considered for financial aid at the University. From January through April, all newly admitted students receive instructions on how to complete the financial aid filing process. All students are encouraged to apply for aid. Many factors are taken into consideration in determining eligibility.

To determine eligibility for need-based aid, students and parents must provide information about their financial situations. Students must submit the Free Application for Federal Student Aid (FAFSA) as soon as possible, and they should have the need analysis sent to the University’s Office of Student Financial Aid.

Filing the FAFSA and submitting all other required documents to the Office of Student Financial Aid promptly assures that students will be considered for all need-based awards offered by the University.

The FAFSA may be obtained from high school and community college counselors. The FAFSA is good for only one academic year. Students must reapply for aid each year.

HOW AID IS DETERMINED

The University of Iowa determines eligibility for need-based aid by the same method of family financial analysis used by other colleges and universities throughout the country. The steps are as follows.

1. The University determines the estimated costs for an academic year; these include tuition, fees, books, room and board, transportation, and personal expenses.
2. The FAFSA information is calculated using a federally mandated formula to determine how much the student and his or her family should contribute, based on the family’s income and assets.
3. Financial need is determined by subtracting the expected family contribution from the estimated costs for an academic year at the University.
4. Whenever possible, financial assistance is awarded toward meeting the student’s financial need; however, due to the large number of applicants and the limited funds available, it usually is not possible to offer enough assistance to meet the financial need in full.

Eligibility for Aid

Students are eligible for federal financial aid if they are U.S. citizens or eligible noncitizens and are enrolled at least half-time in a degree program, and if they demonstrate financial need as determined by the FAFSA.

In order to maintain or establish eligibility for financial aid at the University, students must comply with the following Reasonable Academic Progress (RAP) standards.

1. Minimum Semester Hours: Undergraduates must earn 20 semester hours per academic school year (fall, spring, and summer sessions combined); graduates must earn 12 semester hours per academic school year.
2. Minimum Grade-Point Average: Undergraduates and graduates must maintain the minimum grade-point average requirement of the colleges in which they are enrolled.
3. Duration of Eligibility: Undergraduates must complete their bachelor’s degrees within six academic school years (12 semesters) or 135 semester hours; graduates working toward master’s degrees must complete their program of study within four academic school years (eight semesters) or 48 semester hours; graduates working toward combined master’s/doctoral degrees must complete their programs of study within eight academic school years (16 semesters) or 96 credit hours.

Financial aid eligibility is canceled for one or more of the following reasons: exhausting one’s duration of eligibility; failing to meet the requirements for semester hours completion and/or grade-point average; or failing to meet the minimum requirements of a probationary term. These and other requirements and exceptions are outlined in detail in the publication Reasonable Academic Progress Standards, available at the Office of Student Financial Aid.

Scholarships

Presidential Scholarships

The University annually awards Presidential Scholarships to 20 high school students in recognition of their outstanding high school achievements. These scholarships are the highest scholastic awards for entering freshmen. Application information is available from the Office of Admissions or from high school guidance counselors.
Admissions.

Scholarships are available from the Office of Admissions or the appropriate department. Students must file the FAFSA and obtain the FAFSA application. The FAFSA determines financial need.

Grants

Federal Pell Grants
Undergraduate students without bachelor’s degrees may apply for Federal Pell Grants. These awards range from $200 to $2,300 per academic year, depending on financial need and federal funding. Students must be enrolled at least half-time in a degree program in order to be eligible. The FAFSA determines eligibility.

Federal Supplemental Educational Opportunity Grants (SEOG)
The Federal SEOG program provides federal aid to undergraduate students without bachelor’s degrees who show exceptional financial need. The amount of the grant varies depending on financial need and federal funding. Recipients must be enrolled at least half-time. The FAFSA determines eligibility.

Federal Loans

Federal Perkins Loans
Federal Perkins Loans are long-term federal loans based on exceptional financial need. The amount of the award varies depending on federal funding. Students must be enrolled at least half-time in a degree program. Repayment, at 5 percent interest, begins six months after recipients cease to be at least half-time students. The FAFSA determines eligibility.

LaVerne Noyes Scholarships
LaVerne Noyes Scholarships are for U.S. citizens who are direct descendants of World War I army or navy veterans. Awards are based on financial need and are available to undergraduates without a bachelor’s degree. Students must file the FAFSA and obtain the LaVerne Noyes application from the Office of Student Financial Aid. Application deadline is July 1.

University of Iowa Farm Scholarships
Farm scholarships are for entering freshmen who are residents of Iowa. Applicants must rank in the upper 25 percent of their graduating class, be enrolled full-time at Iowa, and live on an Iowa farm operated by their parents. Students must file the FAFSA. Applications are available from the Office of Student Financial Aid and must be submitted by April 1.

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hourly basis are paid by check once every two weeks.

Jobs are advertised via computer terminals across campus.

The student newspaper, The Daily Iowan, also has job listings in the classified ads. Friends, advisers, and instructors are other possible sources of information about jobs.

Students contact employers directly to arrange interviews. The Office of Student Financial Aid does not operate a referral or placement service for student employees. However, students who are hired for jobs on campus must come to the student employment area of the Office of Student Financial Aid, to process payroll paperwork.

Work-Study Program

The Work-Study (WS) Program helps students earn money to meet educational expenses. This program currently is funded by both the federal government and the Iowa legislature. Students in the WS Program must be enrolled at least half-time in a degree program. Their work experience should complement and reinforce their educational goals.

The amount of WS money a student is eligible to earn is based on financial need as determined by the FAFSA and legislative funding. WS employment is limited to 20 hours per week during the academic year. The minimum wage paid by the University is $4.65 per hour. Students are paid by check once every two weeks.

Other Sources of Aid

A guidance counselor or high school principal may have information on local scholarships, and school or public libraries are excellent sources for publications about financial aid. Many places of employment, professional associations, and labor unions have programs to help pay the cost of education for children of employees or members. Other sources include foundations, religious organizations, fraternities or sororities, town or city clubs, community organizations, and civic groups. A little searching on the student’s part may unearth some unexpected source of financial aid.

Information about financial assistance for students with disabilities is available from the University’s Office of Student Disability Services.

Information about financial assistance for veterans of U.S. military services is available from the University’s Office of Veterans Services.

Information about Education Aid to War Orphans is available from the Iowa Bonus Board (State House, Des Moines, IA 50319).

Additional Information for Graduate Students

The primary sources of financial aid for graduate students are the University Teaching and Research Assistantships, Iowa Fellowships, Graduate College Block Allocation Fellowships, and Graduate Opportunity Fellowships. Scholarships, traineeships, and part-time employment also are available. Further information is available from academic departments or programs.

The resource room of the University’s Division of Sponsored Programs has information on assistance for graduate students from non-University sources, such as foundations and professional associations.
Student Life at Iowa

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Academic Advising

Each student is assigned an academic adviser to assist with educational planning, academic counseling, and registration. Most entering freshmen, including open majors, certain preprofessional majors, and most declared majors, are assigned advisers in the Undergraduate Academic Advising Center. Other entering freshmen with declared majors are assigned to advisers in their major departments. Upon admission to professional colleges (Business Administration, Education, Engineering, Nursing, Pharmacy, Dentistry, Law, and Medicine), students are advised by the college deans or their designated representatives. Graduate students are advised by their department heads and the Graduate College dean.

In addition to providing academic advising, advisers serve as general consultants to their advisees and refer those with special needs to appropriate support services.

Undergraduate Academic Advising Center

The Undergraduate Academic Advising Center advises almost all freshmen and many sophomores. Professional advisers provide intensive support through systematic and frequent contact with their advisees. Advisers help students explore various fields of interest, select a specific academic major, learn about career options that relate to their programs, and develop plans of study appropriate for their educational goals. They also refer students to other campus offices for assistance in academic, personal, and career counseling; academic skills development; and financial aid. Academic advising is mandatory at The University of Iowa. Students must consult their advisers in order to register for classes each semester.

Collegiate Academic Offices

Each of the University's undergraduate colleges maintains an academic/student affairs office. These offices are available to all students in the respective colleges to help with questions about admissions, academic majors, course requirements, grading options, career and degree plans, and other matters. They assist students who want to change advisers and/or majors, and they act on student complaints.

International Education and services (OIES)

The Office of International Education and Services works to enrich campus life by developing and promoting all aspects of the University’s international dimension. It has administrative responsibility for the University’s foreign student/scholar program, for the cross-cultural educational and training program, and for the study abroad program. It has developmental responsibilities in international studies, institutional linkages, and technical cooperation activities. It also provides services and facilities and organizes extracurricular programs for both foreign and domestic students and faculty.

Through technical cooperation and faculty exchange programs, the OIES encourages the development of formal links between University of Iowa departments and programs and their counterparts in foreign institutions. The liaison officer for the Midwest Universities Consortium for International Activities (MUCIA) is located in the OIES, encouraging involvement of University of Iowa faculty in MUCIA activities.

Foreign student advisers provide information, counseling, and services related to orientation, financial aid, immigration regulations, and liaison with foreign governments and sponsoring agencies. They help with problems and questions in most areas except academic advising. The Cross-Cultural Education and Training Program sponsors or supports educational programs such as the Friends of International Students, the Armchair Travelers Program, the Cultural Consultant Program, and discussions and activities that foster constructive interaction between students and scholars from other countries and their domestic counterparts.

The study abroad staff maintains a library with references on study, work, and travel in other countries, including information about foreign universities and study abroad programs open to U.S. students. Staff members help students select study abroad programs to complement their on-campus academic programs. They also help assure that students receive the correct credit for such activities.

The study abroad staff helps students obtain information about and applications for the following scholarships: Fulbright, DAAD (German Academic Exchange Service), Inter-American Foundation, International Student Identity Card, University of Ibadan, Presidential Fellowships for Study Abroad, the Stanley Undergraduate Scholarship Awards for International Research and Study, and the Stanley Fellowships for Graduate Student Research Abroad.

Study Abroad Programs

The University of Iowa sponsors a number of study abroad programs. They include reciprocal exchanges, in which Iowa students enroll in a foreign university, as well as summer and semester programs, in which groups of Iowa students are accompanied to the foreign study site by an Iowa faculty member. Some programs are offered in cooperation with other universities in Iowa, in the Midwest, or throughout the United States. Others are administered in part by an international educational exchange agency.

University of Iowa students also may participate in approved study abroad programs sponsored by other colleges, universities, and agencies, or they may enroll directly in a foreign university. Students should obtain approval of all transfer credit from non-University of Iowa programs before leaving the United States, by completing a Study Abroad Credit Approval form.

Information on transfer credit, financial aid, and other study abroad programs is available at the Study Abroad Center, Office of International Education and Services.

In addition to the study abroad courses listed below, the following programs are offered through foreign language departments: 9:119 Regents Summer Program in France (8-9 semester hours, see "French and Italian"); 13: 109 Regents Program Abroad in Austria (arr., see "German"); 35: 100 Regents Hispanic Institute (arr., see “Spanish and Portuguese”). Students may earn transfer credit in 000:105, 106, 108, 113, 114, and 115.

000:105 International Student Exchange Program arr.
Study on reciprocal exchange at foreign universities worldwide; some instruction in English. Semester, year-long, or summer. Good command of foreign language, forty semester hours earned, and 3.00 grade-point average required.

000:106 UK Exchange Program arr.
Regular degree course work at the Universities of Hull and Lancaster (England) and the Universities of Strathclyde and Aberdeen (Scotland); humanities and social sciences, business, engineering. Forty semester hours earned, minimum 3.00 grade point average required.

000:108 Japan Exchange Program arr.
Intensive Japanese language and culture, course work at Center for Japanese Studies, Nanzan University, Nagoya, Japan. Minimum 3.00 grade-point average required.

000:109 Dance Studies Exchange arr.
Regular courses in European and East European studies taught by Iowa resident faculty members. minimum 3.00 grade-point average required.

000:110 Iowa Critical Languages Program arr.

000:112 University of Iceland Exchange Program arr.
Icelandic studies, modern Icelandic language. Academic year. Twenty-four semester hours earned, minimum 3.00 grade-point average required.

000:116 ACTR program Russia arr.
Russian language programs at institutions in Moscow, Leningrad. Semester, academic year, or summer. Prerequisite: three years of college-level Russian or equivalent.

000:117 Frankfurt Exchange Program arr.
Regular degree course work at Johann Wolfgang Goethe Universität, Frankfurt, Germany; taught in German. Academic year. Arranged through College of Business Administration. Prerequisite: at least two years of college German, business background.

000:119 Vienna Exchange Program arr.
Regular degree course work in business administration and economics at Wirtschafts universität in Vienna, Austria; taught in German. Arranged through College of Business Administration. May be repeated. Prerequisite: at least two years of college German or equivalent.

000:805 Iowa Regents Semester in Wales arr.
University of Swansea; interdisciplinary course on British life, culture; regular degree course work in humanities, social sciences, philosophy, psychology, politics, law. Minimum 2.50 grade-point average required.

000:810 CIEE Spain Program arr.
Five programs in Seville and Alicante for specific language proficiency levels, academic interests. Minimum 2.50 grade-point average required. Prerequisites vary by program.

000:811 USAC San Sebastian Program arr.
Intensive beginning-level Spanish language; third-year level language, civilization, literature, intensive Basque language; some courses taught in English. Minimum 2.50 grade point average required.

000:812 CIEE paris Program arr.
Centre-Franco American Olsen and University of Paris II; film studies; contemporary French critical thought in literature, philosophy, semiotics, psychoanalysis. Minimum 3.00 grade-point average required. Prerequisite: three years of college-level French.

000:813 CIEE China Program arr.
Three programs in People’s Republic of China, three in Republic of China, Mandarin Chinese, Chinese civilization and culture. Semester, academic year, or summer. Prerequisites vary.
The office also provides programs on resume and nonprofit agencies. Students and alumni are encouraged to explore and plan their careers and obtain educational work experience.

Located in Calvin Hall, the center includes a career library with information on occupations and cooperative education/internship position listings. The materials contain job descriptions, educational requirements, job outlook, and salary information.

Professional staff advisers are available for individual appointments. They provide help with self-assessment, exploring new possibilities, and in seeking work related to academic and career interests. The center also maintains a computerized career decision-making program, SIGI PLUS, which is accessible at five of the University’s computer clusters.

Each year some 1,000 students accept internship positions. Cooperative education assignments, which coincide with fall or spring semesters or summer sessions, include opportunities throughout Iowa, across the nation, and overseas.

Cooperative education offers undergraduates and graduate students opportunities to assume professional responsibilities, apply academic studies in supervised work situations, and receive recognition for work experience related to their degree program. Internships and cooperative education also give students an inside look at different kinds of organizations and professional work areas. With the approval and supervision of faculty members, many students are able to obtain a transcript notation while gaining professional work experience.

The University offers many cooperative education courses; see course listings in the College of Liberal Arts section of the Catalog.

Center for Career Development and Cooperative Education

This center helps University students and alumni graduates explore and plan their careers and obtain educational work experience.

Professional staff advisers are available for individual appointments. They provide help with self-assessment, exploring new possibilities, and in seeking work related to academic and career interests. The center also maintains a computerized career decision-making program, SIGI PLUS, which is accessible at five of the University’s computer clusters.

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Tutorial Labs

Mathematics Tutorial Laboratory

The Mathematics Tutorial Laboratory is integral to instruction in both pre-college and freshman-level mathematics courses. Students are encouraged to use the math lab’s programs and facilities, which include private and small-group tutoring, self-instructional materials, computer-assisted instruction, and diagnostic testing and advising.

The math lab holds tutoring hours throughout the day and on some evenings; no appointments are necessary. Students are encouraged to stop by the lab for help with their assignments; to use the lab as a resource for supplementing materials; to study in the lab’s supportive environment; and to consult with their teaching assistants concerning problems related to their math courses.

Reading Lab

The Reading Lab, located in the English-Philosophy Building, provides individual instruction for all University students interested in improving their ability to read with comprehension and enjoyment.

Most students come to the Reading Lab to work on assignments from difficult courses. Some want to improve their study strategies-writing notes, taking tests, and so forth; others need help using the University Libraries for research projects. Many simply want to become more efficient and capable readers. Whatever their goals, students can work on readings of their own choice.

Each student meets twice a week for an hour of one-on-one tutorials with his or her own instructor. No fee or registration is required; students may sign up at the Reading Lab.

Rhetoric 10/8 Individual Instruction in Reading is offered through the Reading Lab. For more information, see “Rhetoric” in the College of Liberal Arts section of the Catalog.

Placement, Career Services, Co-op Ed

Placement Office

Professional staff of the Business and Liberal Arts Placement Office help students and graduates at every stage of the career planning process. With the guidance of advisers, students discover what they do well and enjoy, explore career options, and develop strategies to make their career search efficient and successful.

The office provides programs and services for seniors and graduate students seeking employment in business, industry, government, and nonprofit agencies. Students and alumni can attend on-campus interviews that take place in the fall and spring, and can register for a subscription to a weekly job Bulletin and a reference file service.

In cooperation with the Alumni Association, the Career Information Network provides AlumNet (a networking service), externships, and other services that call on the help of alumni volunteers.

The office also provides programs on resume preparation, job hunting, and interviewing skills. Its Employer Literature Room offers information on employers, salaries, and employment trends. There also is a federal job information center.

Careers Day, a cooperative event held each fall, offers students the opportunity to meet with hundreds of employers. A separate graduate and professional school fair is held each fall, and a Summer Job Fair is held each spring semester.

Offices are located in Phillips Hall.
Student Disability Services

The University of Iowa is committed to making its facilities, services, and programs fully accessible to people with disabilities. The Office of Student Disability Services (SDS), located in Burge Residence Hall, provides assistance to students with a wide range of visible and nonvisible disabilities, including hearing and speech impairments, learning disabilities, mobility impairments, visual impairments, and others. The office’s goal is to help students with disabilities enjoy the same rights and assume the same responsibilities as do other students. The office also provides information to students, faculty, and staff on educational services for students with disabilities.

SDS works closely with University faculty and staff to provide assistance with admission, orientation, academic and career planning, academic support services, financial aid, housing, transportation and parking, aide and attendant care, health services, and recreational services (see “Recreational Services” in this section of the Catalog). The office works with students individually to locate the type of assistance appropriate to their needs, from tutors or personal attendants to tape recorders to emergency-loan wheelchairs.

Special Support Services

The Office of Special Support Services (Undergraduate Educational Opportunities Program) includes New Dimensions in Learning, a math and science tutoring program, and the Upward Bound Project. New Dimensions in Learning is open to first-generation low-income students and students with disabilities. The Undergraduate Educational Opportunities Program (UEOP) is designed to provide academic assistance and personal support to historically underrepresented minority students in higher education. The program encourages African-American, Hispanic/Latino, American Indian, and American Asian students to achieve academic excellence and personal development.

Campus Programs and Student Activities

The Office of Campus Programs & Student Activities (OCPSA), located in the Iowa Memorial Union, provides diverse and balanced social, cultural, recreational, and educational programs and activities in the Iowa Memorial Union and on The University of Iowa campus. The office helps individual student organizations to design, build, and maintain educational environments that enhance personal growth and achievement of organizational purpose.

Professional staff members provide information to students who want to become involved in organizations suited to their interests or to form new groups or organizations. They also conduct workshops on enhancing leadership skills and organizational effectiveness. The Volunteer Iowa Program (VIP), designed to bring University students interested in volunteer service together with local community service agencies, is coordinated by the OCPSA.

Campus programming and special event planning are ongoing tasks for OCPSA. Student groups, working in conjunction with OCPSA staff, plan and conduct traditional events such as Homecoming, RiverFest, minority and international events and festivals, and new campus programs. Various governing bodies, commissions, and committees benefit from OCPSA assistance in their efforts to promote life outside the classroom as well as to increase the University’s visibility in the community. Among student governing bodies with which OCPSA works are The University of Iowa Student Association (UISA), the Panhellenic Council, the National PanHellenic Council, and the Interfraternity Council. The commissions and committees include SCOPE (the concert promotion group), the Bijou Film Commission, the Student Legal Services Commission, Fine Arts Council, and the University Lecture Committee. The office also administers the Arts and Craft Center, the Student Activities Center, the University Box Office, OCPSA Business Office, the Afro-American Cultural Center, and the Chicano Native American Cultural Center.

Cultural Centers

Afro-American and Chicano Native American Cultural Centers

The University operates the Afro-American Cultural Center and the Chicano Native American Cultural Center under the auspices of the Office of Campus Programs & Student Activities. Students meet at the centers to share experiences, find mutual academic and personal support, relax, and develop social programs, all in an atmosphere that emphasizes their cultural heritage. Programs and activities at the center are open to all students.

The Afro-American Cultural Center sponsors discussion groups, orientation programs, movies, and class sessions. The house is decorated with art by African and Afro-American artists and has study areas, a kitchen, and a library of publications by African, Afro-American, and Third World authors.

The Chicano Native American Cultural Center sponsors conferences, lectures, and workshops on cultural themes. The center also houses a library with special-interest books and periodicals and displays wall murals painted by students and guest artists.

International Center

The International Center serves members of the University community who have international interests. Its facilities and programs are designed to encourage interaction among people of all cultures.

The International Center Lounge is open to University and Iowa City individuals and to groups sponsored by an International Center unit.

Sports and Recreation

Intercollegiate Athletics for Men

The University of Iowa is a member of the Big Ten Conference and has athletic programs in football, basketball, track and field, baseball, swimming, golf, wrestling, tennis, cross-country, and gymnastics. General policy guidelines are recommended by the Board in Control of Athletics, which is composed of 12 members from the University’s teaching and administrative staff, two University alumni, one representative from the University Staff Council, and two students.

Intercollegiate Athletics for Women

The University of Iowa sponsors nationally competitive intercollegiate athletic varsity teams for women in basketball, crew, cross-country, field hockey, golf, gymnastics, softball, swimming and diving, tennis, track and field, and volleyball. It competes as a member of the Big Ten Conference and the National Collegiate Athletic Association (NCAA). Athletic scholarships are available in all 11 programs to qualified student athletes. Women’s Intercollegiate Athletics is governed by the University Board in Control of Athletics.

Recreational Services

The Division of Recreational Services, located in the Field House, administers one of the most diverse recreation programs in the country. There are seven major programming areas in which students, faculty, and staff may participate.

Intramural Program

More than 30 different intramural sports are offered. Activities vary from popular team sports such as basketball and flag football to individual and novel activities such as trapshooting and wallyball.
Sports Clubs
Recreational services advises and funds more than 20 sport clubs organized by individuals to further their interest in a sport or recreational activity. Clubs range from competitive team clubs such as soccer and rugby to recreational clubs such as sailing and table tennis.

Lesson Programs
Recreational services offers a variety of noncredit instructional classes for all age groups throughout the school year. To defray the cost of providing instruction, the office charges a minimal registration fee for each program. Typical lesson programs include gymnastics, tennis, swimming, scuba diving, and various martial arts classes.

The division also offers fitness programs that stress aerobic exercises designed for people of all ages and fitness levels.

Informal Recreation
An informal drop-in recreation program is available for popular activities, including basketball, swimming, racquetball, volleyball, tennis, weight training, and jogging.

Outdoor Recreation
The division operates the Macbride Nature Recreation Area, one of the finest university-managed outdoor programs in the country. The 435-acre nature area, located 15 miles north of Iowa City on Lake Macbride and the Coralville Reservoir, offers picnic and camping sites, nature trails, an outdoor archery range, a raptor/nature center, and some of the finest cross-country ski trails in the Midwest. It also is the site of day camps and nature awareness programs for elementary school children.

The division also sponsors a weekend outdoor trip program that features a wide variety of activities such as white water rafting and canoeing, backpacking, bicycling, kayaking, rock climbing, horseback riding, cross-country and downhill skiing, and spelunking. An outdoor check-out service, located at 700 South Clinton Street, offers all types of outdoor equipment, including cross-country skis, picnic equipment, canoes, backpacks, skates, and tents.

Persons with Disabilities
Recreational services has a weight and exercise room with equipment modified for use by persons with disabilities. In addition, recreation staff members are available to help disabled students who want to be included in regular recreational services programs. The division offers a limited number of programs strictly for persons with disabilities.

Summer Sports Camps
The University of Iowa has one of the largest summer sports camp programs in the Midwest. All popular team sports are offered—boys' and girls' basketball, badminton, tennis, volleyball, wrestling, track and field, golf, boys' and girls' gymnastics, baseball, softball, and tennis. There also are unique camps in activities such as cheerleading and sports medicine. The University of Iowa Sports Camps Office is in the Recreational Services Office, located in the Field House.

Iowa Memorial Union
The Iowa Memorial Union is the hub of student life. Its facilities include a copy center; the Campus Information Center; the University Box Office, with check cashing service and a U.S. Postal Station; the Office of Campus Programs and Student Activities; the Wheelroom, which often live entertainment; a recreation area with billiards and electronic games; a hair salon; an art and craft resource center; a bookstore; moms for lectures, concerts, meetings, and social events; and art and sculpture display areas. It offers a variety of food services, including the River Room cafeteria, Union Station, Union Pantry and Union Market, State Room (a formal dining room), and catering service.

The adjoining Iowa House has 110 guest rooms for parents, alumni, conference participants, and other visitors to the campus.

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The adjoining Iowa House has 110 guest rooms for parents, alumni, conference participants, and other visitors to the campus.

Also housed in the union are the Instructional Technology Center (ITC); the Student Activities Center, with student organization offices and an extension of the ITC; and the Center for Conferences and Institutes.

Student Health Service
Student Health Service is located in the Steindler Building on the University health center campus. All students registered at the University for 5 or more semester hours are charged a mandatory health fee and are eligible for outpatient care at the Student Health Clinic. Students registered for O-4 semester hours may choose to pay the health fee to receive the same care. Students registered for O-4 semester hours who do not pay the health fee may use the Student Health Service, but they are charged a fee for each visit.

Payment of the health fee allows unlimited free office visits. There are additional charges for laboratory procedures, X-rays, accident examinations, minor surgery, and special procedures.

AU University students are advised to have health and accident insurance. A University-sponsored group insurance is available for students in individual or family plans. This insurance policy must be obtained prior to or during registration and is available through the Business Office in Jessup Hall.

University counseling service
The University Counseling Service (UCS) is committed to fostering a multicultural environment. Its staff of professional psychologists and advanced doctoral students offers learning disability assessment and career and personal counseling and therapy in individual, couple, or group sessions. UCS also offers programs, workshops, and consultation activities. Most of its services are available to students without cost, but there is a fee for psychological testing.

Veterans Services
The Office of Veterans Services is part of the Office of the Registrar. It serves veterans, dependents of veterans, and service personnel in matters relating to Veterans Affairs educational benefits, University registration, and study at the University.

Women's Resource and Action Center
The Women's Resource and Action Center (WRAC) provides services to meet educational, cultural, social, and personal needs of University and community women. WRAC advocates the removal of all barriers to equal access and self-determination, including barriers of racism and classism as well as those based on physical ability, sexual preference, and gender. Through its feminist programs and services, the staff is committed to empowering Iowa women through providing information, skills, and support.

The WRAC provides a resource for many women's organizations; sponsors a Brown Bag Luncheon program; offers evening and weekend workshops, lectures, films, and classes; provides a wide variety of support and discussion groups for women; offers one-on-one problem-solving sessions for women; and publishes a newsletter.

The WRAC houses the Sojourner Truth Women's Resource Library of books and periodicals on a wide range of women's topics. For persons dealing with sexual harassment and other forms of discrimination, WRAC acts as an advocate and provides emotional and informational support. WRAC maintains an information and referral system, a speakers bureau, and an active volunteer program.

Housing
Fair Housing Policy
The following is the University's statement on fair housing practices: "It is and shall be the firm policy of the University that households shall rent to all students on the basis of their individual merits as persons, without exclusion or discrimination on the basis of race, creed, color, or national origin."

Iowa City has a fair housing ordinance providing for equal opportunity to secure housing without distinction due to race, religion, or ancestry, except in certain instances involving owner-operator dwelling units. A Human Relations Commission is responsible for the observance of this ordinance and for the initiation of redress for violations of it.
University Residence Halls

The University’s nine residence halls provide housing and dining accommodations and academic and program support for 5,526 single students; 749 units are available in the family housing apartment complex operated by the Department of Residence Services. Single, double, triple, and quadruple rooms with full or partial board are available in the Grand Avenue Residence Halls (west campus), which include Hillcrest, Quadrangle, Rienow, and Slater halls, and in the Clinton Street Residence Halls (east campus), which include Burge, Daum, Currier, Stanley, and Mayflower halls. There are lounges, study areas, television rooms, game rooms, coin laundry facilities, weight rooms, kitchens, sundekes, and pianos in or available to each residence hall. Computer terminals (both IBM and Macintosh), reference materials, browsing libraries, and private rooms for group study sessions are available in five monitored learning centers.

Each residence hall is divided into small living units. Each building has a live-in hall coordinator, and there is a resident assistant living on each floor. All students are encouraged to participate in residence hall government to plan programs and discuss issues. Student- and staff-initiated programs and activities provide opportunities for students to pursue social, recreational, cultural, and educational interests. Several academic classes are taught in residence halls. An undergraduate academic advising center is located in Burge Hall and tutorial sessions are available there.

All students living in residence halls must contract for a food plan, with the exception of Mayflower residents, who may contract for room only. There are ten plans to choose from, ranging from weekday breakfast only to daily breakfast, lunch, and dinner. There is no Sunday evening meal.

Students who do not live in residence halls may purchase full or partial board contracts.

Applications and Assignments

Prospective undergraduate students should request housing application forms to apply for residence hall accommodations. Prospective students are encouraged to apply for housing at the same time they apply for admission to the University. Applicants for residence hall accommodations should read the terms and conditions of the contract carefully, provide all information requested on the application form, sign the contract portion, and return the completed application/contract to the housing office in Burge Hall, with a check for $50 made payable to The University of Iowa.

Students wishing to be roommates must ask for the same accommodations. Students must list one another’s names and social security numbers and be sure they have listed roommate as their number-one priority of preference.

Roommate requests are processed according to the date the last roommate’s housing application is received. The housing office does not consider requests for roommates who have not been admitted at the time assignments are made, for those who have not made the advance payment, or for those who have not completed the housing application correctly.

Applicants do not receive room assignments until after they have been admitted to the University. However, they are encouraged to apply for housing at the same time they apply for University admission.

The residence hall application/contract and $50 advance payment constitute a contract offer. Applicants may withdraw by notifying the University Housing Office in writing before their application becomes a binding contract. The application becomes binding approximately ten days after the University Housing Office issues notice of acceptance of the contract and assignment of accommodations. Assignments are usually mailed to new students during June, July, and August.

Upon written request, the $50 advance payment is refunded to applicants who are not admitted to the University and to those who cancel their residence hall contracts by the binding date of the contract.

Rates

Basic rates for University residence hall accommodations for the 1994-95 academic year are $3,423 for a non-airconditioned double room and $3,162 for a non-airconditioned triple, with full board (20 meals per week). Rates for room and board options vary according to accommodations. Rates are subject to change annually.

Family Housing

Family housing apartments are available to any registered University of Iowa student. Priority is given to students with dependent children.

The University provides 749 unfurnished family living units in three complexes. Hawkeye Drive and Hawkeye Court are located on the west side of Iowa City, and Parklawn is located close to the central campus. Each complex is unique, but all three offer off-street parking, refrigerator and range, paid water, city bus and Cambus service, play areas for children, telephone and local service, and basic television reception with pay cable option. There is schoolbus transportation for children in Hawkeye Drive and Hawkeye Court.

Rent includes telephone with on-campus and local service. Heat, but not electricity, is included in the monthly rent for Hawkeye Drive residents. Hawkeye Court and Parklawn residents must pay for gas and for electricity. All units are unfurnished.

Monthly rents for the 1994-95 academic year are $203 for efficiencies, $248 to $264 per month for one-bedroom units, and $300 to $377 for two-bedroom units. Rates are subject to change annually.

Applicants must meet all University admission requirements before assignments can be made. Applications may be filed before admission is received, but they are not accepted more than a year in advance.

Off-Campus Housing

The Housing Clearinghouse, located at the Campus Information Center in the Iowa Memorial Union, maintains and provides accurate, up-to-date listings of available rental units in the Iowa City area, including large apartment complexes, smaller complexes, rooms in private homes, and one-, two-, and three-bedroom duplexes and houses. The clearinghouse also suggests other resources useful in looking for housing and offers a packet of helpful information for prospective residents of the area.

Fraternities and Sororities

Twenty-four undergraduate social fraternities and 19 undergraduate social sororities exist on the University campus. Nineteen fraternities and 14 sororities operate chapter houses, which accommodate 35 to 60 people each.

Undergraduate fraternities include Acacia, Alpha Kappa Lambda, Alpha Phi Alpha, Alpha Tau Omega, Beta Theta Pi, Delta Chi, Delta Tau Delta, Delta Upsilon, Kappa Sigma, Lambda Chi Alpha, Phi Beta Sigma, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Psi, Phi Kappa Sigma, Phi Kappa Theta, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Alpha Mu, Sigma Lambda Beta, Sigma Nu, Sigma Phi Epsilon, Sigma Tau Gamma, and Tau Kappa Epsilon.

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Codes, Policies, and Students’ Rights

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Codes, Policies, and Students’ Rights

As members of the academic community, students are encouraged to develop a capacity for critical judgment and to engage in a sustained and independent search for truth. Freedom to teach and freedom to learn are inseparable facets of academic freedom. The freedom to learn depends on appropriate opportunities and conditions in the classrooms, on the campus, and in the larger community. To provide and safeguard the right of every individual student to exercise this freedom to learn without undue interference by others, the University has developed a Code of Student Life. The code covers conduct that adversely affects a University process or function or some distinct and clear interest of the University as an academic community. In order to foster an environment where academic freedoms are exercised in a responsible manner, all students are expected to acquaint themselves with the code and to conduct themselves in accordance with the standards it sets forth.
University Policy on Human Rights

The University of Iowa brings together in common pursuit of its educational goals persons of many nations, races, and creeds. The University is guided by the precept that in no aspect of its programs shall there be differences in the treatment of persons because of race, creed, color, national origin, age, sex, disability, and any other classifications that deprive the person of consideration as an individual, and that equal opportunity and access to facilities shall be available to all. Among the classifications that deprive the person of consideration as an individual are those based on affectional or associational preference. This principle is expected to be observed in the internal policies and practices of the University, specifically in the admission, housing, and education of students; in policies governing programs of extracurricular life and activities; and in the employment of faculty and staff personnel. The University shall work cooperatively with the community in furthering these principles.

Student Complaints Concerning Faculty Actions

Student complaints concerning actions of faculty members or teaching assistants are pursued first through the informal mechanism established in each college for this purpose.

Although there is some variation among colleges, these mechanisms generally involve the following steps:

- The student should first attempt to resolve the issue with the instructor involved.
- If the instructor is a teaching assistant, the student may approach the faculty supervisor of the course.
- Lacking a satisfactory outcome, the student should turn to the departmental executive officer.
- If the outcome still is not satisfactory, the student may take the matter to the collegiate dean.

The Colleges of Business Administration, Education, Engineering, Liberal Arts, Medicine, and Nursing have written policies and procedures for resolving complaints. The Colleges of Dentistry, Engineering, Law, and Nursing also have established ombudsperson systems as alternative mechanisms for handling student complaints. Information concerning the mechanisms established by a specific college is available in the collegiate dean's office.

Graduate students should consult with the associate dean for academic affairs in the Graduate College concerning ways to resolve complaints.

If a student's complaint concerning a faculty action cannot be resolved through the informal mechanisms available, the student may file a formal complaint, which will be handled under the procedures established for dealing with alleged violations of the “Statement on Professional Ethics and Academic Responsibility,” as specified in section 20:290 of the University Operations Manual. A description of these formal procedures, found in section 20:260 of the University Operations Manual, can be obtained from each college dean's office; the University and collegiate ombudspersons; the College of Liberal Arts Office of Academic Programs; or the Undergraduate Academic Advising Center.

University Ombudsperson

The Office of the University Ombudsperson responds to problems and disputes brought forward by all members of the University community—students, staff, and faculty. The ombudsperson investigates claims of unfair treatment or erroneous procedure and serves as a neutral and detached listener, information resource, adviser, intermediary, and mediator. The ombudsperson considers all sides of a question in an impartial and objective way.

The ombudsperson's office is an independent entity. It does not report to the University administration. It treats all requests and consultations in strict confidence. It will not divulge a client's name or the nature of his or her complaint without the client's consent.

Before consulting the ombudsperson, students, staff, and faculty should try to resolve their problems by following procedures outlined by University rules and policies. Where practical, faculty and staff members should discuss problems with department chairs and/or supervisors; students should follow procedures in the handbook Policies and Regulations Affecting Students. Students, staff, and faculty usually should consult the appropriate academic adviser, department head, supervisor, chair, dean, or other administrator before contacting the ombudsperson.

They may consult the ombudsperson at the outset, however, if use of official channels would result in lengthy and damaging delays or a lack of confidentiality and/or impartiality detrimental to their cases.

The ombudsperson has no power to order changes in rules, regulations, policies, procedures, or the behavior of others. Solutions reached through the Office of the Ombudsperson are nonbinding; it is the responsibility of the parties involved to see that the solutions are implemented.

Policy on Sexual Harassment

Following are excerpts from the University "Policy on Sexual Harassment and Consensual Relationships," which is printed in full in the booklet Policies and Regulations Affecting Students.

Section 1. Rationale

(a) Sexual harassment is reprehensible and will not be tolerated by the University. It subverts the mission of the University and threatens the careers, educational experience, and well-being of students, faculty, and staff. Relationships involving sexual harassment or discrimination have no place within the University. In both obvious and subtle ways, the very possibility of sexual harassment is destructive to individual students, faculty, staff, and the academic community as a whole. When, through fear of reprisal, a student, staff member, or faculty member submits or is pressured to submit to unwanted sexual attention, the University’s ability to carry out its mission is undermined.

(b) Sexual harassment is especially serious when it threatens relationships between teacher and student or supervisor and subordinate. In such situations, sexual harassment exploits unfairly the power inherent in a faculty member’s or supervisor’s position. Through grades, wage increases, recommendations for graduate study, promotion, and the like, a teacher or supervisor can have a decisive influence on a student’s, staff member’s, or faculty member’s career at the University and beyond.

(c) While sexual harassment most often takes place in situations of a power differential between the persons involved, the University also recognizes that sexual harassment may occur between persons of the same University status. The University will not tolerate behavior between or among members of the University community that creates an unacceptable working or educational environment.

Section 2. Prohibited Acts

No member of the University community shall engage in sexual harassment. For the purposes of this policy, sexual harassment is defined as unwelcome advances, requests for sexual favors, or other verbal or physical conduct of a sexual nature when

- (a) Submission to such conduct is made explicitly or implicitly a term or condition of an individual’s employment or status in a course, program, or activity;
- (b) Submission to or rejection of such conduct is used as a basis for an employment or educational decision affecting an individual; or
- (c) Such conduct has the purpose or effect of unreasonably interfering with an individual’s work or educational performance or of creating an intimidating, hostile, or offensive environment for work or learning.

Section 7. Consensual Relationships in the Instructional Context

No faculty member shall have an amorous relationship (consensual or otherwise) with a student who is enrolled in a course being taught by the faculty member or whose academic work (including work as a teaching assistant) is being supervised by the faculty member.
## Special Resources at Iowa

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*The University of Iowa Museum of Art*
RESEARCH AND INTERDISCIPLINARY ACTIVITIES

The University recognizes that its creative activity is indispensable if its teaching is to have the relevance, freshness, and effectiveness expected of a distinguished institution of higher learning.

The University holds that the term “research” applies to creativity in all fields. Imaginative originality, whether in the fine arts or in the sciences, is of a common character and significance in the overall intellectual life of the institution.

The Office of the Vice President for Research maintains an overview of the many individual research commitments of the institution and actively promotes the research mission of the University in many ways. It

- fosters the development of new knowledge;
- develops and maintains the infrastructure for proper conduct of research;
- helps individuals, groups, and organizational units search out and obtain funds from potential sources in order to enhance the University’s education, research, and service missions;
- provides a forum for systematic institutional review of potential major, research-based University initiatives as well as interim management for projects judged worthy of pursuit;
- fosters interdisciplinary and collaborative research and service efforts within and beyond the University to take advantage of funding opportunities;
- identifies high-priority national and state research needs related to the University’s mission; disseminates information pertaining to those needs; and assists in development of a University agenda to meet those needs;
- affects federal legislation and regulations enhancing the University’s position as a major education and research institution;
- promotes the development of the Oakdale Research Campus in support of the University’s research mission;
- stimulates and manages technology transfer of intellectual property to the private sector;
- manages University efforts to improve Iowa’s economy;
- promotes the Oakdale Research Park as a vehicle for University/industry interaction.

The Office of the Vice President for Research also maintains a close relationship with the Graduate College because of the college’s University-wide character and the vital connection between graduate programs and research and creative activity.

The University Research Council assists the vice president for research in a regular advisory capacity. The council consists of ten faculty members who are widely recognized for their personal involvements in basic research or creative activity, one representative of the University staff, and two student members.

Faculty members include two each from the physical, biological, and social sciences and the humanities, and two from the faculty at large. The council gives regular consideration to matters such as the establishment of general policies regarding the University’s research and creative efforts, the review of policies and procedures concerned with securing and allocating funds for support of research and creative activity, and additional matters related to the general research and creative functions of the University and the health of basic scholarship on the campus.

Programs

The Office of the Vice President for Research currently supports the following programs, with the advice of the University Research Council and other appropriately involved University officers and committees.

Central Investment Fund for Research Enhancement

The Office of the Vice President for Research annually solicits proposals for support of scholarly and creative projects through the Central Investment Fund for Research Enhancement (CIFRE). All tenured and tenure-track faculty and all research scientists are eligible, except for recent recipients of CIFRE awards. Preference is given to applicants in the early stages of their careers.

CIFRE funds are oriented specifically to assisting faculty and research scientists in exploring new approaches and/or enhancing the competitiveness of subsequent applications for external research funding. Applications from faculty in all areas of scholarly endeavor—the arts and humanities, biological sciences, physical/mathematical sciences, and social sciences—are welcome.

Carver Scientific Research Initiative Grants Program

The Carver Scientific Research Initiative Grants Program, funded by the Roy J. Carver Charitable Trust of Muscatine, Iowa, is designed to focus support on nonmedical projects in the sciences and in technology-related fields. The program provides competitive research grants to tenure-track faculty who have exciting ideas with long-range potential, but who need to conduct preliminary studies in order to launch a research project. Awards normally are limited to projects in the natural, physical, biological, and technological sciences in the Colleges of Liberal Arts and Engineering.

Incidental Grants

Limited funds also are available in the Office of the Vice President for Research for small grants to faculty members to cover the costs of materials, supplies, equipment, proposal writing, and clerical and related assistance for specific research projects; for faculty members’ domestic travel related to specific research projects or for the purpose of acquiring skills, knowledge, or techniques that will enhance research at the University; and for honoraria and expenses of visiting lecturers.

Services

The Office of the Vice President for Research also provides support for several University-wide services required by faculty members engaged in research and creative activities. They include the following.

Central Research Facilities

To maintain state-of-the-art resources for key research activities within the University, selected facilities are identified for centrally supported development. Such facilities generally are available to interested graduate students and faculty and on a time-available fee-for-service basis to those outside the University community. Currently these facilities include the following.

Animal Care Unit

The staff of the Animal Care Unit is responsible for the purchase, maintenance, husbandry, and veterinary care of all animals used in research.

In addition, the staff ensures that all work with animals is conducted in accordance with regulations of the U.S. Public Health Service and the U.S. Department of Agriculture.

Faculty members are encouraged to consult with animal care personnel when writing applications for grants, especially with regard to choice of animal models and numbers, completion of animal care and use review forms, aseptic surgery, special procedures, biohazards, questions concerning humane treatment, budgetary considerations, and the University’s policy on animal care. Training for investigator concerning proper husbandry and biomedethodology is available upon request.

All requests for animals must be initiated through the Animal Care Unit. All protocols involving animals, regardless of funding arrangements, must be approved by the University Animal Care and Use Committee before study is begun.

Image Analysis Facility

The Image Analysis Facility provides a unique combination of software, computer-based hardware, and technical expertise for those interested in computer visualization and imaging and molecular modeling. Several commercial, public, and faculty-developed software packages are available, including applications in image processing, graphics modeling, voxel processing, three-dimensional animation, and molecular modeling.

Image processing applications include digital image acquisition, image enhancement, and image analysis. Images can be digitized from films, video signals, videotape, microscopic slides, electron micrographs, autoradiographs, gels, and photographs. Images that have been digitized elsewhere (including images from medical scanners) and stored on magnetic media can be transferred into the computer via a magnetic tape drive, a floppy disk drive, the Internet, or a computer modem.
Once images have been stored on the computer, they can be processed on Silicon Graphics Iris workstations, Macintosh II computers, and IBM PCs. Three-dimensional visualization techniques, such as voxel processing and molecular modeling, can be performed on one of four Silicon Graphics workstations.

The facility has several molecular modeling programs, including TOE, SYBYL, NITRO, Gaussian 85, Ribbons, and MacMolecule. University courses and workshops are offered in molecular modeling.

Also available are 3-D surface modeling services, including model building, rendering, and training in 3-D modeling. Software development and consultation is available from the three full-time engineers. Training in techniques and production work also is available.

Electron Microscopy Facility

The Electron Microscopy Facility provides instrumentation and technical assistance to researchers involving the use of light microscopy, laser scanning confocal microscopy, scanning probe microscopy, scanning and transmission electron microscopy, and X-ray microanalysis.

Equipment includes the following: a Hitachi S-2700 scanning electron microscope equipped with a cryostage, backscattered electron detector, and a Kevek EDS system; a Hitachi S-4000 field emission scanning electron microscope equipped with a backscattered electron detector; Hitachi H-4000 and H-7000 transmission electron microscopes equipped with STEM and a Kevek EDS system, a cryostage, electron diffraction, a lanthanum hexaboride electron source, and tilting and rotational holders; a Bio-Rad MRC-600 laser scanning confocal microscope equipped with a krypton/argon laser, dual detection system, optical disc storage, freeze-frame camera, color printer, and a heating/cooling stage; a Digital Instruments Nanoscope II scanning probe microscope equipped with a Nanoscope II head; a Hitachi S-4500 cryoSEM apparatus; an Autotechnion tissue processor; a Bio-Rad SEM dehydrator; a Bio-Rad critical point dryer; an EMITECH sputter coater; a Balzers freeze-substitution unit; four Reichert ultratoc-E ultra-microtomes including an FC-4D cryosectioning apparatus; A.O. paralin microtomes; an Oxford vibratome; a Reichert cryostat; LKB glass knife makers; diamond knives; a Leitz Diapan light microscope equipped with brightfield, darkfield, phase, Nomarski DIC, epi-polarization, and epi-fluorescence microscopy, as well as 35mm, Polaroid, and video cameras; a Gatan ion mill; a Bio-Rad plasma ash; an Emissive carbon coater; a Hitachi vacuum evaporator; a Wescor osmeter; centrifuge; balances; ovens; and three photographic darkrooms equipped with automatic film and print processors.

The facility also provides all solutions, supplies, and training for investigations involving microscopy, including specialized staining and embedding techniques, negative staining, metal-coating, autoradiography, cryofixation and cryomicrotomy, enzyme-cytochemistry, immunocytochemistry, morphometry and stereology, the preparation of material science samples for both TEM and SEM, including X-ray microanalysis, and other procedures. A library containing texts and reviews on various applications of light, scanning probe, and transmission and scanning electron microscopy also is available.

The facility is intended to serve both experienced and novice investigators and to provide training for those who need it. Alternatively, all or parts of a project can be handled by the facility staff. The facility is available seven days a week, 24 hours a day, on a first-come, first-served basis. It is located in the Eckstein Medical Research Building.

High Field Nuclear Magnetic Resonance (NMR) Facility

Three superconducting spectrometers form the basis for the High Field NMR Facility. The Bruker WM-360 spectrometer operates at 360 MHz, and the Bruker MSL-300 operates at 300 MHz for proton observation. The Bruker Amx-600, operating at 600 MHz, represents the most advanced commercially available NMR spectrometer. Very high spectral resolution and sensitivity can be achieved for structural determination of complex molecules. All three instruments are fully multinuclear and have variable temperature capabilities. Virtually any multipulse two-dimensional experiment can be performed on the spectrometers.

Hard disk, floppy disk, or tape-drive systems provide for data storage. Off-line data processing is available on Silicon graphics or DOS-based computers. Proton NMR spectra are recorded in 5mm tubes; carbon-13 and other heteronuclear spectra are recorded in 5mm, 10mm, or 20mm tubes. Carbon-13 observation is possible with a combination of proton and either fluorine or phosphorus decoupling. Solid samples can be examined in either the high power or magic-angle spinning modes on the Bruker MSL-300 spectrometer.

For the casual user, spectra are recorded by a technician, whereas hands-on use is encouraged for the frequent user after an appropriate training period. The facility is located in the northwest ground floor area of the Chemistry Building.

High Resolution Mass Spectrometry Facility

The High Resolution Mass Spectrometry Facility, located in the Chemistry Building, provides the capability for almost any experiment in modern mass spectrometry. Through the utilization of this facility, information about the molecular weight, elemental composition, and molecular structure of organic, bioorganic, and inorganic molecules can be obtained (to 6000 amu). The most important of these experiments are gas chromatography-mass spectrometry, fast atom bombardment mass spectrometry (FAB-MS) permits the analysis of very large, polar, and/or involatile compounds that cannot usually be studied by other mass spectrometric methods. FAB-MS is particularly useful for biologically important compounds such as polypeptides, nucleic acids, oligosaccharides, antibiotics, and toxins.

High resolution mass spectrometry provides extremely accurate mass measurements that permit assignment of probable elemental composition for any molecular ion or fragment. Analysis of molecular ions in this manner generally provides better accuracy and requires less sample than any other method of elemental analysis. This technique can be applied even if the sample is impure.

The facility houses three mass spectrometers. The primary instrument is a VG ZAB-HF high resolution mass spectrometer, which is interfaced to a Hewlett-Packard (HP) 5890A capillary and a DEC PDP 11/73 data system. The instrument is equipped with positive and negative ion analysis capabilities in the electron impact (EI), CC-MS, and FAB ionization modes. High resolution mass measurements can be made in all of these modes of operation.

The second, a VG TRIO-3 triple quadruple mass spectrometer interfaced to a Waters 600 MS high-performance liquid chromatography, an HP 5890A CC, and a DEC PDP 11/53 data system, permits LC-MS as well as EI, CC-MS, and FAB experiments. MS-MS techniques used for structure elucidation experiments can be applied in all modes. The third instrument, a VG TRIO-1 single quadruple mass spectrometer, is interfaced to an HP 5890A GC and an INTEL 80386/387 computer. The TRIO-1 is available for routine, low resolution EI and CC-MS experiments. The user-friendly nature of the TRIO-1 data system permits hands-on sample analysis after a brief training session.

Fermentor Facility

The Fermentor Facility, located at the Oakdale Research Park, makes possible the large-scale growth and recovery of such microorganisms as yeasts and bacteria.

The facility is suitable for 10-liter or 100-liter preparations of recombinant or pathogenic microorganisms. With its sophisticated growth, monitoring, control, and harvesting systems, the facility is one of only four medium or large-scale fermenters in the United States that are able to grow methanogenic bacteria; and it is one of only five or six such facilities able to grow extremely thermophilic bacteria at 70-100 degrees C.

The facility’s director is available for consultation on medium composition, fermenter conditions, and growth strategies. Further services are provided in areas such as inoculum preparation, medium preparation, fermentation, process initialization, inoculation (growth monitoring if required), and harvesting. Users can arrange for preliminary pilot studies, gas chromatography, and other relevant technical and scientific services.
Social Science Institute

The University of Iowa Social Science Institute (ISSI) is a research and teaching facility that supports the work of faculty and graduate students in a variety of departments on campus. Located in Schaeffer Hall, the institute provides the capability for conducting survey research using a state-of-the-art, computer-assisted telephone interviewing (CATI) system as well as large-scale mail surveys. The CATI hardware system includes a central server computer linked through a local area network to 12 interviewing stations. Features of the CATI software include automatic dialing, automatic execution of complex questionnaire skip patterns and logic branches, call attempt disposition monitoring, and on-line recording of numeric and verbatim responses in machine-readable form.

ISSI also provides training for graduate students interested in techniques of survey methodology. Its professional staff consults with faculty members and graduate students as well as clients outside the University.

The institute maintains an extensive Social Science Data Archive and acts as the on-campus representative of the U.S. Census Bureau State Data Center Program, with responsibility for maintaining and providing access to the decennial census data.

The University maintains membership in the Inter-University Consortium for Political and Social Research (ICPSR) through ISSI, enabling members of the University community to obtain a vast array of social science datasets for secondary analysis. The archive presently includes more than 2,000 datasets and continues to grow each year.

ISSI services are available to faculty, staff, and graduate students at the University, as well as to the broader state and regional community. In addition to providing access to Census and ICPSR data, the institute handles consultation on individual aspects of survey work, such as questionnaire design, data collection, and data analysis. It also may conduct entire surveys, from design through presentation of a final report.

Statistical Consulting Center

The Statistical Consulting Center (SCC), located in MacLean Hall, helps design experiments and surveys, analyze data, and prepare grant proposals. The director of the center and advanced graduate students in the Department of Statistics and Actuarial Science provide professional statistical consulting to University faculty, staff, and students, as well as to the broader state and regional community.

Consulting services, either drop-in or by appointment, are available free of charge for graduate thesis projects and certain short-term research problems. More extensive consulting is offered on a cost-recovery basis.

Sponsored Programs

Located in Gilmore Hall, the Division of Sponsored Programs maintains information on federal and nonfederal sources of funding for study and research projects by faculty, staff, and graduate students. The division searches out potential support; helps faculty, staff, and students take advantage of funding opportunities; and matches proposed projects with potential funding agencies. Staff members specialize in major discipline areas.

The division maintains files on all federal agency programs, complete with proposal guidelines, application forms, regulatory information, and directories of agency staff. Division staff members are well-acquainted with the programs and requirements of the various agencies.

The division's resource center, also located in Gilmore Hall, maintains extensive files on nonfederal agencies, private foundations, and corporations that support colleges and universities. Among the center's many resources are general directories of available grants, fellowships, and scholarships, as well as directories aimed at special populations and interests; annual reports of private foundations; and files of information on nonfederal agencies and foundations, including application guidelines and forms, when available. The center maintains its own computerized database of information on more than 1,600 nonfederal programs of interest to the University community. Customized searches can be performed to determine potential funding sources for proposed programs.

The division's staff keeps the University research community informed of new funding opportunities, and changes in program regulations, policies, and perspectives through:

- individual contact, either by telephone, mailings, or consultation;
- "Grant Bulletin," published in fyi, the University's faculty/staff newsletter;
- weekly bulletins from the Commerce Business Daily, which lists all government requests for proposals (RFPs) and requests for quotations (RFQs); the division also obtains copies of RFPs in response to special requests from individual researchers; and

- Research in Progress, a directory containing interest profiles of faculty and staff researchers; compiled for the purpose of matching opportunities and potential collaborators with researchers' interests, the directory is used in both published and electronic formats.

Development of proposals, monitoring the progress of projects, and reporting results are important steps in the support process. While much of the responsibility is in the hands of faculty, staff, and students who originate proposals, the division helps make the process efficient and effective.

Sponsored programs staff members guide investigators through the development process and, upon request, help establish budgets, review proposal drafts, prepare technical information, and initiate and maintain contact with funding agencies.

The Division of Sponsored Programs is responsible for interpreting regulations that affect research activities. It has major responsibility for monitoring clearance documentation regarding the use of humans or animals in research. The staff's understanding of relevant regulations helps assure full compliance with established rules.

Oakdale Research Campus

The Oakdale Research Campus is administered by the Office of the Vice President for Research. Its 500 acres of land and 11 major buildings are located within the corporate limits of Coralville, approximately seven miles northwest of the main University campus. The Oakdale campus is accessible by interstate and multiline divided highways. Approximately 1,000 researchers, students, patients, staff, tenants, conferences, and visitors use the campus daily.

During the past decade, the campus has evolved from a provider of patient care to a diversified complex devoted to research, development, and education. Most of its programs are affiliates of University colleges and major departments. Among these are the Chemical Dependency Center, Institute of Agricultural Medicine and Occupational Health, Iowa Geological Survey, CONDUIT, Labor Center, Physiology Research Laboratory, and Animal Care Research Facility.

New programs added in recent years include the Institute of Public Affairs, Iowa Center for the Book, Center for Health Effects of Environmental Contamination, Center for Advanced Drug Development, Biomedical Engineering Research, Iowa Drug Information Service, and Health Protection Office.

Also located on the research campus are the Oakdale Research Park, the Technology Innovation Center, The University of Iowa Research Foundation, the Center for Advanced Studies, and the University Hygienic Laboratory, all of which are described in this section of the Catalog.

Oakdale Research Park

The University of Iowa's Oakdale Research Park offers businesses engaged in basic and developmental research, product development, and production linked to research and development the opportunity to establish a sustained working relationship with academic researchers.

The park, located on a 170-acre parcel of land on the Oakdale Research Campus, includes a multitenant building designed to meet the needs of growing companies emerging from the Technology Innovation Center, small- or medium-sized research and development firms, and research units of larger, established firms. The University Center for Biocatalysis and Bioprocessing, a magnet center for industrial biotechnology, is located in the Multi-Tenant Facility.

The University also leases land at the park to organizations that want to construct and occupy separate facilities. Sites of varying size and prominence are available to meet individual corporate needs. The headquarters building for
Computer Aided Design Software, Inc., is located at the park, and construction of the Neural Applications Corp. headquarters building is scheduled for completion by August 1994.

Technology Innovation Center

The University of Iowa Technology Innovation Center (TIC) offers a range of services and facilities designed to foster the development of new business ventures—particularly those that are available for technology transfer. These services at the center are tailored to the needs of entrepreneurs just starting up. However, TIC gladly serves established companies eager to initiate new endeavors.

The strength of the center lies in its ability to couple the scientific and technical capabilities of the University with the expressed needs of the business community. Located on the University of Iowa's Oakdale Research Campus, TIC provides congenial, cost-effective work space where collaborations between academic scientists and those in business can flourish. It offers ready access to the University's computing facilities, research equipment, and instruments, as well as access to a battery of counseling services on crucial issues such as management, marketing, and finance.

The University of Iowa Research Foundation

The University of Iowa Research Foundation (UIRF) believes that transferring intellectual property developed at The University of Iowa to the marketplace is an important means of fulfilling the institution’s research and public service mission. To accomplish this mission, the UIRF works with University faculty, staff, and students who wish to disclose ideas, inventions, and discoveries that may be of benefit to the public.

Following disclosure, the UIRF helps these researchers obtain appropriate intellectual property protection (patents, trademarks, and so forth) and licenses for their inventions. The UIRF also maintains a summary of all technologies developed by University researchers that have been patented and are available for licensing and distributes this information to the business community.

Center for Advanced Studies

The Center for Advanced Studies, both a place and program, brings together scholars from a broad range of disciplines and institutions to generate interesting and powerful scholarship. Located on the Oakdale Research Campus, the center allows scholars-working independently, as small teams, or in large seminars-to reflect, write, and exchange ideas.

Appointments for scholars in all fields are available for summer sessions or fall or spring semesters. Many scholars are supported by major grants and fellowships or University of Iowa awards; others have teaching obligations but are on schedules that allow them time for their center-based research. The center also has a special interest in serving faculty of the two- and four-year colleges in the Iowa region.

The center sponsors several competitive grants programs. Scholars at the University and nationwide compete for Obermann Fellowships to participate in the Faculty Research Seminar, organized each year around an interdisciplinary theme. Interdisciplinary Research Grants support University of Iowa faculty members working on collaborative projects. Laura Spelman Rockefeller Child Research Seed Grants support studies leading to the well-being of children. Humanities Symposium Awards support interdisciplinary research conferences.

For faculty members seeking internal or external grants, the center helps in identifying collaborators and potential funding sources, and in preparing proposals. For those who have been awarded grants, the center provides offices, meeting rooms, and file and archival space.

Center scholars are provided a private office, hard-drive computer and printer, links to the Weeg Computing Center, and many support services, including a library delivery service that locates and copies journal articles.

Center for Biocatalysis and Bioprocessing

The center’s primary aims are to foster biocatalysis and bioprocessing research and encourage intellectual interactions and communication between University of Iowa scientists and biotechnology industries. The center attracts industrial attention to the state of Iowa and provides highly educated personnel for biotechnology industries. It also provides strong input and leadership in strengthening and creating new interdisciplinary academic opportunities at the University.

Faculty scientists from six departments of four University colleges participate in the following general research areas: fundamental properties of biocatalyst, bioprocessing technology to isolate and purify materials prepared by biocatalysis, discovery of new biocatalyst, applications of biocatalyst (synthesis of chemicals, biosensing technology, development of bioactive agents), and bioremediation.

Graduate students interested in applying for admission to the Biocatalysis and Bioprocessing Training Program must apply to the graduate program in biochemistry, chemical and biochemical engineering, chemistry, civil and environmental engineering, medicinal and natural products chemistry, or microbiology; or they must contact the Center for Biocatalysis and Bioprocessing.

Center for Global and Regional Environmental Research

The Center for Global and Regional Environmental Research fosters interdisciplinary study of the physical, chemical, and biological processes that influence the earth’s changes and trends by bringing together the University’s special strengths in the health sciences, biogeochemical cycles, hydrologic and climate systems, and ecological systems and dynamics. The center’s primary goal is to evaluate the effects and interactions of global change on earth surface processes and people on both the global and regional scale, including Iowa’s midwestern agricultural setting. The causes of global change (climate forcing) and the feedback of effects on the regional and global scale are considered.

Center for Health Effects of Environmental Contamination

The Center for Health Effects of Environmental Contamination supports and conducts research to determine levels of environmental contamination that can be associated specifically with human health effects. The center assembles pertinent environmental data; uses health outcome data from the existing statewide cancer and birth defect recording systems; develops registries of persons known to be exposed to environmental hazards; performs epidemiologic studies; fosters relationships and ensures the exchange of information with other teaching institutions or laboratories in the state; and conducts public education programs. The center includes faculty from the Departments of Civil and Environmental Engineering, Pediatrics, and Preventive Medicine and Environmental Health.

Iowa Consortium for Substance Abuse Research and Evaluation

The Iowa Consortium for Substance Abuse Research and Evaluation is an association of institutions of higher education and departments of state government dedicated to conducting research and evaluation and disseminating knowledge among researchers, helping professionals, and public policy makers in the field of substance abuse. The University of Iowa serves as host institution for the consortium. Other members include the University of Northern Iowa, Iowa State University, Drake University, the Iowa Departments of Public Health, Public Safety, Human Services, Education, and Corrections; and the Iowa Substance Abuse Program Director’s Association.

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Public Policy Center

The Public Policy Center conducts academically sound research on issues such as health care, transportation, environmental quality, and economic growth and development. It helps faculty from numerous disciplines secure funds for research on public interest topics, and it works with groups outside the University to disseminate results of research carried out by associated faculty and staff. Most of the research projects involve advisory committees made up of business and government leaders and citizens with knowledge about the research topic(s).

Excellent research support capabilities exist at the center.

Office of the State Archaeologist

The Office of the State Archaeologist (OSA) conducts archaeological work that leads to development, dissemination, and preservation of knowledge about Iowa’s prehistory and history. Under Iowa statute, OSA is responsible for discovering, excavating, and preserving archaeological remains in Iowa Protection of ancient burial sites and human remains is one of its major functions.

The OSA conducts research, educational, and service activities throughout the state and provides consulting services for agencies, municipalities, and firms that need archaeological expertise. Its fieldwork emphasizes archaeological survey and evaluation of development areas, such as new highway corridors, to recover data from threatened sites. It also conducts field schools, teacher workshops, and cooperative research projects with other departments and agencies. Through OSA, University of Iowa students engage in a variety of laboratory study and fieldwork.

Staff members of OSA collaborate on research projects with the Departments of Anthropology and Geology and with their colleagues in the Iowa Quaternary Studies Group. Several have adjunct faculty appointments and teach courses in the anthropology department.

OSA resources include more than 4,000 accessioned artifact collections from sites around the state; comparative and type collections that aid in identifying archaeological material; extensive archival and document holdings on Iowa archaeology and related subjects; and field equipment that supports large-scale archaeological fieldwork. Members of the University community and the public are welcome to visit the OSA. OSA offices, laboratories, document collection, and artifact repository are located in Eastlawn.

Weeg Computing Center

The Gerard P. Weeg Computing Center, located in the Lindquist Center, provides research and instructional computing facilities to all students, faculty, and staff at the University of Iowa. Weeg maintains computer systems capable of a wide variety of applications. These facilities are accessible through networked terminals and workstations distributed around the campus. The center’s campus and external network connections provide University users with convenient access to national computing and information resources. On behalf of the University, Weeg maintains membership in the CICNET and BITNET networks.

Weeg provides specialized computing support through several groups and centers.

● The Distributed Services Group offers planning, consulting, installation, and management services for departmental networks. It also provides consulting and management services for campuswide network-based applications.

● The Personal Computing Support Center provides product demonstrations of microcomputer equipment, administers the Faculty/Staff and Student Microcomputer Purchase Programs, and provides hardware and software support to campus microcomputer users.

● CONDUIT publishes and supports faculty-developed technology applications for an international audience of middle-school through college-level students. Current activities focus on materials for English (such as Writer’s Helper, for composition) and foreign language (such as Dasher, for listening comprehension).

● The Instructional Software Development Group collaborates with University faculty members to formulate, design, construct, and implement development projects awarded through an annual grant competition. It also offers consulting to faculty who are creating or adapting instructional software.

● Second Look researches and develops tools and applications for instructional computing, emphasizing new technologies, such as pen-based computing and multimedia development. The Second Look staff offers an extensive series of short courses, individual consulting, and training seminars, and Second Look’s multimedia facilities are available to faculty, staff, and students for instructional use.

● The Customer Service Support Group provides warranty and post-warranty service for Weeg-supported personal computers and related peripheral equipment owned by University faculty, staff, students, and departments.

Together with some University academic and service departments, Weeg jointly supports personal computers at several Instructional Technology Centers on campus. These are available for use by University students, faculty, and staff. The center also provides noncredit educational seminars and consultation on general computer use on an ongoing basis. Specialized consultation is provided for equipment and software selection, networking, database, multimedia applications, and instructional design applications.

Detailed information on computing facilities and services is available from the WCC Information Center in the Lindquist Center.

Evolutionary Ecology and Behavior

Chair: Stephen Hendrix

Professors: Richard C. Baker (Geology), Robert W. Cruden (Biological Sciences), Jeffry T. Schabillon (Biological Sciences), Holmes A. Semken (Geology), David Wiemer (Chemistry)

Associate professors: Russell L. Ciochon (Anthropology), Ann B. Budd (Geology), Stephen Hendrix (Biological Sciences), Diana Horton (Biological Sciences), George Malanson (Geography), James Gloor (Chemistry)

Programs and Facilities

The Department of Biological Sciences offers programs of study leading to the M.S. and Ph.D. degrees with specialization in ecology and evolutionary biology, emphasizing adaptation, population ecology, and community ecology.

Particular strengths of the program are quantitative methods in ecology and evolutionary ecology, plant-animal interactions, population biology, and tropical biology. There is real and strong emphasis on balance between controlled experimentation and field observation. Laboratory research may include controlled breeding experiments in which heritability, behavioral, life history, or other traits are investigated. Field research emphasizes the adaptive significance of traits, interactions between species, and population and community dynamics.

Opportunities for field research are provided locally by the Macbride Nature Recreation Area just outside Iowa City, with lakes, temperate hardwood forests, and old fields. The Iowa Lakeside Laboratory on Lake Okoboji, with year-round laboratory facilities, housing, and a research vessel, provides the opportunity to study undisturbed prairie, marshland, and lake ecosystems.

Fieldwork by faculty and students also takes place worldwide. Recent studies have been conducted in East Africa, England, the Caribbean, Brazil, Mexico, Central America, the Great Smoky Mountains, the Mojave Desert, the American Rocky Mountains, and the Florida Keys. The Smithsonian Institution Laboratory on Barro Colorado Island in Panama and the Parque Nacional de Santa Rosa in Costa Rica are among sites used by staff and students.

The University of Iowa is a member of the Organization for Tropical Studies and regularly sends students to the Tropical Biology Course in Costa Rica. In addition, the University has a cooperative program with the University of the Andes in Merida, Venezuela.

Indoor facilities permit a wide range of studies, with varied equipment for observation and analysis, such as video-recorders, movie cameras, walk-in environment chambers, computer terminals, a GC-MS, and a PDP-12 computer. There is ample space for housing a variety of organisms, and a recently constructed 3,600-square-foot greenhouse provides room for research projects. The botany greenhouse contains a large collection of desert, jungle, aquatic, mesic, and economic flora. The botany herbarium contains more than 200,000 specimens. The Museum of Natural History, an institutional member of the American
Association of Systematic Collections, houses more than 900,000 natural science specimens, with birds and mammals particularly well represented among the vertebrates. The atmosphere at Iowa is friendly and cooperative and the approach multidisciplinary. Students may design their graduate programs to take advantage of collaboration, consultation, coursework, and cosponsorship opportunities with members of departments such as biological sciences, chemistry, computer science, geography, geology, mathematics, microbiology, physiology and biophysics, and statistics and actuarial science. Students are encouraged to participate in departmental affairs and may hold positions of responsibility on faculty committees.

Financial Support

All graduate students are offered financial support. Teaching assistantships, research assistantships, tuition scholarships, and predoctoral training fellowships are available. The Bodine Fund assists student travel for study. Postdoctoral students may apply for the Postdoctoral Assistant-in-Instruction Program or the NSF fellowships for students in behavior studies of Quaternary studies. Students with interests in the NSP fellowships for students in behavior, ecology; studies of hunter-gatherer societies and their environments; and studies of cultural change. Field areas have ranged from the arctic to the tropics, and from the Rocky Mountains across the Great Plains and Central Lowlands to the Caribbean.

Facilities available on campus include both trailer-mounted and hand-operated coring devices, laboratories for sedimentologic analyses, pollen preparation, vertebrate preparation, artifact preparation, X-ray equipment, optical microscopy, and scanning electron microscopy. Both microcomputers and the University’s Weeg Computing Center are accessible to graduate students and faculty.

The Museum of Natural History and individual departments have a number of important reference collections, including the Paleontological Repository (two million specimens including both vertebrates and invertebrates) and the Herbarium (over 200,000 specimens of vascular plants and about 45,000 specimens of bryophytes). The Office of the State Archeologist houses the State Archeological Repository, with over half a million specimens. Other specialized collections of more than 2,500 seeds and fruits and more than 1,600 pollen types are available in the geology department.

Departmental branches of the library have extensive holdings of books and journals in the biological sciences and geology departments, and the Office of the State Archeologist has a library as well. Students may design programs that result in a degree from one of the cooperating departments but that involve considerable coursework, research, and consultation with one or more other departments. A weekly seminar, Quaternary Studies, provides a forum for discussion of research topics.

Financial Support

Teaching and research assistantships are available on a competitive basis from each of the departments involved. Space and facilities are available for postdoctoral students. Some funding is available from individual departments for field expenses. Computer funds are available for graduate students, postdoctoral students, and faculty.

For further information, write directly to the Departments of Anthropology, Biological Sciences, Geography, Geology, or Statistics and Actuarial Science, or to the director of the Quaternary Studies Group.

Related Units

Although not directly connected with the Office of the Vice President for Research, these units have a special role in the conduct of research at the University. For further information on a particular unit, contact the appropriate college or department or the Office of the Vice President for Research. Some units are described briefly in the appropriate collegiate sections of the Catalog.

Institutes

Dows Institute for Dental Research: College of Dentistry
Economic Research Institute: College of Business Administration
Financial Markets Institute: College of Business Administration
Industrial Relations Institute: College of Business Administration
Institute for Health, Behavior, and Environmental Policy: College of Medicine
Institute for Insurance Education and Research: College of Business Administration
Institute of Agricultural Medicine and Occupational Health: College of Medicine
Institute of Hydraulic Research: College of Engineering
Iowa Institute of Biomedical Engineering: College of Engineering
Ira B. McGladrey Institute of Accounting Research: College of Business Administration

Centers

Alzheimer’s Disease Research Center: College of Medicine
Asthma and Allergic Diseases Center: College of Medicine
Biosciences Consulting Center: College of Medicine
Cancer Center: College of Medicine
Cardiovascular Research Center: College of Medicine
Center for Advanced Reproductive Care: College of Medicine
Center for Biocatalysis and Bioprocessing: College of Engineering
Center for Biotechnology: College of Engineering
Center for Global and Regional Environmental Research: College of Engineering
Center for Health Effects of Environmental Contamination: College of Engineering
Center for Health Services Research: College of Medicine
Center for International and Comparative Studies: Graduate College
Center for International Rural and Environmental Health: Office of the Provost
Center for Laser Science and Engineering: Graduate College
Center for New Music: College of Liberal Arts
Center for the Study of Group Processes: College of Liberal Arts
Center for the Study of Recent History of the United States: University Libraries
Centers for Computer-Aided Design: College of Engineering
Interdisciplinary Programs

Nine interdisciplinary programs are represented in CICS. Five promote instruction and research with a geographical focus: the African Studies Program (ASP), the Global Studies Program (GSP), the South Asian Studies Program (SASP), the Latin American Studies Program (LASP), and the Russian, East European, and Eurasian Studies Program (REES). These five also offer undergraduate instructional programs within the College of Liberal Arts. The remaining four programs pursue instructional and research activities along topical lines: the Program in Gender, Culture, and Politics (GCP), the International Health Program (IHP), the Project for International Communication Studies (PICS), and the Program for International Development (PID).

The African Studies Program (ASP): See the departmental section under “College of Liberal Arts” in the Catalog.

The Program in Gender, Culture, and Politics (GCP) focuses on the theme of women and social movements, promoting research and study of gender issues in Third World nations. The program offers lectures, conferences, and seminars each year, supports curriculum development within the theme of women and social movements, and brings visiting scholars to the University to teach and conduct collaborative research in this area.

The Global Studies Program (GSP): See the departmental section under “College of Liberal Arts” in the Catalog.

The International Health Program (IHP) is an interdisciplinary program for students interested in pursuing a career in or related to international health and the environment. The program offers a two-year enrichment program designed for students in pre-health majors or in medical geography, medical anthropology, and medical history. Students are expected to fulfill all degree requirements of their own current plan of study. In addition, they are required to take five international health courses over the two year period. Through workshops and seminars, students have the opportunity to engage in dialogue with international health professionals and conduct international internships are also available.

The Latin American Studies Program (LASP): See the departmental section under “College of Liberal Arts” in the Catalog.

The Project for International Communication Studies (PICS) concentrates on collecting and archiving international television materials and on developing courses and research projects that use these materials in foreign language and international studies. Created to promote use of authentic foreign video in teaching, PICS helps both students and faculty members improve their language skills. PICS provides videotapes and computer-controlled videodiscs for both structured classroom work and individual or personal use and publishes a variety of written materials to accompany them. It also sponsors lectures, teleconferences, workshops, and national and regional conferences.

The Program for International Development (PID) promotes instruction, research, teaching,
technical assistance, and communication support in Third World development. To this end, PID supports a diversity of activities. On-campus activities include lectures, symposiums, and seminars involving development scholars, visiting faculty, policy makers, and development practitioners from all over the world. Off-campus activities include research projects, development consultancies, and technical assistance projects in the Middle East, Africa, Latin America, and the Caribbean. Through the Graduate College, the program offers a master’s degree in Third World development support. Designed for students planning to pursue or already pursuing careers in the formulation and implementation of development strategies, the degree program is one of the few in the United States that offers a social science education combined with training in development support.

The Russian, East European and Eurasian Studies Program (REEES): See the departmental section under “College of Liberal Arts” in the Catalog.

The South Asian Studies Program (SASP) brings together University specialists on South Asia and is dedicated to enhancing instruction and research and the dissemination of knowledge about India, Pakistan, Bangladesh, Afghanistan, Nepal, and Sri Lanka. SASP sponsors public lectures, conferences, seminars, colloquia, films, distinguished scholars, and in conjunction with a community-based performing arts circle, cultural events by dancers, musicians, and artists from South Asia. The program promotes interdisciplinary studies and research, builds on the language curriculum in Hindi and Sanskrit, and is involved with two interdisciplinary degrees offered by the Department of Asian Languages and Literature—a bachelor’s degree in Asian studies and a master’s degree in Asian civilizations. SASP faculty participate in teaching the Contemporary Asian News Colloquium and offer a graduate research seminar each academic year.

Affiliated Programs
The center also houses or works closely with five affiliated programs: the Artists, Artisans, and Traditional Technologists in Development Project, the Center for Asian and Pacific Studies, the Center for International Rural and Environmental Health, the International and Comparative Law Program, and the Project for Advanced Study of Art and Life in Africa.

International Research
The center supports faculty research and curriculum development, awards graduate fellowships for the study of foreign languages, and awards undergraduate scholarships for international research and fieldwork abroad. It supports research projects in Africa, Asia, Europe, Latin America, countries of the former Soviet Union, the Middle East, and the United States as well as faculty and staff exchanges, technical assistance, development consultancies, and internships. In conjunction with The University of Iowa Libraries, CICS publishes faculty research in the Iowa International Papers and the Iowa International Bibliographic Guides. A number of visiting foreign scholars and research fellows are invited to spend from one month to a year in residence at the center annually. They offer workshops, seminars, and lectures as well as working on their own research.

Instructional Programs
The center supports instruction through courses, seminars, news colloquia, and curriculum development grants. In conjunction with academic units, it also offers certificates in African studies, global studies, and Latin American studies. It also offers minors in global studies and Latin American studies; bachelor’s degrees in African studies, global studies, and Russian, East European, and Eurasian studies; and a master’s degree in Third World development support.

Public Programs and Outreach
More than 100 public lectures, seminars, symposia, workshops, and conferences are sponsored by the center and its constituent programs each year. All public programs are free and open to the University community and the public. CICS also works with the Iowa City Foreign Relations Council, the State Board of Education, and Iowa businesses in providing speakers, teacher training workshops, executive training conferences, and other outreach resources.

Institute for Cinema and Culture
The Institute for Cinema and Culture draws on the University’s strong tradition of film studies to coordinate existing resources on campus and to initiate new ventures. It serves as an information bank concerning availability of films and film materials for faculty and students, and provides assistance to departments, faculty members, and student groups that bring to campus films and speakers who attract an interdisciplinary audience.

Each semester the institute sponsors a symposium and a related film series that focus alternatively on topics of general theoretic interest or those addressing a specific culture and moment. The Proseminar in Cinema and Culture (356B: 176 or 48:176) gives undergraduates and graduate students the opportunity to prepare for the symposia through weekly readings and screenings.

The institute also publishes the bilingual journal I.I.C.

Iowa Lakeside Laboratory
The Iowa Lakeside Laboratory, a biological field station on West Okoboji Lake, in northwest Iowa is the site of a cooperative program in teaching and research carried out under the auspices of Iowa State University, the University of Northern Iowa and The University of Iowa. Courses are offered in two five-week terms during June, July, and August. Facilities for year-round research are available. (See Iowa Lakeside Laboratory” in the College of Liberal Arts section of the Catalog.)

Project on Rhetoric of Inquiry
Project codirectors: Donald N. McCloskey, John S. Nelson
The Project on Rhetoric of Inquiry (POROI) involves faculty and students from across the campus in studies of rhetoric throughout scholarship and culture. POROI regards rhetoric in its ancient sense, as the whole art of argument. Its purpose is to improve persuasion in the arts, humanities, sciences, and professions.

POROI’s executive committee coordinates the project initiatives, working with faculty in University of Iowa colleges. In addition, an international board of distinguished scholars advises the committee about its programs, which include the Faculty Rhetoric Seminar, conferences and symposia, and publications.

The bimonthly Rhetoric Seminar was founded in 1980 by a small group of Iowa faculty. The group grew to include some 100 colleagues, who participate in a year-round interdisciplinary seminar and other seminars on topics ranging from English to engineering. Before each seminar, POROI distributes discussion papers to faculty from many University of Iowa departments and from other colleges in Iowa.

POROI directs two book series, from the University of Wisconsin Press and the University of Chicago Press. The project also sponsors lectures and research projects by local and visiting faculty. Iowa faculty associated with POROI’s various programs teach both undergraduate and graduate courses inspired by rhetoric of inquiry.

UNIVERSITY LIBRARIES

University librarian: Sheila D. Creh
Directors: Barbara J. Dewey, Wayne Rawley, C. Edward Shreeves, Lawrence A. Woods
Facilities and budget: William C. Sayre
Access services: Susan Marks (coordinator)
Acquisitions: Kathleen B. Wachel (head), Judith K. Doorbos, Elizabeth A. Ford
Automation: Donna Hirst (head), Suzanne Olson, Kate Rattenborg
Bibliographers: Chris Africa, John Bruce Howell
Central technical services/cataloging: Mary E. Monson (coordinator), David A. Aarnodt, Grace A. Fitzgerald, Lawrence R. Corman, George P. Mullally, Eeva Nikkanen-Hoch, Mary E. Noble, Timothy R. Shipe, Peter Zhou
Collection development: humanities division, Timothy R. Shipe (coordinator); sciences division, David S. Curry (coordinator); social sciences division, J. David Martin (coordinator)
Friends of The University of Iowa Libraries: Margaret Richardson (coordinator)
Diversity/special services: William C. Weburn, coordinator, social sciences division
Government publications, depository: Carolyn W. Kohler (head), Frank T. Allen, Mary R. McIntoy, Marianne Ryan
Information Arcade: Anita Lowery
Interlibrary loans and reserved books: Keith Reger
Map collection and media services: Rebecca Albiz
Presentation: Catherine Larson
The University of Iowa Health Sciences Center ● Special Resources at Iowa 35

Public relations and personnel: Eeva Nikkala-Hoch
Reference: Janice Simmons-Weltman (head), Marsha A. Forys, David D. Hudson, Rebecca L. Johnson, James J. Julich, Lucia A. Marine, Helen B. Ryan, John N. Schacht, and Susan Vega
Serial acquisitions: Mary Hub bard, Margorie J. Wilhite
Serials cataloging: Ruth E. Christ, Charlene E. Lehman, Selina Lin
Special collections: Robert A. McConw (head), Richard M. Kolbet, George Mullally, Earl M. Rogers, David E. Schoonover
Systems development: Doug Lonowski
Serials cataloging: Mary Hub bard, Margorie J. Wilhite
Serials cataloging: Ruth E. Christ, Charlene E. Lehman, Selina Lin
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Systems development: Doug Lonowski

The libraries at The University of Iowa make up the largest library system in Iowa Among 108 university research libraries in the United States and Canada, the system ranks 27 in number of volumes held and 35 in expenditures for library materials.

The Main Library, its 11 departmental libraries, and the Law Library occupy more than 11 acres of space, provide seating for more than 7,000 users, and have more than 70 miles of shelving for collections.

Recent statistics show that each year, more than 1.8 million library materials are used. Library staff members answer nearly 389,000 questions and help nearly 2.4 million patrons.

University Libraries has developed a comprehensive user education program to provide information on its resources and services and instruction in their use. In 1992-93, more than 7,000 people participated in programs such as subject-based faculty/graduate seminars, course-related instruction, OASIS training, and reference consultations. Special programs included workshops for international students, programs for debaters in the Iowa National Summer Institute in Forensics, and programs on library use for student athletes. The Hardin Library for the Health Sciences provides MEDLINE training for individuals who want to do their own computer searches.

In addition to its holdings of bound volumes and access to numerous electronic databases, the libraries provide some 4 million microforms (microfilm, microcards, and microprint and microfiche sheets) as well as various other formats, including maps, video recordings, and sound recordings. With the information explosion, information resources in compact disc format and CD-ROM computerized indexes. Students and faculty can do computer searches on a wide variety of topics. Customized on-line database searching is available by appointment.

The Main Library serves as the principal repository for the social sciences and the humanities. Located within this building are various special collections. The Government Publications Department holds more than 1 million printed pieces and more than 4.2 million microformatted items. As a full U.S. Government Depository Library, it automatically receives thousands of items published by the federal government. This department is also a state of Iowa depository, a European Communities (Common Market) depository, and a United Nations depository. The Map Collection contains over 327,000 sheet maps and 100,000 aerial photographs.

The Special Collections Department of the Main Library holds 85,000 rare books, 480 historical manuscript collections, and 10,000 cataloged manuscript letters and individual manuscripts. This department also manages the University Archives. The materials within the Special Collections Department cover a wide range of subjects, including works on the culinary arts, a major collection of Lincoln material, a rare collection of the history of hydraulics, and a large collection of railroadiana.

The Iowa Women’s Archives, located at the south end of the third floor, Main Library, collects, organizes, describes, and preserves personal papers, manuscripts of and about women of all walks of life, and organizational records pertaining to Iowa women. The archives also serve as a resource to stimulate and nourish creative teaching and learning through its collections and outreach programs.

The new Information Arcade facilities integration of new information technologies into learning and research by providing students, staff, and faculty with a variety of resources for learning advanced information skills and for acquiring information in various formats. The arcade provides access to a wide range of electronic source materials, with an emphasis on textual and multimedia databases; to OASIS and to other online catalogs and information sources on the Internet; and to equipment and software to support independent learning, classroom instruction, and research.

Information Arcade facilities include information stations (Mac, IBM, and NeXT), primarily for research and independent learning; multimedia stations, including Mac and IBM computers, laser disk players, CD-ROM players, videotape players, read-write optical drives, Syquest disk drives, and scanners; a course preparation lab, which provides University faculty and staff with resources for research as well as for development of teaching materials, software, and multimedia presentations; and a classroom with two instructor stations (Mac and IBM) and 24 student stations (Mac). The classroom is fully networked, allowing the instructor and students to interact and work cooperatively on projects.

The Hardin Library for the Health Sciences houses a special collection of rare and classic medical works in the John Martin Rare Book Room, named after the principal donor of some 2,500 volumes in the collection. Martin, a retired neurosurgeon from Clarinda, Iowa, continues to add to this world-famous collection.

The University Libraries and the Law Library are implementing OASIS (Online Access System for Information Sources), an automated on-line cataloging that contains more than 1 million records representing more than 70 percent of the cataloged collections of the libraries. OASIS greatly enhances teaching and research. When the system is fully implemented, faculty and students will have a sophisticated tool for accessing information on library materials. From one database, the library user will be able to determine whether an item has been ordered, if it is awaiting cataloging, or whether it is in circulation, on reserve, or otherwise unavailable for checkout. The University telecommunications network makes much of this information available from terminals in the libraries and from laboratories, offices, dormitories, and homes.

Traditionally, the strength of a library system has been based primarily on the number of volumes it held. Because of the substantial, seemingly geometric growth in recorded information, and because of dwindling resources available to acquire this information, it is expected that an increasingly important measure of library effectiveness will be the staff’s ability to identify ownership of material not held locally and to borrow that material in a timely fashion.

The University of Iowa Libraries is a member of several consortiums: the Research Libraries Group; the Iowa Computer-Assisted Network; the National Library of Medicine’s Regional Medical Library Network; and a resource-sharing network for the CIC institutions (the Big Ten and the University of Chicago). Through these organizations, and especially through the Research Libraries Group, faculty and students at Iowa have gained greatly increased access to materials held at other institutions.

The University of Iowa Health Sciences Center provides a major role in the preparation of health professionals for Iowa and the nation. In its health sciences center are located the academic programs, clinical facilities, and service agencies to prepare students and practitioners to serve a wide spectrum of human health needs—ranging from basic first aid to the most advanced diagnostic and treatment procedures—and to search for entirely new knowledge.

As soon as they have acquired basic knowledge in their fields, health profession students begin to learn by doing, following the examples and directions of skilled practitioners who teach while providing health care for thousands of patients.
Patients from the community, state, and region. The University of Iowa Health Sciences Center thus is simultaneously a center of learning and of service, especially to rural areas of Iowa. It is one of the most advanced, comprehensive health sciences centers in the United States.

It shares many skills off campus through cooperative programs with other Iowa colleges and community colleges and through a variety of continuing education programs for health practitioners—many of whom also come to the Iowa campus to update their knowledge through conferences, clinics, and refresher courses.

Programs, faculties, and courses of the Colleges of Dentistry, Medicine, Nursing, and Pharmacy are described in other sections of the Catalog. Other health sciences center units and related programs are described below.

The University of Iowa Hospitals and Clinics

Director: R. Edward Howell
Associate director: John H. Staley
Senior assistant directors: William W. Hesson, Amy B. O’Deen, William D. Stoddard
Assistant directors: Alan J. Burgher, Brandt Echtemacht, Jeanne M. Coche
Administrative associates: Kenneth A. Marx, Christine R. Menke
Director, financial management and control: Kenneth H. Yerington
Director, public information: Eldean A. Borg

Clinical service heads: Anesthesiology John H. Tinker; Hospital Dentistry, Daniel Lew; Dermatology, John S. Strauss; Family Practice, Charles E. Driscoll; Internal Medicine, Francois Abboud; Neurology, Antonio R. Damasio; Obstetrics and Gynecology, Jennifer Niebyl; Ophthalmology, Thomas A. Weingeist; Orthopedics, Reginald Cooper; Otolaryngology and Maxillofacial Surgery, Bruce Gantz (interim); Pathology, Kent Bottles (interim); Pediatrics, Frank H. Morris; Physical Therapy, Robert Robinson; Radiology, Wilbur L. Smith (interim); Surgery, Robert T. Soper; Urology, Richard D. Williams

The University of Iowa Hospitals and Clinics is among the largest university-owned teaching hospitals in the nation. It provides the clinical base of graduate and undergraduate studies for approximately 2,400 students in 35 disciplines, including medicine, dentistry, nursing, pharmacy, hospital administration, physical therapy, vocational training, pastoral studies, and social work.

University Hospitals and Clinics sponsors residency programs in which nearly 700 physicians, dentists, and pharmacists gain advanced clinical knowledge and skills in the health care specialties they have chosen to pursue.

The 891 beds in the hospital complex accommodate approximately 34,000 admissions annually, and 234 specialty clinics accommodate another 466,500 ambulatory patients. More than 15,000 major surgical procedures are performed annually in the hospitals’ 21 major operating rooms, and approximately 1,600 infants are born at University hospitals each year.

Highly specialized health services—such as burn care, cardiac care, neonatal intensive care, and advanced technology for diagnosis and treatment—are easily accessible to Iowans who reside in communities without such resources. The hospitals’ transportation fleet of 14 vehicles travels more than one million passenger-miles each year, transporting approximately 10,000 Iowans. The Air Care emergency helicopter service carries specially trained medical and nursing teams to the hospital most critically ill and injured and to transport them to the hospital for treatment. Many Iowans owe their lives to this service alone.

About 7,400 hospital staff members provide professional and support services needed to care for approximately 2,200 patients each day. The hospitals’ clinical staff includes 560 faculty physicians and dentists, and the house staff numbers 684 resident and fellow physicians and dentists. The hospitals’ Department of Nursing is staffed by more than 1,550 professional nurses.

Other hospital staff members annually provide more than 203,000 X-ray examinations and treatments, conduct nearly 5.7 million laboratory tests, fill more than 2.7 million prescription orders, provide more than 113,000 physical therapy procedures, and prepare more than 33,407 blood and component transfusions.

Recent modernization provided new intensive care, cardiology, cornea center, and urology units. The seven-story Boyd Tower addition went into service in 1976, providing expanded and replacement facilities for a variety of inpatient and outpatient services. The Roy J. Carver Pavilion, named in recognition of a gift from the late Muscatine industrialist, provides facilities for a multispecialty trauma and emergency treatment center, physical therapy department; orthopedic, urology, and neurology inpatient units, clinics, and faculty offices; surgery and internal medicine inpatient units; cardiology and psychiatry clinics; and laboratories of the Department of Pathology.

The John W. Colloton Pavilion, opened in 1982, consolidates services of the Department of Pediatrics in the Iowa Children’s Health Care Center and faculty offices for the Department of Surgery. The Colloton Pavilion also houses a bum center, digestive diseases center, cardiac care center, and ambulatory surgery center.

In 1989, a Patient and Visitor Activities Center, including a library, medical museum, and lounge accommodations, began service. Another phase of the Colloton Pavilion provided new surgical suites in 1992.

The John Pappajohn Pavilion provides adult and child psychiatric care accommodations as well as a sports medicine clinic, a spine diagnostic and treatment center, and a hand service. The John and Mary Pappajohn Clinical Cancer Center provides ambulatory patient clinics and inpatient accommodations for some 275 cancer patients daily.

The Pomerantz Family Pavilion, now under construction, will house a family care center to provide primary care for patients as well as training and clinical research opportunities for physicians and other health professionals in family practice, internal medicine, pediatrics, and other specialties. The pavilion also will provide modern replacement facilities for an eye institute; ear-nose-throat and dental institutes; the Iowa Women’s Health Center; and a geriatrics clinic.

Clinical departments of University Hospitals and Clinics collaborate in conducting accredited health professional education programs in dietetics, radiologic technology, medical technology, nuclear medicine technology, hospital pharmacy, physical therapy, physician’s assistantship, and cytotechnology. University Hospitals and Clinics also provides supervised clinical settings for Kirkwood Community College programs in nursing education, orthopedic physician’s assistance, operating room technology, and respiratory therapy.

Of the programs cited above, those conducted through collaboration of the hospitals and the Colleges of Medicine and Nursing are described in the appropriate college sections of the Catalog. The following courses are conducted exclusively by University Hospitals and Clinics staff.

000.901 Radiologic Technology Program

0-1 s.h.

000.902 Orthotics Program

0 s.h.

000.903 Radiation Therapy Technique

0 s.h.

000.904 Ultrasound Technology Program

0 s.h.

000.906 Magnetic Resonance Imaging Technology

0 s.h.

000.907 Magnetic Resonance Imaging Clinical

arr.

000.908 Vascular Imaging Technology

0 s.h.

000.909 Vascular Imaging Technology Clinical

0 s.h.

Council on Speech Pathology and Audiology

The council coordinates clinical services and training in speech-language pathology and
audiology offered by The University of Iowa Hospitals and Clinics (Division of Developmental Disabilities, Department of Pediatrics, Child Health Specialty Clinics, Department of Psychiatry-Child Psychiatry Service, Department of Otolaryngology-Head and Neck Surgery, Department of Neurology), the Veterans Affairs Medical Center in Iowa City; and the Department of Speech Pathology and Audiology.

Dental Health Bureau

The Oakdale office of the Dental Health Bureau is a branch of the Dental Health Bureau of the Iowa Department of Public Health. The bureau’s primary purpose is to promote the dental health of Iowans through planning, organizing, and providing support services.

The bureau provides dental health education and preventive programs to children in schools and other settings. It conducts TEAM dental programs at Iowa elementary schools with the assistance of University of Iowa senior dental hygiene students, who work under the supervision of public health dental hygienists from the bureau. These programs include instruction in oral hygiene, good dental health practices, a fluoride rinse program, and nutrition as related to dental health.

The bureau also provides technical assistance and consultation to local agencies, which contract with the Iowa Department of Public Health to provide primary and preventive health care to mothers and children. The bureau makes dental cards available for schools and dental offices. The Iowa Department of Public Health provides personnel, salaries, equipment, and supplies for the bureau; the University provides office space.

Dental Service

The College of Dentistry Dental Clinics provide comprehensive dental care to anyone interested in receiving dental treatment. Patients may choose to be treated by students, graduate students, or private dentists. Because the student clinics are teaching clinics, dental procedures take longer and may require more visits to complete. However, treatment by students is provided on a reduced-fee basis.

The Dental Clinics operate on a fee-for-service basis payable at each visit by cash, check or credit card. Appointments or additional information may be requested through the clinics.

Health Occupations Education

The Program in Health Occupations Education collaborates with the State Department of Education to provide technical assistance, development of curricula, instructional materials and competency tests for continuing education, and short-term preparatory health occupations programs in Iowa’s 13 area community colleges and in public secondary schools. In addition, its staff members provide in-service programs and courses for development of community college and secondary teachers. They also serve as undergraduate advisers to students majoring in health occupations education.

Hardin Library for the Health Sciences

The Hardin Library for the Health Sciences serves the combined information and research needs of the Colleges of Dentistry, Medicine, Nursing, and Pharmacy; the Graduate Program in Hospital and Health Administration; and the Department of Speech Pathology and Audiology. The largest of the departmental libraries in the University library system, the Hardin library contains more than 285,000 volumes and receives more than 2,600 periodicals. In addition to providing ample space for these collections, the interior allows for enough reading and study space to accommodate approximately 1,110 visitors. Special features of the library include Healthnet, which provides computerized access to the latest health sciences literature, including citations from MEDLINE and other databases. Healthnet can be reached via workstations in the Hardin Library and from other computers equipped with modems or connected to the campus-wide electronic network. The Hardin Library also has a large collection of journals and books ranging from electronic journals to rare books in the John Martin Rare Book Room.

Users can contact the Hardin Library using electronic mail if they have reference questions or would like to order a copy of a journal article. As part of The University of Iowa’s library system, the Hardin Library uses the OASIS automated cataloging system. All materials acquired since 1980 are cataloged in OASIS, as are all current periodicals, a large number of government publications, and many older items. Several computerized indexes to journals in other sciences, the humanities, and social sciences also are on OASIS.

Oakdale Research Campus

The Oakdale Research Campus and adjacent Oakdale Research Park are located in Coralville, about ten minutes from the main University campus in Iowa City.

Among more than 20 health-related programs based on the Oakdale Research Campus are the Center for Advanced Drug Development, the University Hygienic Laboratory, the Institute of Agricultural Medicine and Occupational Health, and the Chemical Dependency Center.

Others include the dental research clinic, Animal Care Research Facility, biology laboratories, Iowa COMPASS, Iowa Drug Information Service, Pediatrics Bone Healing Laboratory, the Center for the Health Effects of Environmental Contamination, the Institute of Health Behavior and Environmental Policy, University Hospitals’ Air Care emergency helicopter service hanger and landing pad, and other College of Medicine research units.

Five health-related companies are tenants at the University’s Technology Innovation Center business incubator on the Oakdale Campus. A major industrial biotechnology laboratory, the Center for Biocatalysis and Bioprocessing, is located in the Multi-Tenant Facility on the Oakdale Research Park. College of Medicine genetics laboratories also are located on the Research Park.

The University of Iowa Research Foundation, which manages patents and licenses involving UI intellectual property, is on the Oakdale Research Campus.

The Oakdale Research Campus is administered by the Office of the Vice President for Research. For more information, see “Research and Interdisciplinary Activities” in this section of the Catalog.

Ronald McDonald House

In July 1985, a 21-bedroom Ronald McDonald House was opened to provide living quarters for families of seriously ill children who receive medical treatment at The University of Iowa Hospitals and Clinics. Many of these children and their families must travel long distances from their homes. To help make these families’ time here easier, a group of parents, volunteers, University Hospitals staff members, and McDonald’s restaurant owners established the Children’s Family Living Foundation, a not-for-profit corporation. The corporation helped plan and raise funds for the house, and leases from the University the wooded land on which the house was built. Since the Ronald McDonald House opened, more than 14,000 adults and children from 6,400 families have stayed at this home away from home.

University (State) Hygienic Laboratory

One of the University’s statewide health services, the University Hygienic Laboratory directs much of its effort to environmental analyses and concerns. As the state of Iowa’s environmental and public health laboratory, it offers diagnostic, surveillance, analytic, training, and consulting services in bacteriology, immunology, parasitology, industrial hygiene, serology, virology, molecular biology, toxicology, mycology, inorganic/organic chemistry, and radiation chemistry. It provides complete laboratory program support to the State Department of Health, the Bureau of Labor, and the Department of Natural Resources.

The laboratory provides a wide variety of environmental services related to water, wastewater, hazardous waste, and air quality monitoring and analyses, pesticide and herbicide analyses; and mineral and metal analyses. It also monitors the physical and chemical conditions of Iowa’s rivers, streams, and lakes.

The laboratory serves as Iowa’s primary laboratory for drinking water analyses and is one of few laboratories in the nation that meet specific criteria to perform analyses for hazardous waste sites under the USEPA Superfund Program. It is an accredited industrial hygiene laboratory and holds an interstate license permitting acceptance of human specimens for blood lead screening, screening for newborn metabolic errors, and for the AIDS virus (HIV).
Within The University of Iowa the university Hygienic Laboratory provides instruction and training in diagnostic microbiology and virology as part of regular academic courses, as well as in environmental engineering studies. In addition, the laboratory provides classroom and individual bench training to University students and to laboratory and medical personnel interested in learning specific laboratory procedures. Laboratory staff members also are available to University faculty, health care staff, and students for technical consultation.

Specialized Child Health Services

The Iowa Specialized Child Health Services is an organization that administers several statewide health services for children. Among these are the Genetic Consultation Service, Coronary Disease Prevention Program, Cystic Fibrosis Program, Childhood Cancer Diagnostic and Treatment Program, Rural Comprehensive Care Program for Hemophilia Patients, Statewide Perinatal Care Program, Iowa Newborn Screening Program, and a program of Mobile and Regional Child Health Specialty Clinics.

At Mobile and Regional Child Health Specialty Clinics (CHSC) conducted in communities throughout the state, Iowa residents are provided with diagnosis and evaluation services in pediatrics, orthopedics, otolaryngology, speech pathology, audiology, physical therapy, nutrition, and clinical and educational psychology. CHSC also provides monitoring and follow-up services on special health problems related to special health care needs such as juvenile rheumatoid arthritis, muscular dystrophy, phenylketonuria, and hemophilia.

University Hospital School

As Iowa’s University-affiliated program for children and young adults with developmental disabilities, the University Hospital School offers clinical services under the auspices of the Division of Developmental Disabilities within the Department of Pediatrics. Its services are a component of the tertiary-level health services of The University of Iowa Hospitals and Clinics. Interdisciplinary staff in the professions of medicine, dentistry, education, nursing, nutrition, physical and occupational therapy, rehabilitation engineering, recreational therapy, psychology, social work, speech pathology and audiology, work with patients.

Outpatient services provide comprehensive evaluations of the disabilities of infants, children, and young adults. Programs to enhance function and quality of life are recommended in consultation with the patients, when appropriate, their family members, and community service providers. Continuity with local service is given high priority. Special clinics include the Child Development Clinic, Meningomyelocele Clinic, Metabolic Disorders Management Clinic, Infant and Young Child Clinic, and Child and Young Adult Clinic.

Short-term admissions to an inpatient unit may be arranged for relatively specific goals that can best be accomplished on an inpatient basis. The staff coordinates educational and community services for children and young adults.

The Iowa University Affiliated Program cooperates with a variety of state, regional, and local agencies to promote services for persons with disabilities, provide technical assistance, and disseminate information. It also offers a variety of educational and training activities for students, for community service providers, and for others. These activities include didactic courses, lectures, workshops, practicums, and seminars. They may take place at the University or in community settings.

Laboratories of the divisions of genetics and biochemistry, Department of Pediatrics, and the clinical site of the Department of Pediatric Dentistry are housed at the University Hospital School.

Wendell Johnson Speech and Hearing Clinic

Located in the Wendell Johnson Speech and Hearing Center, the clinic provides evaluations and consultation for individuals with speech, language, or hearing problems; habilitation or rehabilitation programs for persons who can come to the clinic for such service; a summer residential program for children with speech, language, hearing, and reading problems; and clinical practicum training for students in speech-language pathology and audiology. Any University of Iowa student may receive services without charge. Products (e.g., hearing aid supplies and accessories), devices (e.g., hearing aids), and hearing aid repair services are provided to University of Iowa students at cost plus handling expenses. Services include diagnostic examinations, consultations, individual and small-group sessions, hearing aid services, and referrals to other clinics as needed.

Veterans Affairs Medical Center

Medical students, residents, and others in health-related fields receive much of their clinical training in this 269-bed facility, which serves as a tertiary referral center for the Veterans Affairs medical centers at Knoxville and Des Moines, the VA outpatient clinics in Bettendorf, Iowa, and Quincy, Illinois, and the 230,130 veterans residing in its primary service area of eastern Iowa and western Illinois. A full range of inpatient medical, surgical, necrologic, and psychiatric care is provided; more than 25 outpatient primary and specialized services are provided, with some 6,000 admissions and 80,000 outpatient visits made to the center annually.

The Veterans Affairs medical center, formally affiliated with the University’s four health science colleges, offers unique training opportunities in clinical pharmacology, gastroenterology, cardiology, nephrology, oncology, and applied immunology. Modernization and construction of a new ambulatory care clinic has resulted in the latest facilities for radiology, nuclear medicine, clinical laboratory, and outpatient clinics.

Research also plays a major role at the medical center. Major research areas include the Diabetes and Endocrinology Research Center (DERC), Infectious Disease Laboratories, and Cardiovascular Laboratories. It ranks among the top three nationally in VA research funding.

The Iowa Center for the Arts

Located along the west bank of the Iowa River on The University of Iowa campus, the Iowa Center for the Arts is a major cultural resource not only for the University community but for the people of the state and the nation. The center, which celebrated its 50th anniversary in 1985-86, realizes a University dream of many generations: to bring the arts together in a single campus setting, near the geographical heart of the University.

The arts center facilities include many of the academic arts units in the College of Liberal Arts, together with performance and exhibit spaces in the Theatre Building, Music Building, School of Art and Art History, the Museum of Art, and Hancher Auditorium, the center’s largest performing arts showcase.

In addition to activities housed in these facilities, various educational programs in other parts of the campus reflect the University’s strong commitment to artistic creativity.

Financial support from many sources, both public and private, is reflected in the physical structures and the educational and cultural offerings of the Iowa Center for the Arts. In addition to resources from the state of Iowa and the federal government, private contributions from growing numbers of corporate and individual patrons play an important role in the quality and diversity of the center’s services to University students and to the people of Iowa and the surrounding region.

School of Art and Art History

The University of Iowa School of Art and Art History has been a pioneering force for art in America for more than half a century. The original Art Building dates from 1936. Major additions were made in 1968-69, greatly extending space for the Art Library, classrooms, and studios, and providing a new wing for ceramics, metalsmithing, and sculpture.

A small gallery within the building, used primarily for the display of works by students and visiting artists, is named for artist Eve Drewelowe, who in 1924 became the first recipient of the Master of Arts degree in studio art at The University of Iowa.

The school’s Corroboree Gallery, multimedia studios, and video art studio are located in the International Center. New and experimental works are presented through exhibitions, lectures, live cablecasts, and performances that emphasize new concepts and directions in contemporary arts. Visiting artists and critics bring a wide range of ideas to students and visitors.
Established in 1982, Alternative Traditions in the Contemporary Arts is both a collection and a research program. Composed of art objects, performance relics, and artists’ books and papers, the collection provides students, faculty and visitors with hands-on access to pivotal works from the post-World War II period. It has generated topical workshops, exhibitions, interdisciplinary symposia, and publications.

The Fine Arts Dada Archive and Research Center was established in 1979 and has since attained national and international visibility through its publication program, symposia, and cross-disciplinary collaborative research activities. The project also houses one of the country’s most extensive photodocumentary archives of avant-garde visual works of the World War I era.

**Museum of Art**

As one of the two largest art museums in Iowa and the major art institution supported by the state, the University of Iowa Museum of Art (UIMA) recognizes its responsibility to serve a varied statewide audience. Although its primary constituency is the University community, especially students and their families, the museum’s reputation and growing permanent collection attract a national and international audience as well.

The UIMA collection of more than 9,000 objects has three notable strengths: late nineteenth and twentieth-century European and American painting, works on paper, and African art. Paintings number some 550, including Pollock's *Mural*, Beckman’s *Karnearl*, and Mire’s 1939 *A Drop of Dew Falling from the Wings of a Bird*. The museum’s 4,000 prints include impressions by Whistler, Cassatt, Rembrandt, Manet, Toulouse-Lautrec, and Goya; its collection of drawings represents artists from Boucher to Rothko.

The Stanley Collection, which features more than 800 examples of art from west, central, and east Africa, represents the entire sub-Saharan continent. A gift of the late Betty and Max Stanley of Muscatine, it is one of the most prized collections of the museum.

In the early 1960s, Owen and Leone Elliott of Cedar Rapids offered to the University their extensive collection of nineteenth- and twentieth-century paintings, prints, antique silver, and rare jade on the condition that a museum could be built to house it, along with the University’s existing and future acquisitions of art.

In response to this challenge, more than 2,000 individuals and business firms contributed funds for the museum’s construction cost. The museum opened in 1969 and quickly earned recognition as one of the nation’s finest university art museums. A gift from the late industrialist Roy Carver of Muscatine made possible the construction of a major addition opened in 1976.

The museum’s permanent collection also includes sculpture, European and American silver, American contemporary ceramics, nineteenth- and twentieth-century photographs, and Oceanic, Pre-Columbian, and Native American art.

The museum presents an average of 22 special exhibitions per year as well as continuous rotation of the permanent collection. At any one time, the galleries provide a variety of exhibition and educational experiences for visitors of all ages offering presentations that range from the scholarly and esoteric to the popular.

Museum special events include slide-lectures by visiting artists, scholars, and collectors; “Music in the Museum,” a Sunday afternoon concert series; and “Perspectives,” a weekly program of lectures, discussions, and demonstrations. Museum docents lead groups on guided tours of the museum’s exhibitions, and catalogs of many exhibitions are available for purchase. Friends of the Museum of Art, a private support group, sponsors receptions, and exhibition openings and participates in active print, drawing, and ethnographic study clubs.

**Iowa’s University Theatres**

Iowa’s University Theatres is the production area of the Department of Theatre Arts, a pioneer in the study of all aspects of theatrical production. Emphasis is placed on the development and production of new and experimental works. The excellence of University productions is attested by the department’s unsurpassed record of success in the competition of the American College Theatre Festival.

In addition to productions during the spring and fall semesters, the department sponsors a professional summer repertory company, which presents a month-long season, Iowa Summer Rep has become unique among both college theaters and professional repertory companies by focusing each season on the work of a single contemporary playwright.

Iowa’s University Theatres welcomes all persons who want to participate in theatrical production. Information about the productions is available from the department office in the Theatre Building.

The Theatre Building is one of the finest educational theatre complexes in the country, housing four theatres and up-to-date facilities for classroom, laboratory, shop, and performance work. The E.C. Mabie Theatre, a continental-style, 477-seat proscenium playhouse, is one of the finest small theatres of its type in the United States. Theatre A is a “black box” production space with flexible seating units that accommodate from 140 to 225, permitting quick modification of space-audience relationships. Theatre B, seating 144, is an open-stage theatre dedicated primarily to the production of new and experimental works through the Playwrights Workshop. The Studio Theatre is an intimate, flexible space that features a floor designed for dance.

The theatres are equipped with state-of-the-art electronic lighting control and sound reproduction systems. Several shops for building, painting, maintaining, and storing scenery, costumes, and properties, as well as the specialized classrooms for acting and design complete the Theatre Building facilities.

The Playwrights Workshop, ranked among the nation’s most distinguished playwriting programs, is a unit of the Department of Theatre Arts. Each year the department presents more than a dozen productions of plays by Iowa writers, including an annual festival of new scripts from the workshop. The Playwrights Workshop also maintains close ties with the Writers’ Workshop.

**School of Music**

The School of Music enjoys a longstanding national reputation for excellence and innovation. It provides students with rich and diverse opportunities for music research and scholarship as well as extensive training in applied music.

School of Music faculty members are performers as well as teachers. They serve as mentors for students whose performance experience is wide-ranging-from playing in or conducting high school marching bands to singing opera on the concert stage to presenting new works in collaboration with their composers.

Each year, faculty artists and student ensembles present about 150 major public concerts, including performances by the University’s bands, orchestra, and choruses. Nearly 200 vocal and instrumental recitals are presented by students.

The school has produced opera since 1938. Like other major stage presentations, opera is interdepartmental in its opportunities for educational and performance experience, using the talents and resources of other units of the Iowa Center for the Arts, particularly dance.

The School of Music is at the vanguard of innovation in the arts, creating and performing works in new forms. Its Center for New Music, originally funded by the Rockefeller Foundation, is a laboratory and extension of the composition area. Faculty and student members of the Center for New Music form a repertoire ensemble for the performance of both new compositions and masterworks of the twentieth century. The Composers Workshop has extended the creative workshop concept that was pioneered in the literary arts to the development of young composers.

Two experimental music studios provide a wide range of technical capability for creative audio-musical forms, including computer-generated music. Works created in the studios are presented with other student compositions in an annual series of performances. Outstanding recording facilities link the various performance spaces of the School of Music/Hancher Auditorium complex with a central recording studio in the School of Music. The digital recording capability of the School of Music has been used to produce commercial compact discs by major artists.

The Music Building, opened in 1971-72, was designed to include spacious and convenient performance facilities. Its broad corridors lead from rehearsal rooms to recital halls and to the stage of Hancher Auditorium.
Clapp Recital Hall, with its hand-crafted Cassavant tracker organ, seats 720 for public concerts. The 200-seat Harper Hall is both a classroom and the setting for many recitals. The school’s largest ensembles (symphony orchestra, bands, Opera Theater, and choirs) perform regularly in Hancher Auditorium. The Opera Studio, opened in 1983, is the scene for smaller productions of the Opera Theater, and the Krapf Organ Studio is the scene of many intimate performances.

**Hancher Auditorium**

Hancher Auditorium is a regional and national cultural resource of the first magnitude. The 2,664-seat facility opened in 1972 and in its first two decades has hosted audiences of nearly three million people. The auditorium is fully accessible to persons with disabilities and provides wheelchair seating. Hancher also has installed a hearing augmentation system, which is available free of charge to patrons who are hearing impaired.

The diversity of Hancher’s programming appeals to the broad range of tastes in the region and within the University community. In recent years, such world-famous artists as Vladimir Horowitz and Isaac Stern, Miles Davis and Dizzy Gillespie, and Rudolph Nureyev and Mikhail Baryshnikov have performed at Hancher, as well as experimental artists, including Sankai Jaku, the Kronos Quartet, Laurie Anderson, and Philip Glass. National touring companies regularly present the Broadway hits; in 1991 eight performances of Les Misérables broke all Hancher box office records.

Hancher has highlighted international performers, including the electrifying Japanese drummers Kodo, the Dance Company of Senegal, and the South African play You Strike the Woman, You Strike the Rock From jazz to chamber to symphonic music, from Shakespeare to the Kirov Ballet of Russia, from the Peking Opera to the Grand Kabuki Theater of Japan, Hancher presents the full range of the world’s performing arts.

Hancher also has been an active catalyst for artistic creativity. In 1987, the auditorium co-produced The Jeffrey Ballet’s new production of The Nutcracker, which had its world premiere on the Hancher stage. The auditorium also has commissioned important new works for Pilobolus, The Parsons Dance Company, the Muir String Quartet, The Paul Dresher Ensemble, the Bill T. Jones/Amie Zane Dance Co., The Kronos Quartet, the Laura Dean Dancers, and many other artists and ensembles.

It has been the primary sponsor of the Iowa Dance Residencies Program, which has brought important dance companies for extended residencies including workshops, master classes, and performances in communities throughout the region.

The auditorium has become a midwestern showcase. Handsome lobbies, a cafe and gift shop, excellent acoustics, and a surprising intimacy in its interior design make it one of the foremost concert halls in America. But it is much more than a showcase. It also is a splendid educational plant, designed as an extension of the classroom and laboratory facilities of all of the performing units of the Iowa Center for the Arts.

For students of the various theater arts, the auditorium has spacious scene construction and costume shops, nearly 50 sets of rigging for scenery changes, and a sophisticated lighting control and sound system. For music students, Hancher is an on-the-premises concert hall, the stage itself is an excellent educational resource. Its proscenium is 70 feet wide. With its adjacent wings, the stage area is 175 feet long, 55 feet deep, and eight stories high. Mobile units of a concert shell can be installed quickly on stage for various concert requirements. University students are entitled to purchase tickets at reduced prices. Nonstudent patrons regularly attend auditorium events from a wide region in Iowa and western Illinois.

**Arts Education/Outreach Program**

Cultural projects and programs that utilize the talents of faculty or student artists and other resources of the Iowa Center for the Arts are available to Iowa communities through the Arts Education/Outreach Program. Intended to share the University’s cultural resources as widely as possible throughout the state, the innovative program reaches new audiences and serves a variety of constituencies, including colleges, schools, arts councils, concert associations, museums, churches, centers for senior citizens and the handicapped, service organizations, and other special community organizations.

Consistent with the University’s resources, the educational outreach projects are tailored to meet local needs and interests. In addition to programming throughout the state, the Arts Education/Outreach office schedules on-campus conferences, workshops, performances for young audiences, and other educational projects.

**Department of Dance**

The Department of Dance, housed in Halsey Hall, enjoys some of the finest facilities in the nation: six studios, two classrooms, audio-video-computer rooms, and a 250-seat workshop and performing space in North Hall. Teaching responsibilities are shared by seven full-time faculty and four to six teaching assistants. Students of the technique classes are accompanied by a staff of two full-time and several part-time assistants, and a full-time technical director attends to all of the department’s production needs.

Students in the department have many opportunities to perform during the year: The University of Iowa touring company Dancers In Company (in collaboration with the Arts Education/Outreach Program), the yearly Dance Gala held in Hancher Auditorium, faculty, student, and thesis concerts in the Dance Department’s Space/Place Theater, the School of Music spring and summer operas, musical theater in conjunction with the Department of Theatre Arts, and community performances.

Teaching opportunities for graduate and undergraduate students can be found within the Arts Education/Outreach Program, Young Dancers Program, Saturday Dance Forum, Saturday and Evening Class Program, and graduate teaching assistantships.

By scheduling nearly every nationally known company to perform in its theater, Hancher Auditorium is an invaluable resource for dance students, enabling them to see performances, observe rehearsals, and take master classes from touring companies.

For the past 16 years, the dance department has participated in the American College Dance Festival Association (ACDFA) festivals. The department hosted ACDFA festivals in 1981, 1986, and 1993.

**Media Studies and Film**

A division of the Department of Communication Studies, Media Studies and Film fosters artistic and scholarly work in electronic and visual media. Its artists and film production frequent work with artists in other units of the Iowa Center for the Arts on projects with national as well as regional audiences. Their productions include a series of music videos with jazz artists and one produced in association with the Opera Theater staging of Puccini’s Madame Butterfly, which was featured on the Bravo! cable television channel.

**Writing Programs**

A longtime program of special distinction in the Department of English, the Writers’ Workshop provides opportunities for talented writers to work and learn with established poets and fiction writers.

The International Writing Program brings accomplished writers of many nationalities to the University for extended periods of new writing and translating their works into English and other languages.

These writing programs are renowned in many countries and have won widespread private support from foundations, business corporations, individuals, and the U.S. State Department.

**Center for the Book**

The Center for the Book offers students opportunities to develop skills and explore creative possibilities in arts and technologies of the book. The center is home to the Windover Press, a nationally distinguished hand printing workshop that publishes limited editions, and to the Papermaking Facility, which produces Western and Japanese handmade papers used in rare book conservation.

Close affiliates of the center include the conservation workshop in the Main Library, which sponsors classes in traditional and nontraditional binding techniques, and the offset workshop in the School of Art and Art History. The Iowa Review is affiliated with the center; in its offices, students assist in the editorial work of selecting and producing the work published in the magazine.

The center also promotes the study of letter and other texts with nontraditional binding techniques, and the offset workshop in the School of Art and Art History. The Iowa Review is affiliated with the center; in its offices, students assist in the editorial work of selecting and producing the work published in the magazine.
Library make possible local exhibits of rare books and manuscripts.

**MUSEUM OF NATURAL HISTORY**

The Museum of Natural History, located in Macbride Hall, is an outgrowth of the Cabinet Library make possible local exhibits of rare books and manuscripts.

**MUSEUM OF NATURAL HISTORY**

The Museum of Natural History, located in Macbride Hall, is an outgrowth of the Cabinet books and manuscripts. The Museum of Natural History provides a repository and the proper care for objects and specimens that come to the University either by gift or through the efforts of its own collectors. These collections, with primary focus on Iowa the Midwest region, and North America are representative of the disciplines of biology, geology, and anthropology and are used for research and teaching by University faculty and students as well as for public exhibition and interpretation.

The Museum of Natural History, a department in the College of Liberal Arts, also supports a museum studies program that provides instruction in the history, philosophy, operations, and programs of museums.

The museum’s Iowa Hall gallery features 60 multisensory exhibits linked by space, theme, and time, illustrating Iowa’s natural heritage-its geology, native culture, and ecology. Exhibit highlights of Iowa Hall include the Marquette-Joliet diorama, Devonian reef, Mesquakie lodge, and a life-size reconstruction of an Ice Age giant ground sloth.

In Bird Hall, the Layson Island cyclorama is a large and well-known bird habitat exhibit comprising a complete representation of a bird island of the Hawaiian group. Other habitat exhibits include the Bering Sea, Louisiana swamp, fall migration, and cranes on the South Dakota prairie. The crane exhibit includes both the whooping crane and the rare whooping crane as they appear on the prairie during migration. Mammal Hall habitat exhibits feature walrus, bison, antelope, mountain lion, musk-ox, and giant panda. Also displayed is a complete 47-foot-long skeleton of the rare Atlantic right whale.

The major invertebrate phyla are represented in several exhibits and include familiar groups such as insects and crustaceans, snails and clams, sea stars, and corals.

Ethnological exhibits in the museum present artifacts from many parts of the world. Indian and Eskimo materials, including beadwork and carved ivory received in the late nineteenth century, are exhibited. The ancestry of humans through 12 million years of time is portrayed in a display featuring replicas of fossil remains from Africa, Asia, and Europe.

Guided group tours of exhibit halls are offered daily and can be arranged by advance reservation. The Museum of Natural History also supports formal outreach programming to area schools and sponsors a weekend lecture and field trip series for the general public.

**OLD CAPITOL**

Iowa’s Old Capitol, a National Historic Landmark, has served Iowa for nearly 150 years as a seat of government and education. Built in the early 1840’s, it served as Iowa’s third territorial capitol from 1842 to 1846 and as the first state capitol from 1846 until 1857, when westward expansion drew the government to Des Moines. Old Capitol then became the University’s first permanent building.

An example of Greek Revival architecture, Old Capitol was restored in the 1970s to reflect its history and to serve as a living museum, providing space for ongoing University functions. Two rooms have been returned to the 1920’s decor to reflect the University’s long and continuing use. Other rooms have been authentically refurbished, some with what may be original pieces used by state legislators in the 1840’s. One of the building’s most unusual features is its reverse spiral staircase, which dominates the central hallways.

Old Capitol is located on the Pentacrest, at the center of The University of Iowa campus. Guided tours and a video presentation are offered daily without charge. Reservations are required for group tours.

**OTHER SERVICES**

**Evaluation and Examination Service**

The Evaluation and Examination Service administers placement and exemption tests to help entering students and their advisers make decisions related to course selection. In addition, the office provides registration materials for and administers national standardized test programs, including the American College Testing Program (ACT), College Level Examination Program (CLEP), Medical College Admission Test (MCAT), Graduate Record Examination (GRE), Graduate Management Admission Test (GMAT), Law School Admission Test (LSAT), and the Test of English as a Foreign Language (TOEFL).

The exam service duplicates, scores, and analyzes classroom tests; helps plan and process course and instructor evaluations; conducts institutional research; prepares reports and technical bulletins pertaining to evaluation and measurement issues; and provides consultation on questionnaire design and data collection and processing.

**Printing Department**

The Printing Department is the University’s authorized in-house printer, serving faculty, staff, and students. This full-production facility offers design, editorial, composition, typesetting, proofreading, pasteup, platemaking, printing and binding, color copying, and duplicating services.

The department also functions as a service facility for desktop publishers, with a wide range of equipment, fonts, and software; a high-resolution printer; color output capability; and a computer consultant on staff.

Experienced customer service staff members are available to advise clients on printing and to help plan print-related orders. The department’s ten satellite copy centers, conveniently located throughout campus, offer 24-hour turnaround on copying, duplicating, and finishing services, such as collating and stapling.

**Radio Broadcasting Services**

WSUI and KSUI-FM extend the resources and activities of the University to the people of eastern Iowa with 24 hours of daily broadcasting. The broadcast schedule consists of educational, cultural, and informational programming not generally available elsewhere. An affiliate of National Public Radio (NPR), WSUI contributes program materials to a national network of more than 400 noncommercial radio stations. The main studios and offices are located in the Engineering Building and a free copy of the WSUI-KSUI Program Guide is available.

**The University of Iowa Alumni Association**

Since its organization in 1867, The University of Iowa Alumni Association has worked to encourage graduates, former students, and friends to continue their involvement with the University. In addition to offering traditional programs such as class reunions, the association provides alumni enrichment programs, sponsors a network of alumni clubs that take the University to alumni throughout the state and nation, recognizes distinguished alumni, and publishes a magazine, the Iowa Alumni Quarterly, to keep its 46,000 members up-to-date on University news and alumni achievements.

Iowa students are an important part of the Alumni Association’s work on behalf of the University. Not only does the association help recruit prospective students, it also provides the on-campus Career Information Network for students exploring careers, and it sponsors the Student Alumni Ambassadors, who plan and conduct the annual fall Parents Weekend. Outreach activities of the Alumni Association are supported primarily by membership dues.

**University of Iowa Foundation**

The University of Iowa Foundation was organized in 1956 to help the University obtain the greatest possible educational benefit from private giving. The foundation is the preferred channel for private gifts to The University of Iowa through annual giving programs, anniversary class gifts, planned gifts such as bequests and trusts, and capital and other special-purpose campaigns.
The foundation is a nonprofit corporation empowered to solicit and receive gifts and bequests; to accept trusts subject to the conditions imposed on them; and to hold, administer, manage, use, or distribute gifts, bequests, and trusts— all for the benefit of The University of Iowa. The foundation is constantly at work to provide more funds for student financial aid, faculty support, research, library and equipment acquisitions, and other needs throughout the University.

The foundation has recently completed a nationwide major gifts campaign, Iowa Endowment 2000: A Covenant with Quality, surpassing by $75 million its goal of raising $150 million in support of human resources. For generations to come, endowed faculty chairs, fellowships for graduate and professional students, scholarships, academic excellence funds for the University’s colleges, and The University of Iowa Libraries will benefit from the campaign.

University of Iowa Press

The University of Iowa Press was established to publish significant results of original scholarly research and outstanding creative work in the arts. The press annually publishes 30-35 new books in a variety of fields—works that are reviewed nationally by a wide spectrum of magazines, journals, and newspapers. The press reports directly to the vice president for research and to an advisory board appointed by the vice president.

Office of University Relations

The Office of University Relations (OUR) works to promote understanding of, participation in, and support of the University’s mission and activities, both within the University community and among the general public. It seeks to maintain an effective communication program including the use of internal and external media. It counsels the University administration on public relations, community relations, and communication needs. It also serves as a liaison to facilitate communication between the central administration and appropriate University, governmental, civic, and other groups.

University relations programs are implemented through the coordinated efforts of the department’s University relations office, University News Service (UNS), Arts Center Relations, Health Sciences Relations, and University Relations Publications. The staff members of these units who specialize in coverage of the performing arts, the health sciences, and women’s intercollegiate athletics, as well as general news and broadcast news. They supply news and information to print and electronic media in a variety of ways.

University Relations Publications publishes Spectator for alumni and friends of the University; Parent Times for students’ parents; fyi, the University’s newsletter for faculty and staff; Arts Iowa, featuring forthcoming arts activities; and specialized materials for prospective students, in association with the Office of Admissions. The department also produces other special- and general-interest publications for external audiences, in collaboration with other University departments and colleges.

OUR also serves as the executive office of the Parents Association.

University Ombudsperson

The Office of the University Ombudsperson responds to problems and disputes brought forward by all members of the University—students, staff, and faculty. The ombudsperson investigates claims of unfair treatment or erroneous procedure and serves as a neutral and detached listener, information resource, adviser, intermediary, and mediator. See “University Ombudsperson” in the Student Life at Iowa section of the Catalog.
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Dean: Judith P. Aikin
Associate dean for academic programs: James B. Lindberg
Associate dean for development and research: John D. Fix
Associate dean for faculty: Kate E. Gfeller
Director of honors: David E. Klemm
The College of Liberal Arts provides undergraduate students with a comprehensive liberal arts education and graduate students with advanced education in specialized areas. Students and faculty participate in the creation, preservation, and dissemination of knowledge.

The college encompasses educational programs in the fine arts, the humanities, the natural sciences, the social sciences, and mathematics, as well as interdisciplinary programs. These programs can lay the necessary foundation for specialized training in dentistry, medicine, nursing, pharmacy, business, law, and education.

They provide students with a general education that prepares them for participation in the complex and ever-changing economic and political life of their community and society.

More than fifty majors are available, each offering extensive study of a particular academic discipline or set of related disciplines. The range and scope of the college help every student achieve breadth of knowledge and exposure to a variety of analytical approaches.

The liberal arts curriculum exposes all undergraduate students — regardless of their majors — to work in rhetoric, quantitative or formal reasoning, history, natural sciences, humanities, social science, foreign languages, and foreign civilizations and cultures. Soon the college also will provide each student with opportunities to explore the fine arts and the cultural diversity of society. This breadth is achieved through the college’s General Education Requirements, which are designed to enable students to understand the physical world in which they live, the social organizations in which they act, and the values of past and present civilizations that form their own culture and the cultures of others. This general education provides the basis for and supplements the insights of specialized study with a comprehensive understanding that helps students to raise significant questions, find answers, evaluate their attitudes and beliefs, and adapt to change.

College Organization

The College of Liberal Arts is multifaceted. Its schools, departments, and programs offer majors, certificates, and minors described in detail in the departmental sections of the Catalog.

The college is closely linked with the University’s professional colleges. Undergraduate students planning to graduate from the Colleges of Business Administration, Medicine, and Nursing all begin their course of study in the College of Liberal Arts. Students admitted to the Teacher Education Program in the College of Education receive their degrees from the College of Liberal Arts. The college also provides instruction for students in the Colleges of Engineering and Pharmacy. Students in liberal arts may complete degrees and minors in other colleges; similarly, other colleges may award their students minors for work done in the College of Liberal Arts.

Liberal Arts Office of Academic Programs

The Liberal Arts Office of Academic Programs is an integral part of the Office of the Dean.

Located in 116 Schaeffer Hall, it serves students who wish to declare or change majors, file the second-grade-only option, or request special permission for a dean’s signature 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 Requirements, graduation requirements, and collegiate policies affecting students; coordinate the advising of candidates for the B.A. in interdepartmental studies; conduct interviews with students on academic probation; conduct reviews of students on academic probation and take dismissal actions; and respond to requests for reinstatement after dismissal.

The Office of Academic Programs also considers evidence and recommends appropriate disciplinary action for student plagiarism, cheating, forgery, and other academic misconduct. Students requesting exceptions to the rules and requirements of the college petition the Student Appeals Committee through the Office of Academic Programs.

Advising

Every student in the college has an adviser to consult about academic and other issues. Most undergraduates are advised during their first semesters by professional advisers at the Undergraduate Academic Advising Center. Others are advised in their major departments. Advising by faculty advisers in the student’s major department is always available by junior year or earlier. Each department also identifies a specific honors adviser.

Honors Program

The University Honors Program offers special academic and extracurricular opportunities to outstanding students. Freshmen and sophomores may take advantage of honors seminars that fulfill General Education Requirements and special honors sections are offered in some General Education Requirement courses. At the junior and senior level, most departments offer honors seminars, independent research, and the opportunity to pursue a senior project under the guidance of a faculty member. Successful completion of a senior honors project leads to a baccalaureate degree “with honors” in the major (see “Graduation with Honors” in this section of the Catalog).

The Shambaugh House Honors Center is a meeting place and study center for students in the honors program. It houses a reference library, study lounges, and computer terminals. Each year the Associated Iowa Honors Students plans a variety of recreational, social, cultural, and academic activities. Entering students with strong academic records are invited to join the honors program, but any student whose grade-point average meets the required minimum (3.20) may join at any time.

For more information see “Honors Program” in the “Academic Programs” section of the Catalog, or contact the Honors Program, Shambaugh House Honors Center.

Degrees Offered

Students graduating from the College of Liberal Arts earn Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), Bachelor of Liberal Studies (B.L.S.), and Bachelor of Music (B.M.) degrees.

Major Fields

The college confers degrees as indicated in the following major fields. The B.L.S. degree is awarded with no major designation.

Actuarial science – B.S.*

African-American world studies – B.A.

American studies – B.A.*

Ancient civilization – B.A.

Anthropology– B.A.

Art– B.A., B.F.A.

Art history – B.A.

Asian languages and literature – B.A.

Asian studies – B.A.

Astronomy – B.A., B.S.

Biochemistry – B.A., B.S.

Biology – B.A., B.S.

Botany – B.A., B.S.

Chemistry – B.A., B.S.

Classics – B.A.

Communication studies – B.A.*

Comparative literature – B.A.

Computer science – B.A., B.S.*

Dance– B.A., B.F.A.

Economics – B.A., B.S.

Elementary education– B.A., B.S.*

English– B.A.

Exercise science – B.S.*

French – B.A.

Geography– B.A., B.S.

Geology– B.A., B.S.

German – B.A.

Global Studies – B.A.*

Greek– B.A.

Health occupations education– B.A., B.S.

History– B.A.

Interdepartmental studies– B.A.

Italian– B.A.

Journalism and mass communication– B.A., B.S.*

Latin– B.A.

Leisure Studies – B.S.*

Linguistics– B.A.

Literature, science, and the arts– B.A.

Mathematics– B.A., B.S.

Microbiology– B.S.

Music – B.A., B.M.

Philosophy– B.A.

Physical education– B.S.

Physics– B.A., B.S.

Political science– B.A., B.S.

Portuguese– B.A.

Psychology– B.A., B.S.*

Religion– B.A.

Russian– B.A.

Russian, East European, and Eurasian studies– B.A.

Science education– B.S.

Social studies– B.A.

Social work – B.A.*

Sociology– B.A., B.S.

Liberal Arts 45
Spanish – B.A.
Speech and hearing science – B.A.
Statistics – B.S.
Theatre arts - B.A.

*Students who wish to major in actuarial science, American studies, communication studies, elementary education, exercise science, global studies, journalism and mass communication, leisure studies, or social work, or to earn a B.S. degree in computer science or psychology, must complete an application procedure before they are admitted to the major. Admission to these programs is based on grades in specified prerequisite courses, cumulative grade point average, and/or other criteria.

Teaching Licensure

Students may indicate a major in one of the fields of education or an interest in secondary education at the time of admission, or they may change their majors to one of these fields at any time after enrolling. In order to be allowed to enroll in the courses for an education major or licensure, the student must be admitted to the teacher education program (TEP).

To be admitted to the TEP, a student must have attained sophomore standing (30 semester hours) and have earned a total cumulative grade-point average of at least 2.50. Transfer students who meet these standards may apply to the TEP upon admission to the University. In order to remain in the TEP, a student must maintain a 2.50 total cumulative grade-point average and a 2.50 grade-point average at The University of Iowa.

Application forms for admission to the TEP are available from the Office of Student Services and Field Experiences in the College of Education. For more information, see the College of Education section of the Catalog.

Double Majors

A student may meet the major requirements in more than one department, and if the departments award the same degree, the student may earn a single bachelor’s degree with two or more majors (e.g., a B.A. in history and English or a B.S. in psychology and sociology). For more information, see “Double Majors” under “Requirements for the Major” in this section of the Catalog.

Specializations within Degree Programs

Many degree-granting units in the college offer internal specializations. Some of these are formal options within degree programs. For example, the Department of Communication Studies offers media studies and film, and the Department of Geography offers urban and regional studies. Athletic training is a specialization within the B.S. in exercise science. Specializations in Chinese, Hindi, Japanese, or Sanskrit are available to students seeking a B.A. in Asian languages and literature. The School of Music has several different tracks leading to a bachelor’s degree: performance, composition, jazz studies, music history, music education, and music therapy. These are only a few examples of the many options within degree programs.

Other specializations can be developed with combinations of courses taken from several areas—for example, a specialization in public relations and advertising, with courses taken in the Department of Communication Studies and the School of Journalism and Mass Communication; public service, with courses taken from the Departments of Political Science, History, and Social Work; or a specialization in management, with courses taken in various social sciences departments.

For more information on specializations within and between programs, see the program descriptions in the Catalog and advisers in the appropriate departments.

Certificates

The College of Liberal Arts offers certificates in six interdisciplinary programs: African studies; aging studies; American Indian and native studies; global studies; Latin American studies; and philosophies and ethics of politics, law, and economics. A seventh certificate program, international business, is administered jointly by the College of Business Administration and the College of Liberal Arts.

Certificates require from 18 to 36 semester hours of prescribed course work. Specific requirements are listed in the departmental sections of the Catalog.

A minimum grade-point average of 2.00 is required in all course work applied toward a certificate. Each certificate program sets its own policy on the acceptance of transfer course work; students are advised to check with the program chair. Certificates are awarded only upon completion of a bachelor’s degree. Holders of Iowa baccalaureate degrees may return to the University to complete the requirements for a certificate. Courses applied toward a certificate also may be used to satisfy the General Education Requirements or the requirements for a major or a minor. A student may not be awarded both a minor and a certificate in the same area.

Minors

Students may earn minors in more than 50 programs in the College of Liberal Arts or in other colleges of the University. Most minors require a minimum of 15 semester hours of course work.

The college offers minors in the following fields: actuarial science, Afro-American studies, aging studies, American studies, American Indian and native studies, ancient civilization, anthropology, art, art history, Asian languages (Chinese, Hindi, Japanese, Sanskrit), Asian studies, astronomy, biology, botany, chemistry, classics, communication studies, comparative literature, computer science, dance, economics, English, French, geography, geology, German, global studies, Greek, history, Italian, journalism and mass communication, Latin, Latin American studies, leisure studies, linguistics, mathematics, microbiology, music, philosophy, physical education, physics, political science, Portuguese, psychology, religion, Russian, social work, sociology, Spanish, statistics, theatre arts, and women’s studies.

The general requirements for minors are described below, under “Minors.” Specific requirements are listed in the departmental sections of the Catalog.

Interdisciplinary Programs

A number of interdisciplinary programs in the College of Liberal Arts offer majors, minors, or certificates. These programs include African studies (certificate or option in B.A. in African-American world studies); African-American world studies (B.A. or minor); aging studies (minor or certificate); American studies (B.A. or minor); American Indian and native studies (minor or certificate); ancient civilization (B.A. or minor); comparative literature (B.A. or minor); global studies (minor, certificate, or honors major); interdepartmental studies (B.A.); international business (certificate); Latin American studies (minor or certificate); literature, science, and the arts (B.A.); philosophies and ethics of politics, law, and economics (certificate); Russian, East European, and Eurasian studies (B.A.); science education (B.S.); and women’s studies (minor).

Specific requirements for these interdisciplinary degree programs, minors, and certificates are described in the departmental sections of the Catalog.

Baccalaureate with Early Admission to Medicine or Dentistry

Students who are working toward a baccalaureate degree from the College of Liberal Arts may accept early admission to The University of Iowa College of Medicine or College of Dentistry or to any accredited medical or dental school in the United States that offers advanced degrees.

To be eligible for a baccalaureate degree from the College of Liberal Arts after early admission to the Colleges of Medicine or Dentistry, students must meet certain requirements. Before enrolling in the medical or dental college, students must have:

- satisfied the General Education Requirements;
- completed the requirements for a major;
- earned at least 94 semester hours as undergraduates; and
- satisfied the residence requirement of the College of Liberal Arts.

Students who have successfully completed the first year of medical or dental school are permitted up to 30 semester hours of ungraded elective credit toward a baccalaureate degree from the College of Liberal Arts.

Students who plan to accept early admission to the College of Medicine or Dentistry and who wish to receive a baccalaureate degree from the College of Liberal Arts should request a degree evaluation from the Office of the Registrar.
before their final semester in the College of Liberal Arts.

Combined Degree Programs

Business Administration and Liberal Arts

Students may earn two University of Iowa baccalaureate degrees in a combined program in the Colleges of Business Administration and Liberal Arts. Successful candidates are awarded a B.B.A. (Bachelor of Business Administration) by the College of Business Administration 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.

To enter the combined degree program, students must be eligible for admission to the College of Business Administration and the College of Liberal Arts. Interested students should contact an adviser in the Undergraduate Programs Office in the College of Business Administration. Students must be approved for candidacy in the combined degree program by the College of Business Administration and must be admitted to both the College of Business Administration and the College of Liberal Arts.

Students who enter the program are required to complete the General Education Requirements and the requirements for the major in the College of Liberal Arts. To qualify for both degrees in the combined degree program, candidates must complete an overall total of 158 semester hours of credit, including at least 30 semester hours of courses offered by the College of Engineering and at least 30 semester hours of courses offered by the College of Liberal Arts.

Medicine and Liberal Arts

Students may earn two University of Iowa baccalaureate degrees in a combined program in the Colleges of Medicine and Liberal Arts. Although students begin their academic program in the College of Liberal Arts, they must be eligible for admission to the College of Medicine in the College of Liberal Arts. 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.

Students who select this program must meet the baccalaureate degree requirements specified by both colleges and usually do so 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 advisers, one in the major department of the College of Medicine and the other in the major department of the College of Liberal Arts. Candidates must satisfy all requirements for both degrees and complete an overall total of 154 semester hours of credit, including at least 30 semester hours of courses offered by the College of Medicine and at least 30 semester hours of courses offered by the College of Liberal Arts.

Students interested in the combined degree program should see the director of the baccalaureate program of their choice in the College of Medicine.

Engineering and Liberal Arts

Students may earn two University of Iowa baccalaureate degrees in a combined program in the College of Engineering and Liberal Arts. 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.

Students in this 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 area of study selected in the College of Liberal Arts and the length of time required to complete the prerequisites for the College of Engineering. Students who enter the combined degree program are assigned two advisers, one for engineering and the other in their major department in the College of Liberal Arts.

Students 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 area of study selected in the College of Liberal Arts and the length of time required to complete the prerequisites for the College of Engineering. Students who enter the combined degree program are assigned two advisers, one for engineering and the other in their major department in the College of Liberal Arts.

It is crucial that students enroll in the proper mathematics and engineering courses early in their course of study to expedite completion of their programs. The specific engineering courses taken by students vary according to the engineering major selected. Since courses in natural sciences, mathematics, humanities, and social sciences are accepted regularly for credit by both colleges, students may be able to count one course toward a requirement in each college.

To qualify for both degrees in the combined degree program, candidates must complete an overall total of 158 semester hours of credit, including at least 30 semester hours of courses offered by the College of Engineering and at least 30 semester hours of courses offered by the College of Liberal Arts.

Two Bachelor Degrees

Students may be awarded two different bachelor’s degrees from the College of Liberal Arts, either simultaneously or successively, if they meet the requirements described below. For example, a student may earn a B.S. in biology and a B.A. in English, or a B.A. in mathematics and a B.M. (Bachelor of Music). Students may not earn two different bachelor’s degrees with the same major (for example, a B.A. and a B.S. in psychology).

Simultaneous Degrees

Students who wish to earn two different bachelor’s degrees at the same time in the College of Liberal Arts must complete 30 semester hours beyond the 124 required for a single degree, for a total of 154 semester hours, besides satisfying the requirements for both degrees. The B.L.S. and B.A. in interdepartmental studies may not be awarded simultaneously with another degree.

Returning for a Second Degree

Students who already have been awarded a bachelor’s degree from the College of Liberal Arts and are not enrolled in a graduate or professional program may earn an additional, different bachelor’s degree. These students must be readmitted to the college and must complete at least 30 additional consecutive semester
hours of study in residence in the college beyond the first degree (or 60 additional semester hours if they wish to earn two more different degrees).

Students may not earn a second B.A. if they already have a B.A. from the College of Liberal Arts, nor may they earn a second B.S. if they already have a B.S. from the college. Instead, these students should consider completing a second major (see “Returning for a Second Major” under “Requirements for the Major” in this section of the Catalog).

Students with a bachelor’s degree from another college or university may earn a different bachelor’s degree from the College of Liberal Arts by meeting the requirements described above. They may not earn a second, identical degree.

Holders of B.A. or B.S. degrees are considered to have satisfied all the General Education Requirements except foreign language if the degree was awarded in a liberal arts discipline. Holders of other degrees must satisfy the General Education Requirements.

Requirements for Graduation (B.A., B.S., B.F.A., B.L.S., and B.M. Degrees)

Classification of Students

Rank (semester hours earned) Code
Freshman (0-29) A1
Sophomore (30-59) A2
Junior (60-89) A3
Senior (90 or more) A4
Special (nondegree) student A9

Total Hours Earned

Students who enter as beginning freshmen must earn a minimum of 124 semester hours of credit. The number required of a transfer student is indicated on the student’s admission degree evaluation.

Satisfactory Grade-Point Average

The general requirements for graduation are based on the quality as well as the quantity of work completed.

Candidates for the B.A., B.S., B.F.A., and B.M. degrees satisfy the qualitative requirements for graduation by earning a minimum grade-point average of C (2.00) in all college work attempted, all work undertaken at The University of Iowa and all advanced courses attempted.

Candidates for the B.A. in interdepartmental “special major” studies satisfy the qualitative requirements for graduation by earning a grade-point average of at least 2.00 in all college work attempted, all work undertaken at The University of Iowa and all advanced courses attempted.

Candidates for the B.L.S. degree must earn a grade-point average of at least 2.00 in all course work applied toward the degree, all course work completed after admission to the program, and all upper-level course work.

Residence

Students must satisfy the College of Liberal Arts residence requirement. This may be met by earning the final 30 consecutive semester hours in residence, or 45 of the final 60 semester hours in residence, or an overall total of 90 semester hours in residence.

Resident instruction includes course work in the College of Liberal Arts and in other University of Iowa colleges (e.g., Business Administration, Engineering, Nursing), with the 30-semester-hour limitation noted below under “Restrictions and Limits on Semester Hours Applied Toward a Degree.”

Nonresident instruction includes course work at colleges and universities other than The University of Iowa and all work by correspondence, including University of Iowa Guided Correspondence Study courses.

B.L.S. students are not subject to the residence requirement but must earn at least 30 semester hours of credit at The University of Iowa after they are admitted to the program.

General Education Requirements

Students must complete the following General Education Requirements for the B.A., B.S., B.F.A., B.L.S., and B.M. degrees: Rhetoric, Physical Education, Foreign Language, Foreign Civilization and Culture, Historical Perspectives, Humanities, Natural Sciences, Quantitative or Formal Reasoning, Social Sciences.

Unified Program

The Unified Program (UP) is a four-semester sequence of general education courses for a small group of students who choose the program when they are admitted to The University of Iowa. The UP satisfies all of the College of Liberal Arts General Education Requirements except the foreign language and physical education requirements. Each UP course is interchangeable with an equivalent approved course. AU UP students take the same courses in a given semester. Students may leave the program at any time and satisfy the General Education Requirements in other ways, but only freshmen may enter the UP. See “Unified Program” in the departmental section of the Catalog.

Students with Disabilities and the General Education Requirements

Students with documented learning disabilities or physical disabilities may need accommodation in order to satisfy one or more of the General Education Requirements. Accommodations are arranged by the Office of Student Disability Services in consultation with departments and the Office of Academic Programs.

Rhetoric

All students must register for their assigned rhetoric course at their first or second registration, as required, and continue to enroll in rhetoric courses until the requirement is completed. Students are not permitted to drop rhetoric courses.

All transfer students, regardless of the number of hours they transfer, must satisfy the rhetoric requirement. The admission degree evaluation shows whether a student must take a rhetoric class, and if so, which one(s).

The rhetoric requirement may be completed in one of the following ways:

by passing 10:1 and 10:2 Rhetoric I and II (8 s.h.);
by passing 10:3 Accelerated Rhetoric (4 s.h.);
by passing the speech test and 10:4 Writing and Reading (3 s.h.);
by passing the essay test and 10:6 Speaking and Reading (3 s.h.);
by passing both the speech and essay tests;
by a combination of APP credit and 10:6 Speaking and Writing; or
by a combination of transfer course work and University of Iowa course work or exemption tests.

PROFICIENCY EXAMINATIONS

Placement and exemption tests are given during the first week of classes for students registered in rhetoric courses. Exemption from part or all of the requirement may be awarded on the basis of these tests. Academic credit is not given. For further information, see “Rhetoric” in the current Schedule of Courses.

Physical Education

The physical education requirement may be satisfied in one of the following ways:

by completing four 1-semester-hour courses in physical education skills (28S:1 or 28S:2), for a total of 4 semester hours; or
by completing 28S:5 Fitness and Wellness for Life (2 s.h.) and two 1-semester-hour courses in physical education skills, for a total of 4 semester hours.

Students also may earn exemption from part or all of the requirement by passing tests in specific physical education skills (see below).

Only courses 28S:1, 28S:2, and 28S:5 may be used to satisfy the requirement. Courses 28S:1 and 28S:2 are graded satisfactory/fail only; 28S:5 is a letter grade course. 28S:1 and 28S:2 are skills courses, and sections under these numbers have activity or sports titles and levels of proficiency. 28S:1 designates courses that meet for the first half of the semester or for the eight-week summer session; 28S:2 designates those that meet for the second half of the semester. 28S:5 Fitness and Wellness for Life (2 s.h.), a lecture-discussion course, meets for the entire semester.

If a student repeats the same skills course or takes a more elementary one, the Office of the Registrar assesses a penalty for either duplication or regression. In removing incomplete or using
the second-grade-only option, students must complete or retake the same activity or sport at the same level.

EXEMPTION TESTS
Students may be awarded exemption from part or all of the physical education requirement for successful completion of comprehensive tests in specific physical education activities or sports. Each test has both written and performance components. Successful completion of a proficiency test results in exemption from 1 semester hour of the physical education requirement. Academic credit is not awarded, only exemption. For more information, see “Physical Education Skills” in the current Schedule of Courses.

TRANSFER STUDENTS
Transfer students may satisfy the physical education requirement in one of the following ways:

- by transferring 4 semester hours of college physical education course work (skills, sports, and activities);
- by achieving junior standing (60 semester hours) before admission to the University of Iowa or
- by earning enough credit in approved courses at Iowa to make a total of 4 semester hours combined with physical education credit transferred from other colleges.

OLDER STUDENTS
Students who have passed their twenty-third birthday before their first enrollment at the University or will pass their twenty-eighth birthday before the day of their graduation are excused from the physical education requirement.

VETERANS
Veterans may be exempted from this requirement by presenting to the Office of the Registrar official evidence of having completed a basic training program in a branch of the armed forces. Academic credit is not given.

B.L.S. STUDENTS
Candidates for the B.L.S. degree are exempt from the physical education requirement.

PHYSICAL EDUCATION MAJORS
Physical education majors in the Teacher Education Program are exempt from the physical education requirement.

Foreign language

The foreign language requirement may be satisfied by high school courses, college courses, combinations of high school and college courses, or satisfactory performance on a proficiency examination.

All degree candidates (B.A., B.S., B.F.A., B.L.S., and B.M.) admitted to the College of Liberal Arts must satisfy the foreign language requirement in one of the following ways:

- by completing the fourth-year level of a foreign language in high school;
- by completing the fourth-semester level of a foreign language at The University of Iowa at another college or university, or during study abroad;
- by completing sequential years of one language in high school followed by sequential semesters of the same language in college; one year of high school study in a foreign language is considered the equivalent of one semester of college work; students must successfully complete the fourth-semester (college level) of a foreign language to satisfy the requirement or
- by passing an achievement test measuring proficiency equivalent to that usually attained after four semesters of college study.

Students who enrolled at The University of Iowa before fall semester 1990 and who will graduate with a B.L.S. degree by August 1997 are exempt from the foreign language requirement.

FOREIGN LANGUAGE PLACEMENT
Entering students are required to take a University of Iowa foreign language placement test if they have studied French, German, Latin, or Spanish. Students who have completed four years of a single foreign language in high school (or four semesters at the college level) are exempt from this requirement unless they wish to participate in the Foreign Language Incentive Program (see below).

Results from the placement test are used to determine the level at which students begin their language study at The University of Iowa. In determining placement, academic advisers also may consider number of years studied in high school or college, grades earned, and experience abroad or with native speakers if such consideration would result in a higher placement.

Entering students who place at the third-semester level or higher may:

- continue study in that language at the third-semester level or higher for full credit, or
- begin study of a different language for full credit.

Entering students who place below the third-semester level in French, German, or Spanish may:

- complete the appropriate review course in that language for full credit, or
- begin study of a different language for full credit.

Students who have met the unit (admission) requirement in French, German, or Spanish but who place below the third-semester level are not permitted to register for a first- or second-semester course in that language. If these students continue study of that language, they must register for the designated review course (e.g., 9:10 First-Year French Review, 13:14 First-Year German Review, or 35:5 Elementary Spanish Review).

FOREIGN LANGUAGE INCENTIVE PROGRAM
The Foreign Language Incentive Program enables entering students to earn extra college credit. Entering students who place into a fourth-semester language course and complete the course with a grade of B- or higher receive credit for the prerequisite third-semester course. Those who place into a fifth-semester or higher level course and complete it with a grade of B- or higher receive credit for the two prerequisite third- and fourth-semester courses. The credit is ungraded but counts toward the hours required for graduation. Incentive credit is not granted for college courses for which transfer credit has been received.

Students are eligible for incentive credit only during their first and second registrations at The University of Iowa.

For more information on eligibility and restrictions, see the handout “Foreign Language Incentive Program,” published by the Office of Academic Programs.

SATISFYING THE REQUIREMENT BY EXAMINATION
Students proficient in a language for which they have received no formal instruction (or instruction below the fourth-semester level) may be able to validate their proficiency on an examination.

Foreign Languages Offered at Iowa

Students proficient in French or Spanish should take one of The University of Iowa placement examinations regularly administered to entering students during the summer orientation programs and at the Evaluation and Examination Service on a monthly basis.

Proficiency examinations in Chinese, ancient Greek, Hindi, Italian, Japanese, Latin, Portuguese, Russian, Sanskrit, Swahili, and Yoruba are arranged by contacting the appropriate department. Academic credit is not awarded for successful completion of these examinations.

Students who earn satisfactory scores on Advanced Placement Program examinations in French, German, Latin, or Spanish may be awarded academic credit. Complete information is available from the Evaluation and Examination Service.

Foreign Languages Not Offered at Iowa

Students proficient in a foreign language not regularly offered at The University of Iowa may apply to the Office of Academic Programs for assessment. In some cases, arrangements can be made for an on-campus proficiency evaluation. Evaluations are available for only a limited number of foreign languages, however. Currently, arrangements can be made for individual evaluations in American Sign Language, Arabic, Danish, Farsi, modern Greek, modern Hebrew, Korean, Latvian, Mesquakie, Norwegian, Polish, Punjabi, Rumanian, Swedish, Urdu, and Vietnamese. Academic credit is not awarded for successful completion of these evaluations. Students proficient in a language for which testing is not available must complete the requirement by another approved method.

FOREIGN STUDENTS AND THE FOREIGN LANGUAGE REQUIREMENT

Foreign students who hold nonimmigrant student visas may use English to satisfy the foreign language requirement if they have completed secondary school in a language other than English and if they meet the college’s English proficiency requirement. The English proficiency requirement may be satisfied in any of the following ways: (a) a score of 600 or
above on the Test of English as a Foreign Language (TOEFL); (b) successful completion of required English courses as determined by an evaluation conducted by the linguistics department; or (c) validation of English proficiency by the coordinator of English as a Second Language.

Foreign students who completed secondary school (grades 9-12 or 10-12) in English may not use English to meet the foreign language requirement. These students must satisfy the foreign language requirement by another approved method, perhaps by using their native language.

SEQUENCES OF COURSES THAT SATISFY THE FOREIGN LANGUAGE REQUIREMENT

Languages offered at The University of Iowa to satisfy the foreign language requirement are Chinese, French, German, ancient Greek, Hindi, Italian, Japanese, Latin, Portuguese, Russian, Sanskrit, Spanish, Swahili, and Yoruba.

Chinese: 39J:1-2 or 39J:8-9
French: 9:1-2 or 9:10 followed by 9:11-12, or 9:27-12, or 9:27-26, or 9:27-28
Greek: 14:1-2-1 1-12
Hindi: 39J:31-32-33-34
Italian: 18:1-2-11-12 or 18:103-11-12
Japanese: 39J:2-9 or 39J:8-9
Latin: 20: 1-216-17 or 20:15-16-17 or 20:117-16-17
Portuguese: 38: 1-2 or 38:100 followed by 38: 11-12 or 38:101
Russian: 41: 123-4 or 41:101.102
Spanish: 35: 1-2 or 35:8-9 or 35:3 or 35:5 followed by 35:1:1-12 or 35:13
Swahili: 103:15-16-17-18
Spanish: 35:15-16-17-18 (same as 129:15-16-17-18 or 141:15-16-17-18)

Foreign Civilization and Culture

Students must complete at least 3 semester hours from the courses listed below. Some courses used to satisfy this requirement also may be approved by the coordinator of English as a Second Language.

Foreign Civilization and Culture

Students must complete at least 3 semester hours from the courses listed below. Some courses used to satisfy this requirement also may be approved by the coordinator of English as a Second Language.

Historical Perspectives

Students must complete at least 6 semester hours from the courses listed below. Some courses used to satisfy this requirement also may be approved by the coordinator of English as a Second Language.
and culture requirement. APP, CLEP, and transfer course work may be used to satisfy part of this requirement.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>1H:5</td>
<td>Western Art and Culture Before 1400</td>
<td>3 s.h.</td>
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<tr>
<td>1H:6</td>
<td>Western Art and Culture After 1400</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>1H:13</td>
<td>Islamic Art and Civilization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>1H:16</td>
<td>Asian Art and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>14:30</td>
<td>Greek Civilization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>14:103</td>
<td>Women in Antiquity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:1</td>
<td>Western Civilization to 1792</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:2</td>
<td>Western Civilization Since 1792</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:5</td>
<td>Civilizations of Asia: Premodern China and Japan</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:6</td>
<td>Civilizations of Asia: Modern China and Japan</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:7</td>
<td>Civilizations of Asia: South Asia</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:10</td>
<td>Issues in Human History: Foundations of Science from Copernicus to Einstein</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:11</td>
<td>Issues in Human History: The Vietnam War in Historical Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:12</td>
<td>Issues in Human History: Communities and Society in History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:13</td>
<td>Issues in Human History: The Political Left in Modern History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:14</td>
<td>Issues in Human History: Europe’s Expansion Overseas</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:15</td>
<td>Issues in Human History: Women in Historical Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:16</td>
<td>Issues in Human History: The Cold War</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:17</td>
<td>Issues in Human History: Twentieth Century Crisis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:18</td>
<td>Issues in Human History: Modern Imperialism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:19</td>
<td>Issues in Human History: Modernization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:20</td>
<td>Issues in Human History: Medieval Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:21</td>
<td>Issues in Human History: Decolonization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:30</td>
<td>Science and Medicine in World Perspective</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>19:91</td>
<td>Cultural and Historical Foundations of Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20:30</td>
<td>Roman Civilization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25:144</td>
<td>History of Music I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25:146</td>
<td>History of Music II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>26:33</td>
<td>Philosophy and Human Nature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>26:34</td>
<td>Philosophy and the Just Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>32:1</td>
<td>Judeo-Christian Tradition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>32:4</td>
<td>Living Religions of the East</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>32:55</td>
<td>History of Christianity to 1500</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>32:132</td>
<td>The Reformation and its Medieval Backgrounds</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:16</td>
<td>Asian Art and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:53</td>
<td>Civilizations of Asia: Premodern China and Japan</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:56</td>
<td>Civilizations of Asia: Modern China and Japan</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:57</td>
<td>Civilizations of Asia: South Asia</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:64</td>
<td>Living Religions of the East</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>49:2</td>
<td>Theatre and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:12</td>
<td>Introduction to Prehistory</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### FOREIGN STUDENTS AND THE HISTORICAL PERSPECTIVES REQUIREMENT

In addition to the courses listed above, foreign students who hold nonimmigrant student visas may use the following courses to satisfy the historical perspectives requirement.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>16A:61</td>
<td>American History 1492-1877</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16A:62</td>
<td>American History 1877-Present</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Humanities

Students must complete 9 semester hours of course work in humanities, including 8G: 1 The Interpretation of Literature (3 s.h.). APP credit and transfer work may be used to satisfy part of this requirement. Some courses used to satisfy this requirement also may be approved to satisfy the foreign civilization and culture requirement.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1H:1</td>
<td>Concepts and Context: Art and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>1H:2</td>
<td>Art of Africa, Oceania, and Pre-Columbian America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>1H:4</td>
<td>Masterpieces: Art and Cultural Paradigms</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>1H:10</td>
<td>Freshman and Sophomore Tutorial: Introduction to the History of Art</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>1H:66</td>
<td>Introduction to American Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7S:112</td>
<td>Introduction to Museology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:13</td>
<td>The Classical Views</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:40</td>
<td>Major Texts in World Literature I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:41</td>
<td>Major Texts of World Literature II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:115</td>
<td>Classical Mythology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:184</td>
<td>Contemporary Theatre and Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:2</td>
<td>Biblical and Classical Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:3</td>
<td>Medieval and Renaissance Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:4</td>
<td>Epic and Tragic Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:5</td>
<td>Comedy and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:6</td>
<td>Narrative Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:7</td>
<td>Lyric Poetry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:8</td>
<td>Literature of the Theater</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:9</td>
<td>American Lives</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:11</td>
<td>Literature and Sexualities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:12</td>
<td>Comic and Tragic Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:13</td>
<td>Literatures of the Latino/a Peoples</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:14</td>
<td>Literatures of the African Peoples</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8G:15</td>
<td>Women and Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8W:1</td>
<td>Creative Writing Studio Workshop</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>13:14</td>
<td>The Third Reich and Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>13:183</td>
<td>The Faust Tradition and Goethe’s Faust</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>14:13</td>
<td>The Classical Views</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>14:103</td>
<td>Women in Antiquity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>14:107</td>
<td>Ancient Views of Justice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>14:108</td>
<td>Greek Drama in Translation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>14:112</td>
<td>Classical Mythology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20:13</td>
<td>Religion and the Occult in Antiquity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>24:102</td>
<td>Introduction to Museology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25:13</td>
<td>Masterpieces of Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25:14</td>
<td>Masterpieces of Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25:59</td>
<td>Performance Instruction for Non-Majors</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>25:82</td>
<td>Group Piano I Non-Music Majors</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>25:103</td>
<td>World Music I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25:104</td>
<td>World Music II</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
52 Liberal Arts

137: 12 Continuing Jazz 1-2 s.h.
137: 13 Continuing Ballet 1-2 s.h.
137: 14 Continuing Modern Dance 1-2 s.h.
137: 21 Low Intermediate Tap 2 s.h.
137: 22 Low Intermediate Jazz 1-2 s.h.
137: 23 Low Intermediate Ballet 1-2 s.h.
137: 24 Low Intermediate Modern Dance 1-2 s.h.
137: 33 Intensive Training for the Male Dancer 2 s.h.
137: 80 Dance and Society 3 s.h.
137: 103 Major Ballet I 1-2 s.h.
137: 104 Major Modern Dance I 1-2 s.h.
137: 106 Dance Performance 0-1 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.
141: 14 Literatures of the African Peoples 3 s.h.
143: 50 Honors Seminar in Humanities 3 s.h.

Natural Sciences

Students must complete at least 7 semester hours. At least one course taken to fulfill this requirement must include a laboratory component, indicated by “(Lab).” Transfer work may be used to satisfy all or part of this requirement.

- 2:1 Introduction to Botany (Lab) 4 s.h.
- 2:2 Introduction to Animal Biology (Lab) 4 s.h.
- 2:1 Principles of Biology I (Lab) 4 s.h.
- 2:2 Principles of Biology II (Lab) 4 s.h.
- 2:21 Human Biology (Lab) 4 s.h.
- 2:22 Ecology and Evolution 3 s.h.
- 2:40 Biology of the Brain 3 s.h.
- 2:81 Human Genetics 3 s.h.
- 4:5 Technology and Society 3 s.h.
- 4:5 Technology and Society (Lab) 4 s.h.
- 4:7 General Chemistry I 3 s.h.
- 4:8 General Chemistry II 3 s.h.
- 4:13 Principles of Chemistry I 3 s.h.
- 4:14 Principles of Chemistry II 3 s.h.
- 4:16 Principles of Chemistry Lab I (Lab) 2 s.h.
- 12:3 Earth History and Resources (Lab) 4 s.h.
- 12:4 Evolution and the History of Life 4 s.h.
- 12:5 Introduction to Geology (Lab) 4 s.h.
- 12:6 Lectures in Evolution & History of Life 2 s.h.
- 12:8 Introduction to Environmental Geology (Lab) 2-4 s.h.
- 29:5 Chemistry and Physics of the Environment 3 s.h.
- 29:8 Basic Physics 3 s.h.
- 29:9 Directions in Modern Physics 3 s.h.
- 29:11 College Physics (Lab) 4 s.h.
- 29:12 College Physics 4 s.h.
- 29:17 Introductory Physics I (Lab) 4 s.h.
- 29:18 Introductory Physics II (Lab) 4 s.h.
- 29:27 Physics I (Lab) 4 s.h.
- 29:28 Physics II (Lab) 4 s.h.
- 29:50 Modern Astronomy 3 s.h.
- 29:50 Modern Astronomy (Lab) 4 s.h.
- 29:51 Introductory Astronomy Laboratory (Lab) 1 s.h.
- 29:52 Characteristics and Origins of the Solar System 3 s.h.
- 29:61 General Astronomy (Lab) 4 s.h.
- 29:62 General Astronomy (Lab) 4 s.h.

44:3 Introduction to Earth Systems Science (Lab) 4 s.h.
113: 13 Human Origins 3 s.h.
143:70 Honors Seminar in the Natural Sciences 3 s.h.

Quantitative or Formal Reasoning

This requirement may be satisfied by completing one of the courses listed below or by completing a more advanced course that has one of these courses as a prerequisite. Transfer course work or CLEP or APP credit may be used to satisfy this requirement. Students should fulfill the requirement by the end of the second year in residence or during the first 60 semester hours of study at The University of Iowa.

- 7P:25 Elementary Statistics and Inference 3 s.h.
- 22C: 16 Introduction to Programming with Pascal 4 s.h.
- 22M:9 Elementary Functions 3 s.h.
- 22M:10 Finite Mathematics 4 s.h.
- 22M:11 Introduction to Calculus with Applications 4 s.h.
- 22M: 15 Mathematics for the Biological Sciences 4 s.h.
- 22M: 16 Calculus for the Biological Sciences 4 s.h.
- 22M: 17 Quantitative Methods I 4 s.h.
- 22M:25 Calculus I 4 s.h.
- 22M:35 Engineering Calculus I 4 s.h.
- 22M:45 Accelerated Calculus I 4 s.h.
- 22S:2 Statistics and Society 3 s.h.
- 22S:8 Quantitative Methods II 4 s.h.
- 22S:25 Elementary Statistics and Inference 3 s.h.
- 26:36 Principles of Reasoning 3 s.h.
- 36C:40 Theory and Practice of Argument 4 s.h.
- 103: 13 Language and Formal Reasoning 3 s.h.

Social Sciences

Students must complete at least 6 semester hours. Transfer course work or CLEP or APP credit may be used to satisfy part of this requirement. Some of the courses approved to satisfy this requirement may also be approved to satisfy the foreign civilization and culture requirement. No more than three courses from one major department to satisfy the General Education Requirements in all areas except physical education and foreign language. In satisfying the physical education or foreign language requirement, students may use up to four approved courses from a single department.

- 6E:1 Principles of Macroeconomics 3-4 s.h.
- 6E:2 Principles of Macroeconomics 3-4 s.h.
- 7E:99 Politics of Education 3 s.h.
- 16A:50 Introduction to Afro-American Society 3 s.h.
- 19:90 Social Scientific Foundations of Communication 3 s.h.
- 23A: 140 National Security Forces in Contemporary American Society 3 s.h.
- 28:70 Social Scientific Perspectives on Leisure and Play 3 s.h.
- 30:1 Introduction to American Politics 3 s.h.
- 30:30 Introduction to Political Thought and Political Action 3 s.h.
- 30:40 Introduction to the Politics of the Industrial Democracies 3 s.h.
- 30:41 Introduction to the Politics of Russia, Eastern Europe and Eurasia 3 s.h.
- 30:42 Introduction to the Politics of Developing Areas 3 s.h.
- 30:50 Introduction to Political Behavior 3 s.h.

General Education Restrictions and Waivers

Pass/Nonpass: No course used to satisfy any of the General Education Requirements may be taken pass/nonpass.

Courses from the major department: Students may use approved courses from their major department to satisfy the General Education Requirements. Courses approved by the college are listed above.

No more than three courses from one department: Students may use no more than three approved courses from any one department to satisfy the General Education Requirements in all areas except physical education and foreign language. In satisfying the physical education or foreign language requirement, students may use up to four approved courses from a single department.

Departmental waivers of General Education Requirements: Departmental waivers are no longer permitted for B.A. or B.S. candidates.
However, with the approval of the Educational Policy Committee, departments may waive up to 7 semester hours of General Education Requirements for their B.F.A. and B.M. candidates in the area closest or most relevant to the students’ programs. Approved waivers are listed in the current Schedule of Courses and in the departmental sections of the Catalog.

Placement and Exemption Examinations for General Education

Satisfactory performance on tests administered at The University of Iowa may lead to full or partial exemption from the rhetoric, mathematics, physical education, or foreign language requirements. Academic credit is not awarded.

Exemption and, in some cases, academic credit may be awarded for satisfactory scores on examinations administered by the Advanced Placement Program (APP) and the College-Level Examination Program (CLEP) in the following General Education Requirement areas: rhetoric, foreign language, historical perspectives, humanities, social sciences, and natural sciences. Specific information about the application of credit for APP and CLEP is available from the Evaluation and Examination Service.

Transfer Students

Transfer students who have taken courses elsewhere that are similar to those approved for general education at Iowa may count these courses toward the General Education Requirements. Acceptance of these courses is shown on the student’s admission degree evaluation. Students who transfer fewer than enough hours to meet a General Education Requirement may use only approved courses to complete the remainder of the requirement.

Students with A.A. Degrees

Students who receive A.A. degrees from Iowa Community Colleges participating in the Iowa Community College/Regents Articulation Agreement are considered to have met all the General Education Requirements, except foreign language and foreign civilization and culture, if the program of study for which the A.A. degree was awarded includes the following:

- a minimum of 60 semester hours (90 quarter hours) of credit acceptable toward graduation; mathematics courses comparable to 22M:1 Basic Algebra I, 22M:2 Basic Algebra II, and 22M:3 Basic Geometry are not accepted toward graduation;
- completion of an agreed-upon group of courses at the community college; and
- a grade-point average of at least 2.00.

Students who use the provisions of the articulation agreement are granted a maximum of 62 semester hours of degree credit from all sources toward the 124 semester hours required for a bachelor’s degree at Iowa. If a student has earned more than 62 semester hours of degree credit in completing the A.A. degree, the excess credit is used in computing the grade-point averages and may be used to satisfy course requirements, but the excess credit does not count toward the bachelor’s degree.

Representatives from the community colleges and the Regents universities meet annually to review the provisions of the articulation agreement.

Restrictions and Limits on Semester Hours Applied Toward a Degree

- A maximum of 16 semester hours of credit with a grade of P (pass) and 16 with a grade of S (satisfactory) is accepted toward the 124 semester hours required for graduation.
- The second-grade-only option may be applied to a maximum of three courses.
- A maximum of 30 semester hours of credit by correspondence from all approved sources is accepted toward the 124 semester hours required for graduation. B.L.S. students are not subject to this restriction.
- A maximum of 32 semester hours of credit by examination from all approved sources is accepted toward the 124 semester hours required for graduation.
- A maximum of 30 semester hours of credit earned in other colleges of the University while the student is enrolled in the College of Liberal Arts may be accepted toward the 124 semester hours required for graduation. Undergraduate courses in the College of Education are exempt from this rule.
- A maximum of 62 semester hours of degree credit from two-year colleges is accepted in transfer toward meeting the 124 semester hours required for graduation. If a student has earned more than 62 semester hours of degree credit from two-year colleges, the credit and grades are used in computing the grade-point averages and may be used to satisfy course requirements, but the credit does not count toward the total hours needed for graduation.
- A maximum of 50 semester hours of credit from one academic department is accepted toward a B.A. or B. S.; 62 toward a B. F.A.; and 40 toward the B.A. in interdepartmental studies. This includes both University of Iowa and transfer course work.

Courses without Degree Credit

Courses 10:8, 10:9, 10:89, 22M:1, 22M:2, and 22M:3 carry no degree credit. Students who take these courses, or courses equivalent to them at another college or university, must complete additional semester hours beyond the 124 required for graduation. Although these courses carry no degree credit, grades awarded in them are used in computing grade-point averages, and the hours count toward semester loads for all official purposes (e.g., full-time and half-time status, minimum semester-hour requirement, reasonable academic progress, dean’s list eligibility, and so forth).

A student’s degree evaluation gives the correct number of “hours taken” toward the 124 semester hours required for the degree by subtracting any hours from courses without degree credit. However, a student’s permanent record (official transcript) includes these hours in “hours earned” even though they do not count toward the 124 semester hours required for graduation.

Duplication

Duplication occurs when a student takes the same course more than once or takes a course that duplicates the content of a satisfactorily completed course. Duplication also may involve credit earned for satisfactory scores on APP or CLEP exams. Duplicated hours do not count toward the total number of hours required for graduation. Grades for both courses, however, are used in computing the grade-point averages.

Regression

Regression occurs when a student takes a lower-level or prerequisite course after having satisfactorily completed a more advanced course in the same or related subject. Hours earned by regression do not count toward the total number of hours required for graduation.

Requirements for the Major

Specific requirements for majors offered in the College of Liberal Arts are listed in the departmental sections of the Catalog. Students should confer with their advisers in outlining plans for a major.

A maximum of 50 semester hours of credit from one academic department is accepted toward a B.A. or B.S. degree; 62 toward a B. F.A.; and 40 toward the B.A. in interdepartmental studies. This includes both University of Iowa and transfer course work. Special considerations for double majors are described below.

Departments have different policies on the acceptance of transfer credit toward the requirements for a major. Students are advised to check with their major department.

Courses in the major department may not be taken on a pass/nonpass basis except by departmental action for courses that are not to be applied toward the major. This restriction
All students must earn a minimum of 56 or two minors involving these degree programs. Students may earn a double major, a major and a minor, or a B.S. in psychology and sociology. When a single department offers a degree in or a B.S. in psychology and sociology, students may earn a B.A. in history and English departments or programs offer the same degree requirements for each major and if the department. Students may earn a single bachelor's degree in the College of Education, N310 Lindquist Office of Student Services and Field Experiences. Application forms for admission to the teacher education programs must earn a minimum of 56 semester hours in courses taken outside the College of Education. Candidates for the B.A. in interdepartmental studies may not earn other majors.

Declaring or Changing Majors

Liberal arts students who are advised at the Undergraduate Academic Advising Center can declare or change majors at UAAC until they have earned 30 semester hours of credit. All students in the College of Liberal Arts can declare or change majors in the Office of Academic Programs, 116 Schaeffer Hall, where staff members make the changes and assign new advisers.

Students who wish to major in actuarial science, American studies, communication studies, exercise science, global studies, journalism and mass communication, leisure studies, or social work, or who wish to earn the B.S. degree in computer science or psychology, must complete an application procedure before they can be admitted to the major. Admission to these programs is based on grades in specified prerequisite courses, cumulative grade-point average, and/or other criteria.

Liberal arts students wishing to declare a major in another college of the University first must be admitted to that college.

Students interested in earning a B.A. in interdepartmental studies first must schedule an interview with an academic adviser in the Liberal Arts Office of Academic Programs to discuss areas of concentration and preparation of a plan of study.

Students seeking the Bachelor of Liberal Studies (B. L. S.) must formally apply for admission in the Center for Credit Programs.

Application forms for admission to the teacher education program may be obtained in the Office of Student Services and Field Experiences in the College of Education, N310 Lindquist Center.

Double Majors

Students may earn a single bachelor's degree with two or more majors if they meet the requirements for each major and if the departments or programs offer the same degree in the College of Liberal Arts. For example, a student may earn a B.A. in history and English or a B.S. in psychology and sociology. When a single department offers a degree in more than one subject area (such as physics and astronomy or Spanish and Portuguese), students may earn a double major, a major and a minor, or two minors involving these degree programs. All students must earn a minimum of 56 semester hours in courses taken outside that department.

Students seeking double majors in the programs within the Division of Mathematical Sciences (actuarial science, computer science, mathematics, and statistics) must earn a minimum of 56 semester hours in courses taken outside the division.

Students seeking double majors in the teacher education programs must earn a minimum of 56 semester hours in courses taken outside the College of Education.

Candidates for the B.A. in interdepartmental studies may not earn other majors.

Returning for a Second Major

Students who already have earned a B.A. or B.S. degree from the College of Liberal Arts and who are not enrolled in a graduate or professional program may complete the requirements for another major. These students must apply for readmission to the College of Liberal Arts, declare the appropriate major on the application, and register as seniors (A4).

Students who return to the University to complete another major must meet only the requirements for that major; they need not meet the residence requirement. It is the student’s responsibility to apply to graduation analysis in the Office of the Registrar upon completion of the requirements for the second major so that a notation can be placed on the permanent record. Students who hold a bachelor’s degree from another college or university may not complete a second major at The University of Iowa.

Students may return to the college to complete the requirements for a second major developed from their liberal arts minor.

Minors

Liberal Arts Minors

Students graduating from the College of Liberal Arts may earn a minor or minors in any degree-granting program in the college outside of their major field or in another college of the University. The minor may relate directly to the major or may allow a student to follow an interest entirely different and separate from the major.

Requirements

The requirements given below are the general requirements for a minor in the College of Liberal Arts. Requirements for specific minors are described in the departmental sections of the Catalog.

A minimum of 15 semester hours must be taken in the minor department or program. At least 12 of the 15 semester hours must be taken at The University of Iowa in advanced courses acceptable to the academic unit granting the minor. Neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work. Students should check with the minor department to identify acceptable courses.

Students must have a grade-point average of at least 2.00 in all work attempted in the minor department or program.

No course accepted toward the minor may be taken pass/nonpass.

Guidelines

Each academic unit determines which of its advanced courses it considers acceptable for a minor. Students seeking information about acceptable courses should contact the minor department.

Some programs in the college that do not offer a bachelor’s degree offer minors. For example, minors may be earned in aging studies, American Indian and native studies, Latin American studies, and women’s studies. Students do not “declare” a minor; rather, they indicate their desire to have a minor listed on their record when they apply for a degree. If the student has completed the requirements for a minor, a notation is placed on the permanent record.

Students who already have earned a bachelor's degree from The University of Iowa and are not enrolled in a graduate or professional program may complete the requirements for a minor and apply to the Office of the Registrar to have a notation regarding the minor placed on their permanent record.

Course work applied toward the minor also may be used to satisfy the General Education Requirements. Course work applied toward the minor also may be used to satisfy major requirements in cognate or related areas. Cognate requirements are those courses outside of the major department that are required as part of the major. (Students may not apply the same course to both the major in American studies and a minor in a cognate department.)

University of Iowa Guided Correspondence Study courses count toward the minor.

Restrictions

Course work applied toward a minor may not be used to satisfy the requirements for a major. (Students earning minors in American Indian and native studies or Latin American studies may count up to 6 semester hours from their major departments toward the minor.)

Course work applied toward a minor may not be used to satisfy the requirements for another minor.

Candidates for the B.L.S. are not eligible to earn minors. The following degree-granting programs do not offer minors: biochemistry; elementary education; exercise science; health occupations education; interdepartmental studies; liberal studies; literature, science, and the arts; Russian, East European, and Eurasian studies; social studies; and speech and hearing science. A minor in science education is offered through the College of Education.
Liberal Arts Minors for Students in Business Administration, Engineering, Medicine, and Nursing

Undergraduate students in the Colleges of Business Administration, Engineering, Medicine, and Nursing may earn liberal arts minors by satisfying College of Liberal Arts requirements for minors. (For restrictions, see appropriate college sections of the Catalog.)

Minor in Business Administration

Students in the College of Liberal Arts may elect a minor in business administration. The courses listed below satisfy all requirements for the minor. At least 15 semester hours of courses taken for the minor must be completed at The University of Iowa. A grade-point average of at least 2.00 is required in all courses taken for the minor and in all of these courses taken at Iowa.

- Business calculus (22M: 16, 22M: 17, 22M:25, or 22M:35) 3-4 s.h.
- Statistics (22S:8, 22S:39, 22S:102, 22S:120, 31:142, or 7P:143) 3-4 s.h.
- 6E:1 Principles of Macroeconomics 3-4 s.h.
- 6E:2 Principles of Macroeconomics 3-4 s.h.
- 6A:1 Introduction to Financial Accounting 3 s.h.
- 6A:2 Introduction to Managerial Accounting 3 s.h.
- 6K:70 Computer Analysis 3 s.h.
- 6F:47 Introduction to Law 3 s.h.
- *6M: 100 Introduction to Marketing 3 s.h.
- *6F: 100 Introductory Financial Management (or 57: 14) 3 s.h.
- *6f: 100 Administrative Management 3 s.h.
- *Must be taken in junior or senior year

Accelerated Professional Track

For superior students in the College of Liberal Arts who plan to continue for a Master of Business Administration (M.B.A.) at The University of Iowa, the accelerated professional track offers an alternative to the business minor. Students pursue an undergraduate degree in a field other than business while taking M.B.A. foundation courses. Upon receiving the bachelor's degree, students enter the Graduate College to complete the M.B.A. degree. More information is available from the Academic Programs Office, College of Business Administration.

Minors in Education

Liberal arts students who are pursuing the B.A. or B.S. degree may earn minors in the College of Education. The four minors offered by the College of Education are educational psychology, general education, human relations, and science education. Contact the Office of Student Services and Field Experiences in the College of Education for specific requirements.

Registration

See “Registration” in the Learning at Iowa section of the Catalog.

Changes in Registration

Student Responsibility for Changes in Registration

Students must initiate changes in registration, obtain the proper signatures on the proper forms, and deliver the forms to the Registration Center before the deadlines. Confirmation that changes have been made is the revised computer printout generated at the Registration Center.

Adding and Dropping Courses

Once classes have begun, courses may be added during the first three weeks of the semester (or the first one and one-half weeks of the summer session) with the signatures of both the adviser and instructor on a Change of Registration form. The form must be processed at the Registration Center. Courses may be dropped at any time during the first ten weeks of the semester (or first five weeks of the summer session) with the approval of the adviser and the instructor.

Students who wish to add independent study, directed readings, or honors research may do so during the first eight weeks of the semester (or first four weeks of the summer session); however, a dean’s signature is required after the third week of the semester (or first one and one-half weeks of the summer session). Students may request the dean’s signature in the Office of Academic Programs.

Special courses that meet on a different schedule or that start or end at times other than the beginning and end of the semester, and are so listed in the Schedule of Courses, may be added with the necessary signatures anytime during the first one-fifth of the course’s duration and dropped any time during the first two-thirds of the course’s duration. Proportionally similar deadlines operate during the usual eight-week summer session and for other special session courses.

Students who fail to attend class are not dropped from the course automatically. A student who wishes to drop a course must obtain the necessary signatures on a Change of Registration form and take it to the Registration Center. Only under special conditions may an instructor drop a student from a course.

Adding and Dropping Courses Late

Students who wish to add or drop courses after the deadlines may do so only with the signature of the associate dean for academic programs in addition to the signatures of the adviser and instructor. Students may request permission for the dean’s signature in the Office of Academic Programs. Approval to add or drop courses late is granted only in extraordinary circumstances and only with appropriate documentation.

Instructor’s Option to Drop for Nonattendance

To provide vacancies in crowded classes, instructors may drop students who have not attended any class session during the first eight calendar days of the semester (or first four calendar days of the summer session), unless the students have offered acceptable reasons for beginning the course late. This provision is for the benefit of students who otherwise would be unable to enroll in certain crowded classes; it should not be used when these circumstances do not exist. These drop actions are made without the assignment of a W (withdrawn). The Registration Center notifies each student dropped from a course and the student’s adviser.

Students should not assume that they have been dropped automatically from a course because they have not attended it.

Withdrawn (W)

Undergraduate students are assigned the grade of W (withdrawn) for any course in any undergraduate college dropped after the third week of the semester (or first one and one-half weeks of the summer session). For courses that start or end at times other than the beginning and end of the semester, students may drop the course anytime within the first one-fifth of the course’s duration without being assigned a W.

Limits on Withdrawing from Courses

Liberal Arts students may not drop the same course with the grade of W more than twice. Students who do so are placed on disciplinary probation.

Students admitted as degree candidates to the College of Liberal Arts fall semester 1991 and after are limited to an overall maximum of five Ws while they are enrolled in the College of Liberal Arts. Freshmen entering the University directly from high school with no prior full-time college experience are permitted to exclude Ws they receive during their first two sessions of enrollment.

All other liberal arts students will be limited to a maximum of five Ws beginning with their fall semester 1994 registration. Ws earned by these students before fall semester 1994 will not count toward the maximum of five.

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 will not be removed from the record. Requests for such exclusions are made in the Office of Academic Programs.

Changes in Variable and Arranged Credit

Students who have registered for courses offered for variable or arranged credit may change the number of semester hours according to the rules for adding and dropping courses. Students may increase the number of hours during the first three weeks of the semester (or first one and one-half weeks of the summer session) and may decrease the number during the first ten weeks of the semester (or first five
weeks of the summer session). To change the number of semester hours, a student drops the course and adds it for the desired hours.

**Withdrawal of Registration**

Students may withdraw their entire registration any time before the end of the twelfth week of the semester or sixth week of the summer session. No credit is given for the semester or session. Students who withdraw registration may not be reinstated after the deadline for that session. Withdrawal cards are obtained in the Office of the Registrar.

**Auditing Courses**

Students in the College of Liberal Arts may audit a course (reduce to zero the number of semester hours) if approval is granted by the instructor of the course and the adviser.

The instructor assigns a grade of R (registered) if the student’s attendance and performance are satisfactory; if they are unsatisfactory, the grade of W (withdrawn) is assigned. Courses offered only for zero credit are graded R/W. Courses offered for zero credit as well as for credit hours, when taken for zero credit, are graded R/W. Audited courses completed with a mark of R do not meet college requirements and carry no credit toward graduation.

To register as an auditor during early registration, a student must obtain special permission approval from the instructor. To add a course for audit after the opening of the semester, a student registers for zero credit on a Change of Registration form.

Changes from credit to audit or from audit to credit must be made within the first three weeks of the semester (or first one and one-half weeks of the summer session), using a Change of Registration form and obtaining the necessary signatures. No changes are accepted after the deadline.

**Late Registration**

Students are not permitted to register after the third week of the semester or the first one and one-half weeks of the summer session.

**Maximum Schedule**

The maximum permitted registration is 18 semester hours during a semester, 9 semester hours during a summer session. Students in good academic standing may request permission to register for more hours than the maximum allowed in the Office of Academic Programs. Good academic standing includes students who wish to register for 12 semester hours during a fall or spring semester or 6 semester hours during a summer session. The recommended schedule for students who wish to complete a degree in eight semesters (four year) is 15-16 semester hours each semester.

**Degree Evaluation**

Students who are currently enrolled in the College of Liberal Arts receive a degree evaluation each semester. The degree evaluation is a complete summary of a student’s academic progress from admission to graduation. Questions may be referred to Graduation Analysis, Office of the Registrar.

**Application for Degree**

To be considered for graduation, students must file an application for a 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 permanent record must inform the Office of the Registrar when they file the degree application, so that completion of the requirements for the minor can be verified.

**Grading**

**Grading System**

The following grading system is used in the College of Liberal Arts.

<table>
<thead>
<tr>
<th>Grade description</th>
<th>Grade point for each semester hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.33</td>
</tr>
<tr>
<td>A Superior</td>
<td>4.00</td>
</tr>
<tr>
<td>A</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B Above average</td>
<td>3.00</td>
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<tr>
<td>B</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C Average</td>
<td>2.00</td>
</tr>
<tr>
<td>C</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D Below average</td>
<td>1.00</td>
</tr>
<tr>
<td>D</td>
<td>0.67</td>
</tr>
<tr>
<td>F</td>
<td>0.00</td>
</tr>
<tr>
<td>T Incomplete</td>
<td>Not used in computing CPA</td>
</tr>
<tr>
<td>N Nonpass</td>
<td>Not used in computing CPA</td>
</tr>
<tr>
<td>O No grade reported</td>
<td>Not used in computing GPA</td>
</tr>
<tr>
<td>P Pass</td>
<td>Not used in computing CPA</td>
</tr>
<tr>
<td>R Registered</td>
<td>Not used in computing GPA</td>
</tr>
<tr>
<td>S Satisfactory</td>
<td>Not used in computing CPA</td>
</tr>
<tr>
<td>W Withdrawn</td>
<td>Not used in computing GPA</td>
</tr>
</tbody>
</table>

**Policies for Plus/Minus Grading**

The grading system was expanded to include plus and minus grades effective with grades reported for the summer session 1988. The following policies govern the use of plus/minus grading in the College of Liberal Arts.

The use of plus and minus is optional: departments and individual instructors are free to use the old system (with the grades of A, B, C, D, F) or the new system (which permits the assignment of plus and minus). Within either system, instructors may use any or all of the points on the grading scale.

The grading system used by an instructor must be applied to all students in a given class.

The grading system must be the same in all sections of a multisection course.

Instructors should announce at the beginning of the semester or summer session the grading system to be used in the class.

**Grade-Point Average (GPA)**

The cumulative grade-point average (GPA) is computed by:

(a) multiplying the number of semester hours in each course by the appropriate grade points;
(b) totaling the grade points earned to date; and
(c) dividing the sum in (b) by the number of hours undertaken, excluding courses in which grades of I, N, O, P, R, S, or W have been given.

Grades of F are included in hours attempted and are used in computing the GPA. Although grades of A+ have a value of 4.33 in calculating a student’s GPA, the cumulative GPAs displayed at the bottom of the permanent record are truncated so as not to exceed 4.00.

The cumulative GPA includes all college work attempted, both at the UI and at all transfer institutions.

**Incomplete (I)**

Instructors may report a grade 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; the work is unfinished for reasons acceptable to the instructor; and the student’s standing in the course is satisfactory. Courses may not be repeated to remove incomplete. Incomplete grades must be removed by completing the unfinished part of the work.

The work must be completed and submitted to the course instructor three and one-half weeks before the close of the examination period of the next session for which the student is registered, except that students with incomplete from the spring semester are exempt from the need to complete the work during the succeeding summer session. Failure to remove the I by that date results in an F being assigned for each incomplete.

**No Grade Reported (O)**

A grade of O is assigned by the Office of the Registrar when an instructor fails to report a grade or reports an invalid grade.

The O designation on a student's permanent record must be changed to a valid grade according to the procedures for incomplete described above. Failure to remove the O by the designated deadline will result in an F being assigned for each O.

**Pass/Nonpass Option (P/N)**

Students in the College of Liberal Arts have the option of taking elective courses on a P/N basis. The instructor assigns a standard letter grade, which is converted automatically in the Office of the Registrar. Grades of A+, A, A-, B+, B, B-, C+, C, and C- are converted to P; grades of D+, D, D-, and F are converted to N. The grades of P and N are not used in computing grade-point averages; the grade of N does not count as hours earned for graduation. Students may register for P/N beginning the first day of classes through the end of the third
week of the semester (first one and one-half weeks of the summer session). For courses that start or end at times other than the beginning and end of the semester, students may register for P/N anytime during the first one-fifth of the duration of the course. Signatures of both the instructor and the adviser must be obtained on a P/N form, and the form must be submitted to the Registration Center before the deadline. A P/N registration may not be changed after the deadline.

**Restrictions**

Students on academic probation may not use the P/N grading option. P/N grading may be used in elective courses only. Courses used to satisfy the General Education Requirements may not be taken P/N. Course work in the major department is not available on a P/N basis, except by departmental action for courses that are not to be applied toward the major. This restriction applies to both University of Iowa and transfer course work. Courses required for the major in cognate or related areas may be taken P/N, if available, at the discretion of the major department. No course accepted toward the minor may be taken P/N.

A maximum of 16 semester hours of P grades from all colleges is accepted toward the bachelor’s degree. Transfer students admitted to the University with fewer than 60 semester hours of credit may earn the maximum of 16 semester hours of P grades. Those admitted with 60 or more semester hours are limited to 8 semester hours.

A maximum of two P/N courses may be taken in any session.

**Satisfactory/ Unsatisfactory Grading (S/F)**

Certain courses in the College of Liberal Arts are offered S/F and are so designated in the Schedule of Courses. All students registered for these courses receive either an S or an F. The grade of S is not used in computing grade-point averages, but the grade of F is used. Credit with the grade of S may be applied toward the General Education Requirements or toward requirements in the major or minor. The grade of F does not count as hours earned for graduation.

Special forms are not necessary for registration in S/F courses, since all students enrolled in such courses automatically receive either an S or an F.

A maximum of 16 semester hours with the grade of S is accepted toward the bachelor’s degree.

**Second-Grade-Only Option**

Unless regression is involved, students may repeat courses taken at The University of Iowa and have only the grade and credit of the second registration used in calculating total hours earned as well as The University of Iowa cumulative and total cumulative grade-point averages. Under the provisions of this option, the Office of the Registrar marks the permanent record (with the symbol #) to show that a particular course has been repeated. Both grades remain on the permanent record, but only the second one is used in calculating the grade-point averages and hours earned.

Students who wish to use this option register in the usual manner for the course they decide to repeat or add it during the regular period for adding courses (the first three weeks of the semester or the first one and one-half weeks of the summer session). Students also must file for the option in the Office of Academic Programs. Unless this is done, both grades continue to be counted in the grade-point averages.

**Restrictions**

The second-grade-only option may be used only for University of Iowa courses, including courses in the Saturday and Evening Class Program, telecourses, and off-campus courses. A course taken at another college or university may not be repeated at The University of Iowa under the second-grade-only option, nor may a University of Iowa course be repeated at another institution under the second-grade-only option.

Students may apply the option to a maximum of three courses. The option may be used only once per course, and it may not be used if regression has occurred.

If the course was taken for a grade the first time, it must be taken for a grade the second time. If the course was taken pass/nonpass the first time, it may be taken pass/nonpass or for a grade the second time.

A course taken through regular registration may not be repeated through Guided Correspondence Study (GCS) under the second-grade-only option. A course taken through GCS maybe repeated through GCS or regular registration.

The option became available to students in the fall semester 1969. Courses taken or repeated before that time are not eligible. The option may not be used if a student already has been awarded a degree from The University of Iowa.

**Mid-Semester Reports**

At mid-semester, instructors are asked to report grades for students whose work is below C-. The Office of the Registrar distributes these reports to advisers and to individual students, but these grades are not recorded on the permanent record.

**Academic Standards**

Students in the College of Liberal Arts are expected to maintain satisfactory academic standards and to demonstrate reasonable progress toward a degree. Academic probation serves as a warning that students will not graduate unless their academic performance improves.

**Academic Probation**

Students must achieve the following minimum University of Iowa and total cumulative grade-point averages or they are placed (or continued) on probation.

- **Freshmen (O-29 s.h.):** 1.70
- **Sophomores (30-59 s.h.):** 1.85
- **Juniors (60-89 s.h.):** 2.00
- **Seniors (90 or more s.h.):** 2.00
- **Special students (A9):** 2.00

Students on academic probation are restored to good standing if their University of Iowa and total cumulative grade-point averages equal or exceed the grade-point averages designated above.

The pass/nonpass (P/N) grading option may not be used by students on academic probation; however, S/F courses are allowed.

Entering freshmen and transfer students may be admitted on probation if they fail to meet the minimum stated standards for admission (see “Admission Requirements,” below).

**Dismissal**

Freshmen admitted unconditionally (not on academic probation) are subject to dismissal from the college after one semester on academic probation.

Freshmen admitted on academic probation and transfer students admitted on academic probation are subject to dismissal after two consecutive semesters on academic probation.

Very poor academic work in the first semester on academic probation, however, may result in dismissal at the close of that semester.

Continuing students who are placed on academic probation are subject to dismissal after two consecutive semesters on academic probation.

Very poor academic work in the first semester of academic probation may result in dismissal at the close of that semester.

Students in the second semester on academic probation who withdraw their entire registration after the eighth week of the semester are subject to dismissal at the close of that semester.

**Right to Appeal**

Students who can document that their unsatisfactory academic record was the result of extenuating circumstances, such as a disabling illness or personal crisis, may appeal for revocation of a dismissal. A student dismissed in January must appeal in writing no later than 4:30 p.m. on the second day of spring semester classes. A student dismissed in May must appeal in writing no later than June 15. Detailed information on the appeals procedure is available in the Office of Academic Programs. Appeals should be addressed to the Student Appeals Committee, Office of Academic Programs, 116 Schaeffer Hall. The decision of the committee is final. No appeals are considered for revocation of a dismissal that would permit enrollment in a summer session.

**Reinstatement to the College**

Students dismissed for unsatisfactory scholarship for the first time 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 or in person and should be addressed to the assistant director, Office of Academic Programs, 116 Schaeffer Hall. Arrangements for a reinstatement interview must be made and the interview must take place between March 1 and July 15 for reinstatement to a fall semester or between October 1 and December 15 for reinstatement to a spring semester. Late requests are deferred to the following semester.

Students who are permitted to register following a 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, however, may result in dismissal at the close of that semester.

Notification and Records

Students placed on academic probation, continued on academic probation, or dismissed from the college are notified in writing of these actions by the associate dean for academic programs. Students admitted on probation have the notation “admitted on probation” entered on their permanent records. The notation “on academic probation” is placed on the permanent records of those students who have been placed or continued on academic probation. “Not permitted to register” is entered on the permanent records of students who have been dismissed from the college. When reinstatement has been granted, “permitted to register” for a particular semester or session is entered on the permanent record.

Class Attendance, Final Examinations, and Student Conduct

Class Attendance

Individual instructors, course directors, or deans determine the policy on class attendance. Students are required to observe the regulations as announced for the course. However, University policy requires that students be permitted to make up examinations missed because of illness, mandatory religious obligations, or other unavoidable circumstances or University activities.

Excused Absences

For permission to be absent from class to participate in authorized University activities, students are expected to present to each instructor before each absence a written statement signed by a responsible official specifying exactly the dates and times it is necessary to miss class. Excused absences are granted to members of athletic teams, the marching band, debate teams, and other recognized University groups and to participants in University field trips. Participation in the National Guard also is considered an authorized activity.

Students who are absent for medical or personal reasons are expected to present evidence to verify the reason. Students report absences from class of five days or less by completing an “Explanatory Statement of Absence from Class” form, available at the Registration Center, and by presenting the forms to instructors. Students who are absent for more than five days may request the Registration Center to send notification of the absence to each instructor.

Final Examinations

A suitable period for the administration of examinations is set aside at the end of each semester, during which time no classes are held. With the exception of any changes authorized by the associate dean for academic programs, all final examinations must be given according to the schedule as announced in the Schedule of Courses. During the summer session, there is no designated final examination period; final examinations are scheduled before the official end of the summer session, either during a regular meeting time or at a time determined by the instructor of the course in consultation with the students in the class.

For a more complete discussion of policies governing final examinations, see the college’s Classroom Manual, available in the Office of the Dean, 108 Schaeffer Hall.

Student Conduct

The Office of Academic Programs publishes a handout on student academic misconduct, which includes information on plagiarism, cheating, and forgery.

Plagiarism and Cheating

An instructor who suspects a student of plagiarism or cheating must inform the student as soon as possible after the incident has been observed or discovered. An instructor who comes to the conclusion that a student has plagiarized or cheated may, in consultation with the departmental executive officer (DEO), decide to reduce the student’s grade in the course, even to assign an F. The DEO sends a written report of the case to the associate dean for academic programs; a copy is sent to the student.

The associate dean for academic programs or the Committee on Student Academic Conduct may uphold, as the offense may warrant, the following or other penalties: placement on disciplinary probation until graduation, suspension from the college for a semester or longer, or recommendation of expulsion from the University by the president.

If a student feels that the finding of plagiarism or cheating is in error or the penalty unjust, he or she may request a hearing. Information on the appeal procedures is available in the Office of Academic Programs, 116 Schaeffer Hall.

Forgery

The Code of Student Life prohibits forgery of University records, documents, or student identification cards. The Office of Academic Programs interviews students suspected of forgery and takes disciplinary action based on the interview and verification provided by the adviser, instructor, or dean whose signature is in doubt.

Classroom Disruption

Students who are physically or verbally disruptive in a class may be dealt with summarily by the instructor or referred to the dean of students, 114 Jessup Hall. The instructor reports in writing to the dean of students any disciplinary action undertaken against a student.

Student Complaints Concerning Faculty Actions

A student who has a complaint is responsible for following the procedures described below. These procedures apply to complaints about any member of the teaching staff in the College of Liberal Arts and may concern grading grievances, inequities in assignments, inappropriate course materials, inappropriate faculty conduct, or incompetence in oral communication.

The student ordinarily should attempt to resolve the matter with the instructor first. If the complaint is not resolved to the student’s satisfaction, the student should go to the course supervisor (if the instructor is a teaching assistant), to the departmental executive officer, or in some departments, to the person designated to hear complaints. If the matter remains unresolved, the student may submit a written complaint to the associate dean for academic programs, Office of Academic Programs, 116 Schaeffer Hall.

The associate dean will attempt to resolve the complaint and, if necessary, may convene a special committee to recommend appropriate action. In any event, the associate dean will respond to the student in writing regarding the disposition of the complaint. For complaints involving the assignment of grades, it is college policy that grades cannot be changed without the permission of the department concerned.

If the complaint cannot be resolved through the mechanisms described above, the student may file a formal complaint, which will be handled under the procedures established for dealing with alleged violations of the statement on professional ethics and academic responsibility printed in the University Operations Manual. A description of these formal procedures may be obtained in the Office of Academic Programs.

Recognition for Academic Achievement

Dean’s List

Liberal arts students who achieve grade-point averages of 3.50 or above during a given semester on 12 or more semester hours of graded work (excluding University of Iowa Guided Correspondence Study courses) and who have no hours of 1 (incomplete) or 0 (no report) are recognized by inclusion on the
Dean’s List for that semester, and a notation to that effect is entered on the student’s permanent record.

**Honors Commendation Award**

Students in the Honors Program may earn the Honors Commendation Award if, by the end of their second year or their first 59 semester hours (whichever comes second), they complete at least four graded honors courses with at least a “B” in each. The Honors Commendation includes a Certificate of Commendation from the University Honors Program, public recognition in the Daily Iowan Honors Recognition Week issue, and a letter of commendation from the University President.

**Graduation Honors**

High scholastic achievement is recognized upon graduation in two ways: graduation with distinction, based upon grades only; and graduation with honors in a particular field, based on both grades and the completion of special work as outlined by the college and the major department.

**Graduation with Distinction**

The Office of the Registrar certifies to the dean of the college the names of students eligible to graduate with distinction. The college awards degrees “with highest distinction” to students in the highest two percent of the graduating class, “with high distinction” to students in the next highest three percent, and “with distinction” to the next highest five percent. Ranking is based on students’ grade-point averages for all college-level study undertaken prior to the final registration.

To be eligible for graduation with distinction, students must complete a minimum of 60 semester hours in residence in The University of Iowa College of Liberal Arts, of which at least 45 semester hours must have been completed before the student’s final registration.

**Graduation with Honors**

The director of the University Honors Program certifies to the dean of the college the names of graduating students eligible to graduate “with honors.” To be eligible, students must be recommended by their major department and be approved by the Honors Council and the dean of the college.

**Admission Requirements**

Students are admitted to the College of Liberal Arts on the basis of three criteria: completion of a set of high school unit requirements; high school class rank or college transfer grade-point average; and ACT/SAT results or a combination of high school/college records and standardized test scores. Some programs within the College of Liberal Arts have selective admission procedures. Admission to these programs is based on grades in specified prerequisite courses, cumulative grade-point average, and/or other criteria.

The University of Iowa requires all freshmen and transfer students who present fewer than 24 semester hours of transferable credit to complete either the ACT Assessment Test (ACT) or the Scholastic Assessment Test (SAT 1: Reasoning Test) and have their scores reported to the University before they register for classes. These examinations are used as a criterion for admission, for placement purposes, for advising, and for awarding University-administered scholarships and loans. Applicants whose native language is not English must present scores on the Test of English as a Foreign Language (TOEFL).

**Unit Requirements**

The College of Liberal Arts faculty recognizes the need for entering students to be prepared for college course work immediately upon matriculation at the University. Students who enter with a strong college preparatory curriculum have a better chance to succeed academically and are more likely to be admitted to the degree program of their choice.

To qualify for unconditional admission to the College of Liberal Arts, applicants are required to have completed the following set of high school courses or their equivalents, in addition to the other requirements listed below. These high school unit requirements, effective fall semester 1990, apply to entering freshmen who graduated(d) from high school after 1985; transfer students with fewer than 24 semester hours of transferable credit who graduated(d) from high school after 1985; and transfer students with 24 or more semester hours of transferable credit who graduated(d) from high school in 1991 or after.

- Four years of English/language arts, with emphasis on writing, speaking, and reading as well as understanding and appreciation of literature
- Three years of mathematics (two years of algebra and one year of geometry are required)
- Two years of a single foreign language
- Three years of natural science (two years must be chosen from biological sciences, chemistry, and physics)
- Three years of social studies (American history, anthropology, economics, geography, government, world history, psychology, and sociology)

The following preparation is not required but is strongly recommended for admission to the College of Liberal Arts.

- One year of the visual arts, performing arts, and/or humanities (cinema, dance, drama, music, photography, studio art, theater, visual arts, and survey courses in the arts and humanities)
- A fourth year of mathematics (analytic geometry, trigonometry, or calculus)
- An additional two years of the same foreign language

Students whose high school curriculum did not provide the courses necessary to complete the unit requirements or who experienced difficulties in scheduling the required courses may apply to the director of admissions for an exception.

**Entering Freshman**

Entering freshmen with deficiencies in the unit requirements may be offered conditional admission to the College of Liberal Arts if they meet the high school class rank or index requirements for admission. As a condition of admission, these students are required to complete specified college-level courses with a passing grade; they may not take the specified courses P/N. Courses taken to remove deficiencies do not count toward the General Education Requirements, with the exceptions of rhetoric and foreign language. With prior approval of the Office of Admissions, these courses may be taken at an accredited college, university, or community college.

Courses taken to remove deficiencies should be completed by the beginning of the student’s second year of study at The University of Iowa. Applicants whose high school verifies in writing that a two-year sequence of the same foreign language was not available to them at their high school are offered conditional admission if they meet all other unit, high school class rank, and index requirements. They must complete specified college-level foreign language courses with a passing grade.

In general, one semester of college work in a core curriculum area (3 semester hours or 4 quarter hours) is required to remove a deficiency of one year or less of high school credit.

**Transfer Students**

Transfer students who have received an A.A. degree from an Iowa community college participating in the Iowa Community College/Regents Articulation Agreement are considered to have fulfilled the unit requirements.

Other transfer students may use college courses taken elsewhere to make up high school deficiencies. Courses must be completed with a passing grade; they may not be taken P/N. Courses taken to remove deficiencies do not count toward the General Education Requirements, with the exceptions of rhetoric and foreign language.

**Removal of Deficiencies through testing**

Deficiencies in mathematics or foreign language may be removed by satisfactory scores on proficiency examinations administered by The University of Iowa. Applicants may also remove deficiencies in English, mathematics, natural science, or social studies by earning acceptable scores on approved standardized tests. Test scores used to remove deficiencies may not also be used to satisfy General Education Requirements.
Entering Freshmen

Applicants seeking admission as entering freshmen must have the high school from which they graduated provide a certificate of high school credits, including a complete statement of high school record, class rank, and certification of graduation. Applicants may be admitted tentatively after they have completed the junior year in high school, but admission is not final until receipt of the final transcript and certification of high school graduation.

Graduates of approved Iowa high schools who are in the upper one-half of their graduating class generally are admitted after certification of graduation.

Graduates of accredited high schools in other states who are in the upper 30 percent of their graduating class generally are admitted after certification of graduation.

Applicants who do not meet the high school class rank criteria are admitted if they meet a minimum admission index, which is calculated by multiplying the ACT composite score by two and adding the percentile rank in class. A comparable index is used for students who submit SAT instead of ACT scores. The minimum index for admission varies from year to year. For Iowa residents it ranges from 90 to 100 and for nonresidents from 100 to 110. If a given high school does not rank its graduates or if the high school graduating class is small, the applicant’s credentials are reviewed by the admissions review committee.

Applicants also may be considered for admission based on other characteristics that indicate a definite promise of success. At the discretion of the admissions officer, such students may be admitted unconditionally, admitted on probation, required to enroll for a trial period during a preceding summer session, or denied admission.

Graduates of nonapproved high schools must submit all the information required above and must take examinations that demonstrate their general competence to do successful college work.

Admission without High School Graduation

Applicants who are not high school graduates must submit all the information required above, take examinations to demonstrate general competence to do college work, and provide evidence of specific competence for admission to a given curriculum.

Transfer Students

Transcripts of records are given full value if they come from colleges or universities accredited by the North Central Association of Colleges and Secondary Schools or similar regional associations. The recommendations contained in the current issue of the Transfer Credit Practices of Designated Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers, is followed for schools not regionally accredited.

Applicants must submit an official transcript from each college or university they have previously attended. Applicants also must submit high school transcripts, scores on standardized tests, and any other records or letters the College of Liberal Arts may require to support their applications for admission.

Transfer applicants who have a minimum of 24 semester hours of graded credit from regionally accredited colleges or universities and who have maintained a grade-point average of 2.25 (based on a 4-point system) on all college work previously attempted are admitted.

Students with fewer than 24 semester hours of college credit are considered for admission based on a combination of high school and college academic records and scores on the ACT or SAT I.

In general, transfer applicants under academic suspension from the last college attended are not considered for admission during the period of suspension, or if suspended for an indefinite period, are not considered until one year has passed since the last date of attendance.

Transfer applicants under disciplinary suspension are not considered for admission until a clearance and a statement of the reason for suspension from the previous college are filed. When it becomes proper to consider an application from a student under suspension, the college must take into account the previous suspension. Applicants granted admission under these circumstances are admitted on probation, and their admission is subject to cancellation.

Non-Native Speakers of English

The University of Iowa has an English proficiency requirement to assure that non-native speakers know English well enough to study without being hindered by language problems, to understand lectures, and to participate successfully in class discussions. For that reason, applicants whose native language is not English are required to submit scores on the Test of English as a Foreign Language (TOEFL) with their applications for admission and supporting academic documents. Automatic waivers from this policy are granted to persons who already have received a baccalaureate or equivalent degree from a university in the United States, the United Kingdom, Canada (excluding French Quebec), Africa (English-speaking), Australia, or New Zealand.

Foreign Applicants

REGULAR ADMISSION

A minimum TOEFL score of 530 is required for regular admission and to begin study in a degree program. Newly admitted students whose TOEFL scores are 600 or above may begin academic course work without restriction. Applicants whose academic credentials indicate that they should be admitted, but whose TOEFL scores fall between 530 and 599, are required to complete an English proficiency evaluation before their first registration for courses.

Based on the results of the evaluation, these students may:

- be allowed to take a full academic course load (excluding English as a Second Language courses);
- be required to enroll in credit-bearing English as a Second Language courses; or
- be required to enroll in the Iowa Intensive English Program until their language proficiency reaches an appropriate level.

CONDITIONAL ADMISSION

Applicants who meet the academic requirements for admission but whose TOEFL scores fall between 450 and 530 may be considered for conditional admission to the College of Liberal Arts. As space permits, conditionally admitted students may enroll in the Iowa Intensive English Program (IIEP) for up to one year. To change their admission status from conditional to regular (a prerequisite for beginning study in a degree program), students must attain a minimum TOEFL score of 530 and complete an English proficiency evaluation.

Based on the results of the evaluation, these students may:

- be allowed to take a full academic course load (excluding English as a Second Language courses);
- be required to enroll in credit-bearing English as a Second Language courses; or
- be required to continue in the IIEP until their language proficiency reaches an appropriate level.

Students without TOEFL scores or with scores below 450 are not considered for admission to the College of Liberal Arts. These students may enroll in the IIEP. However, IIEP enrollment without conditional admission to the College of Liberal Arts does not imply or guarantee admission to an academic program at The University of Iowa.

U.S. Citizens and Permanent Residents

U.S. citizens and permanent residents whose native language is not English are required to submit scores on the TOEFL before registering for courses. Exceptions to this requirement are made in the cases of:

- graduates of Iowa high schools whose ACT composite score is 24 or above (SAT I combined score of 980 or above) and whose ACT English subscore is 21 or above (SAT I 430); and
- nonresidents of Iowa whose ACT composite score is 25 or above (SAT I combined score of 1020 or above) and whose ACT English subscore is 21 or above (SAT I 430).

Admitted applicants whose TOEFL scores are 600 or above may begin academic course work without restriction. Those whose TOEFL scores fall below 600 are required to complete additional English language proficiency testing before they register for courses.

Applicants seeking exceptions are directed to the coordinator of English as a Second Language, 3006 Main Library.
English Proficiency Evaluations
On-campus proficiency evaluations are conducted by the Department of Linguistics. If such evaluation warrants, students are required to enroll in the Intensive English Program until their language proficiency reaches the appropriate level. Once such proficiency has been established, students are allowed to take a full academic course load, exclusive of English as a Second Language courses. Such students may begin their academic course work only upon the written recommendation of the coordinator of English as a Second Language. (Courses for non-native speakers of English are described under “Linguistics” in the Catalog.)

Special (Nondegree) Students
Students may be admitted to the college as nondegree candidates. These students are classified as special students (A9) and may enroll in courses for personal enrichment, to prepare for admission to professional or graduate college, or to complete a specified technological certificate program. Students enrolled in courses as special students are subject to the rules of the college for academic probation and dismissal.

Re-Entry
Students who have been absent from the University for 12 months or more must apply to the Office of Admissions for re-entry. Students who have been absent for less than 12 months are not required to file an application for re-entry; they should report directly to the Registration Center to begin the registration process.

Students who have been enrolled in another college or university after leaving The University of Iowa are required to submit official transcripts along with their application for re-entry.

Completed application materials must be received two weeks before the opening of classes. Applications received after that date are considered on an individual basis.

Students who have been dismissed from the college for unsatisfactory scholarship have earlier deadlines and must complete an interview in the Office of Academic Programs.

See “Reinstatement to the College” under “Academic Standards” in this section of the Catalog.

Credit for Military Service
The admissions officer is authorized to evaluate transcripts from the military services according to the recommendations contained in the American Council on Education’s Guide to the Evaluation of Experiences in the Armed Forces, with the understanding that any inconsistencies between such recommendations and the standards of the College of Liberal Arts will be referred to the Office of Academic Programs. Completed application materials must be received after that date are considered on an individual basis.

Credit by Examination
A maximum of 32 semester hours of credit by examination from all approved sources is accepted toward the 124 semester hours required for graduation. Credit by examination may be used as elective credit or it may be applied toward the General Education Requirements or requirements in the major or minor. Credit awarded through the Foreign Language Incentive Program is considered credit by examination.

A student must have earned 12 semester hours of graded, classroom credit at The University of Iowa before credit by examination is granted and placed on the permanent record. Hours of F, I, N, O, R, and W do not count toward the 12 semester hours earned.

Placement and Exemption Examinations for General Education

Full or partial exemption from the requirements in rhetoric, mathematics, physical education, or foreign language may be awarded for satisfactory performance on tests administered at The University of Iowa. In addition, exemption and academic credit may be awarded in most general education areas for satisfactory scores on examinations administered by the Advanced Placement Program (AP) or the College-Level Examination Program (CLEP). See below.

Credit by Examination in the Major or Minor
Departments may administer examinations covering required courses or areas of instruction in the major field and may grant credit with a grade of P for the successful completion of such examinations. The maximum credit by examination that may be awarded in the major field is 16 semester hours. Credit toward graduation is awarded to foreign language major only for passing examinations covering the third- and fourth-semester level or above.

Credit by examination may not be applied to the 12 semester hours of advanced courses required for the minor.

Advanced Placement Program (APP)
Students who pursue college-level learning while still in high school may use the APP testing program to demonstrate their level of achievement. This program was designed by the College Board to provide a means for colleges and universities to evaluate the college-level preparation of participating students and to provide opportunities for high school students to begin college-level study while still in high school.

Scores earned by students are evaluated to determine whether course credit or advanced placement is warranted. Credit awarded through APP may be applied to the General Education Requirements, to requirements in the major or minor, or to elective credit.

Specific credit policies and further information is available from the University’s Evaluation and Examination Service.

College-Level Examination Program (CLEP)
CLEP is an achievement testing program offered by the College Board that allows students to demonstrate college-level competence they may have achieved outside of formal college instructional programs. General examinations cover broad content areas such as natural sciences and social sciences/history; subject examinations cover more narrow ranges of content, as typically dealt with in a single college course. Scores on the general examinations can be used to determine whether students have satisfied all or a portion of the General Education Requirement in the area(s) covered by the examination(s) taken. Those who earn a high enough score on a subject examination are eligible to receive credit for the corresponding University course.

The CLEP program is administered by The University of Iowa Evaluation and Examination Service. Students who wish to participate in CLEP are encouraged to do so prior to their first enrollment so that test results can be used to plan their first semester schedules.

Specific credit policies and further information is available from the University’s Evaluation and Examination Service.

Transfer Credit by Examination
Results of CLEP and APP tests brought to The University of Iowa on transcripts from other institutions will be evaluated by the Office of Admissions under the same rules as other transfer credit. If 12 semester hours or more of graded classroom credit is accepted by transfer, CLEP and APP credit will be accepted from the transfer institution without reevaluation of individual scores by The University of Iowa.

Validation of Credit
Students with educational experience obtained at a nonaccredited institution or in a formal training program in which there is no standardized procedure for evaluation of credit may request the validation of this credit. The Office of Academic Programs and the department concerned should be consulted for approval to take the appropriate examinations.

Nondepartmental courses
000:003 Preparatory Summer Program 0 s.h.
000:21 Intercollegiate Athletic Participation 1 s.h.
000:101 Introduction to Lesbian, Gay, Bisexual Studies 3 s.h.
000:120 Bisexual Identities and Communities 3 s.h.

Historical, cultural perspectives on lesbian, gay, bisexual lives; histories, cultures, identities, sexualities, politics. Sophomore or higher standing required.

Historical development of the concept of bisexuality, formation of a national bisexual politic.
The Department of Aerospace Military Studies administers the Air Force Reserve Officer Training Corps (AFROTC) at The University of Iowa. AFROTC educates highly qualified students who are working toward a bachelor’s degree and commissions them as officers in the United States Air Force.

AFROTC is entirely 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, for example, accepts a maximum of 20 semester hours.

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.

Prior to commissioning, all AFROTC cadets must complete a course in mathematical reasoning. Cadets on AFROTC scholarships also must complete a course in English composition and two semesters of a major Indo-European or Asian language. The College of Liberal Arts General Education Requirements satisfy these requirements.

AFROTC offers two-, three-, and four-year programs. Joining the program early gives students the opportunity to try AFROTC without obligation. It also gives them an advantage in the selection process for scholarships and POC membership.

There are three main AFROTC program components: the general military course (GMC), the professional officer course (POC), and field training.

### Professional Officer Course

The professional officer course (POC) consists of four 3-semester-hour 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 two years in school.

### Leadership Laboratory

Leadership laboratory is cadet centered and largely cadet planned. It provides leadership training that improves a cadet’s ability to perform as a U.S. Air Force officer. To be considered a cadet, students must be enrolled in an academic class and in a 23A course titled Leadership Laboratory.

### Field Training

All POC applicants must successfully complete field training at a U.S. Air Force base during a summer, usually between the sophomore and junior years. There are two types of field training: a four-week course for cadets who have applied to the four-year and three-year programs and a six-week course for two-year program 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 of academic work that a student normally would have taken as a freshman and sophomore.

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 junior 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 $100 per month, tax-free. Applicants are selected on both objective and subjective factors. Students should apply directly to the professor of aerospace military studies.

All cadets in the last two years of AFROTC receive $100 per month, tax-free. AFROTC books and uniforms are furnished.

### Education Delay

Cadets may request an education delay to postpone entry to active duty until after completion of art advanced degree or professional training program.

### Courses

- **23A/10 The Air Force Today AS 100** 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.

- **23A/11 AFROTC Leadership Laboratory (LLAB) AS 100-FA** 4 s.h.
  - A progression of experiences designed to develop leadership ability; includes military customs and courtesies, drill and ceremonies, military professional development, and the life and work of a junior officer; leadership skills in a practical, supervised military lab setting. Offered fall semesters. Corequisite: 23A/10.

- **23A/12 The Air Force Today AS 100** 1 s.h.
  - Continuation of 23A/10.

- **23A/13 AFROTC Leadership Laboratory (LLAB) AS 100-SP** 0 s.h.
  - See 23A/11. Offered spring semesters. Corequisite: 23A/12.

- **23A/20 The Development of Air Power AS 200** 1 s.h.
  - Air power from Civil War hot air balloons through World War II; emphasis on developments in U.S. Air Force.

- **23A/21 AFROTC Leadership Laboratory (LLAB) AS 200-FA** 0 s.h.

- **23A/22 The Development of Air Power AS 200** 1 s.h.
  - Continuation of 23A/20. Air power from post World War II environment to present; emphasis on developments in U.S. Air Force.

- **23A/23 AFROTC Leadership Laboratory (LLAB) AS 200-SP** 0 s.h.

- **23A/30 Management and Leadership AS 300** 3 s.h.
  - Emphasis on management, leadership, and communication skills required of an Air Force officer. Prerequisite: junior standing or above or consent of instructor.

- **23A/31 AFROTC Leadership Laboratory (LLAB) AS 300-FA** 0 s.h.
  - See 23A/30. Offered fall semesters. Corequisite: 23A/130.

- **23A/32 Management and Leadership AS 300** 3 s.h.
  - Continuation of 23A/30. Prerequisite: junior standing or above or consent of instructor.

- **23A/33 AFROTC Leadership Laboratory (LLAB) AS 300-SP** 0 s.h.

- **23A/40 National Security Forces in Contemporary American Society AS 400** 3 s.h.
  - Examination of America's evolving national security policy. GER social sciences. Prerequisite: junior standing or above or consent of instructor.

- **23A/41 AFROTC Leadership Laboratory (LLAB) AS 400-FA** 0 s.h.
  - See 23A/31. Offered fall semesters. Corequisite: 23A/140.

- **23A/42 National Security Forces in Contemporary American Society AS 400** 3 s.h.
  - Continuation of 23A/41. Emphasis on the professional qualities required of an Air Force officer. Prerequisite: junior standing or above or consent of instructor.

- **23A/43 AFROTC Leadership Laboratory (LLAB) AS 400-SP** 0 s.h.

- **23A/150 Readings in Contemporary Military Issues AS 500-FA** 1-4 s.h.
  - Individual research. May be repeated. Consent of department head required.

- **23A/151 AFROTC Leadership Laboratory (LLAB) AS 500-FA** 0 s.h.
  - See 23A/11. Offered fall semesters.
**Undergraduate Program**

**Bachelor of Arts**

Students may earn a Bachelor of Arts with a major in African-American world studies by following one of three programs of study: the Afro-American studies option (30 semester hours), the African-American world studies option (39 semester hours), or an African studies option (33 semester hours).

The Afro-American studies option focuses on the culture and history of Blacks in the United States and gives some attention to their culture and history in relation to the culture and history of Blacks elsewhere in the world. The African-American world studies option places greater emphasis on the interrelationships of Black history and cultures in various places in the world. The African studies option places emphasis on Africa. Students must earn a grade-point average of 2.00 or higher in all courses in their major program.

**Afro-American Studies Option**

- **REQUIRED COURSES**
  - 129:60 Introduction to Afro-American Society 3 s.h.
  - 129:61 Introduction to Afro-American Culture 3 s.h.


- 129:80 Critical Skills Seminar 3 s.h.
- 129:99 Senior Seminar 3 s.h.
- 129:116 Afro-American Literature I 3 s.h.
- 129:117 Afro-American Literature II 3 s.h.
- 129:185 Introduction to African-American History 3 s.h.
- 129:189 Themes in African-American History 3 s.h.

**ELECTIVES**

Students must take 6 semester hours of electives in 129-prefix courses, not including 129:175 or 129:176.

**LANGUAGE REQUIREMENT**

The language requirement for the African-American world studies option is four semesters, or the equivalent, in any language, other than English, that is regularly spoken in Africa. The languages currently taught at The University of Iowa that satisfy this requirement are Swahili, Yoruba, French, Portuguese, and Spanish.

**African Studies Option**

This option is administered jointly by the chair of the African-American World Studies Program and the chair of the Afro-American Studies Program in consultation with the faculties of their respective programs. Students in this option are advised by the chair of the African-American World Studies Program acting in consultation with the chair of the Afro-American Studies Program.

The program consists of 33 semester hours of course work in addition to four semesters, or the equivalent, of instruction in an African language.

The following courses are required. For course descriptions, see the appropriate departmental sections of the *Catalog*.

**CORE COURSES**

- 129:80 Critical Skills Seminar 3 s.h.
- 129:163 Precolonial African History 3 s.h.
- 129:164 African History Since 1880 3 s.h.
- 129:27-28 African History Since 1880 3 s.h.
- 129:99 Senior Seminar 3 s.h.
- 141:7 Introduction to African Studies 3 s.h.
- 141:180 Advanced Undergraduate Seminar in African Studies (usually taken during the senior year) 3 s.h.

**LANGUAGE REQUIREMENT**

Currently Swahili and Yoruba are the African languages offered at The University of Iowa.

- 129:15-16 Elementary Swahili 1-11 8 s.h.
- 129:17-18 Intermediate Swahili 1-11 8 s.h.
- 129:25-26 Elementary Yoruba 1-11 8 s.h.
- 129:27-28 Intermediate Yoruba 1-11 8 s.h.
Students also may fulfill the language requirement by demonstrating competence in another African language. Students who declared the African studies option before fall semester 1992, and who already had achieved sophomore status by that time, may fulfill the requirement by taking four semesters or the equivalent in French, Portuguese, or Spanish.

HUMANITIES ELECTIVES

Two courses (6 semester hours) focused on Africa, chosen from the following art, history, and literature courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>141:30</td>
<td>Introduction to African Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:107</td>
<td>Art of West Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:108</td>
<td>Art of Central Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:202</td>
<td>Seminar: Problems in African Art</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>16W:119</td>
<td>African and Afro-American Interactions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:123</td>
<td>Topics: Modern African History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:124</td>
<td>Women in African History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:14</td>
<td>Literatures of the African Peoples</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:103</td>
<td>African Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:119</td>
<td>African Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:163</td>
<td>Francophone Literature of the African Diaspora</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:227</td>
<td>Three African Writers</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:240</td>
<td>Studies in African Francophone Literature</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

SOCIAL SCIENCE ELECTIVES

Two courses (6 semester hours) focused on Africa, chosen from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>141:146</td>
<td>African Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:148</td>
<td>The Politics of Southern Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:157</td>
<td>Peoples and Cultures of Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:158</td>
<td>Myth, Magic, and Mind</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:159</td>
<td>Anthropology of African Art</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

AFRICAN CONTENT ELECTIVE

One course (3 semester hours) in African studies or having a significant African content, chosen from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1H:2</td>
<td>Art of Africa, Oceania, and Pre-Columbian America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>30:150</td>
<td>The Political Economy of the Third World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>30:350</td>
<td>Political Economy and Public Policy in Developing Countries</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>42:273</td>
<td>Women, Men, and Global Social Change</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:35</td>
<td>World Cities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:131</td>
<td>Medical Geography: Health Services</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>44:157</td>
<td>Third World Development Support</td>
<td>(same as 19:157)</td>
</tr>
<tr>
<td>44:162</td>
<td>Geography of Underdevelopment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:194</td>
<td>Geographic Perspectives on Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:262</td>
<td>Political Economy of Regional Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:264</td>
<td>Agrarian Change and Rural Development in the Third World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>91:296</td>
<td>Law in Radically Different cultures</td>
<td>arr.</td>
</tr>
<tr>
<td>141:110</td>
<td>African News Colloquium</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

African-American World Studies

One course (3 semester hours) focused on the experience of Blacks in the Diaspora, chosen from courses offered by the African-American World Studies Program (see “African-American World Studies” in this section of the Catalog).

Honors

The African-American world studies honors program offers students the opportunity to pursue special interests in individual, in-depth research. Honors candidates in African-American world studies must be members of the University Honors Program.

Under the guidance of the undergraduate honors adviser, the honors candidate defines a research project using primary sources. Project proposals are made by the end of the candidate’s junior year. Each candidate completes a project under the guidance of a supervising faculty member and may register for up to 6 semester hours in 129:95 Honors Project. Results are presented in a senior essay to a committee of three faculty members, including the supervising faculty member, the honors adviser, and a third faculty member of the student’s choice. When the honors adviser is the supervising faculty member, the candidate may select second and third faculty members. The candidate’s committee may choose to hear an oral defense of the final project, usually in the twelfth week of the student’s last semester.

Minor

The African-American World Studies Program offers an undergraduate minor in Afro-American studies. The requirements conform to the general requirements for minors in the College of Liberal Arts. In consultation with their advisers, students select 15 semester hours (five courses) in designated African-American world studies courses. Four of these courses (12 semester hours) must be numbered 100 or above and must be taken at The University of Iowa.

Students must earn a grade-point average of at least 2.00 in all courses in the minor program. Courses numbered 100 and above may be selected from 129-prefix courses in the list at the end of this section of the Catalog but 129:175 and 129:176 may not be counted toward the minor.

Students who wish to pursue a minor in Afro-American studies should consult with an adviser in the African-American World Studies Program. A thesis is not required but is an option for a Master of Arts in Afro-American studies. If a student elects to write a thesis, the thesis must explore a topic of Afro-American culture and/or experience and must use research from more than one discipline. The maximum credit for a thesis is 4 semester hours.

Curriculum Requirements

The Master of Arts program in Afro-American studies requires 34 postbaccalaureate semester hours. Requirements include 129:211 Introduction to Research in Afro-American Culture (3 semester hours), 129:312 Advanced Research in Afro-American Culture (thesis/project, 4 semester hours), and at least 12 semester hours of courses in Afro-American world studies.

To complete the curriculum, students select 15 semester hours of electives in consultation with their advisers. All 15 semester hours of electives may be selected from the courses numbered above 100 in the course list below. Students should consult an adviser in the program to determine which courses numbered above 100 will be approved for an M.A.

Because the African-American world studies advisory committee wants to encourage doctoral study for those who have the ability, interest, and resources, it recommends that 6 of the 15 semester hours of electives in the Master of Arts program be used to explore doctoral education in disciplines outside African-American world studies. Possible fields of study are American studies, anthropology, education, English, geography, history, and sociology. Students are encouraged to select at least one-half of the courses in the M.A. curriculum from those numbered above 200.

Language/Tool Requirements

No foreign language or tool is required for the Master of Arts program in Afro-American studies, but students considering doctoral study in another field are encouraged to complete one language/tool requirement for that field while studying at the master’s level.

Comprehensive Examinations

Each student is required to pass a written comprehensive examination in Afro-American studies. The comprehensive examination is prepared and evaluated by a committee of faculty members who teach courses in the African-American World Studies Program. A component of the comprehensive examination is based on a reading list prepared by the student and approved by the African-American World Studies Program faculty. An oral examination may be required as a follow-up to the written one.

Graduate Programs

Master of Arts

The interdisciplinary curriculum leading to a Master of Arts in Afro-American studies provides an intensive, organized, graduate-level examination of Afro-American culture and experience. Such a program especially benefits individuals preparing for community college teaching, work with community-service organizations, or other careers in which an understanding of Afro-Americans may be necessary or helpful.

Language/Tool Requirements

No foreign language or tool is required for the Master of Arts program in Afro-American studies, but students considering doctoral study in another field are encouraged to complete one language/tool requirement for that field while studying at the master’s level.

Comprehensive Examinations

Each student is required to pass a written comprehensive examination in Afro-American studies. The comprehensive examination is prepared and evaluated by a committee of faculty members who teach courses in the African-American World Studies Program. A component of the comprehensive examination is based on a reading list prepared by the student and approved by the African-American World Studies Program faculty. An oral examination may be required as a follow-up to the written one.

Thesis/Project Requirements

A thesis is not required but is an option for a Master of Arts in Afro-American studies. If a student elects to write a thesis, the thesis must explore a topic of Afro-American culture and/or experience and must use research from more than one discipline. The maximum credit for a thesis is 4 semester hours.
Students who do not prepare a thesis are required to develop, in consultation with an adviser, a project related to Afro-American studies. Credit for the thesis or project usually is earned through registration in 129:312 Advanced Research in Afro-American Culture (4 semester hours).

**Admission**

In addition to the general requirements of the Graduate College, unconditional graduate admission to the African-American World Studies Program requires that students have an appropriate educational background in literature and the social sciences, at least 6 semester hours of collegiate credit in Afro-American literature and/or history courses, and a minimum grade-point average of 2.70 in previous college courses in Afro-American studies. Students may be asked to take, without credit toward the master’s degree, courses needed to remedy deficiencies in undergraduate preparation.

Applicants for admission are expected to provide three letters of recommendation from former professors and a sample of written scholarly work.

Recommendations for admission are made by the admissions subcommittee of the African American World Studies Program.

**Concentration in American Studies Ph.D.**

Generally, a student seeking a Ph.D. in American studies with a concentration in Afro-American studies is preparing to be a teacher or research scholar at the college or university level.

Ordinarily, students seeking a concentration in Afro-American studies take a minimum of 36 semester hours of graduate study in African-American world studies, identify two Afro-American studies fields within their plan of study, and write a dissertation on a topic in Afro-American culture. An Afro-American studies field is defined as one in which the majority of courses are drawn from those listed under “Courses” at the end of this section of the Catalog. Students interested in such a concentration should consult both the chair of the African-American World Studies Program and the chair of the American Studies Program for more information.

**Cognate Areas, Special Fields**

It is possible for students to take concentrations of Afro-American studies courses as cognate areas or special fields in Ph.D. programs in history, English, and other disciplines. For further details, consult an adviser in the African-American World Studies Program.

**Related Courses**

Although they are not offered by the African-American World Studies Program, the following courses are recommended for interested students. For course descriptions, see the appropriate departmental sections of the Catalog.

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**ANTHROPOLOGY**

113:151 Sociology of the Third World 3 s.h.

**ART AND ART HISTORY**

1H:310 Seminar: Problems in African Art 2-3 s.h.

**COMPARATIVE LITERATURE**

48:50 Non-Western Literary Traditions 3 s.h.

48: 160 Cultural Identity in Caribbean Literature 3 s.h.

**EDUCATION**

7F:104 Education in the Third World 2-3 s.h.

7F:130 Educational Sociology 2-3 s.h.

7F: 154 Education, Race, and Ethnicity 2-3 s.h.

7U:133 The Culturally Different in Diverse Settings 3 s.h.

**GEOGRAPHY**

44:157 Third World Development Support 3 s.h.

**HISTORY**

18A:81 American History 1492-1877 3 s.h.

16A:62 American History 1577-Present 3 s.h.

16A: 127 American Intellectual History 1607-1865 3 s.h.

16A: 128 American Intellectual History from 1870 3 s.h.

16A: 164 Civil War and Reconstruction 3 s.h.

16A: 165 The Gilded Age in America 3 s.h.

16A: 166 The Progressive Era in America 3 s.h.

16A: 167 The New Era and The New Deal 1920-1940 3 s.h.

16A:168 The Contemporary United States 1940-Present 3 s.h.

**SPORT, HEALTH, LEISURE, AND PHYSICAL STUDIES**

28:74 Inequality in Sport 3 s.h.

**POLITICAL SCIENCE**

30:146 African Development 3 s.h.

30:148 The Politics of Southern Africa 3 s.h.

30:150 The Political Economy of the Third World 3 s.h.

**SOCIOLAGY**

34:166 Social Inequality 3 s.h.

**SOCIAL WORK**

42:147 Racism and Discrimination 3 s.h.

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**Cocurricular Activities**

**Black Action Theater**

Academically sponsored through the African-American World Studies Program, Black Action Theater gives participants instruction and experience in theatrical productions of works by Black authors.

**Afro-American Cultural Center**

The African-American World Studies Program 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 African students. It also attempts to provide a knowledge of Black culture that will promote interracial understanding among all members of the University community. See “Cultural Centers” in the Student Life at Iowa section of the Catalog.

**Student Association**

The African-American World Studies Student Association attempts to promote interest in Black culture by sponsoring programs on various topics. Any University of Iowa student interested in African-American world studies is eligible to become a member.

**Courses**

**For Undergraduates**

129:000 Cooperative Education Internship 0 s.h.

129:8 Literatures of the African Peoples 3 s.h.

129:60 Introduction to Afro-American Society 3 s.h.

129:61 Introduction to Africa-African Society 3 s.h.

129:62 Writing for Afro-American Studies 3 s.h.

129:63 Introduction to Afro-American Culture 3 s.h.

129:64 Black History in African-American World Studies Program 2-3 s.h.

129:65 American Intellectual History 1870-1940 3 s.h.

129:66 The Progressive Era in America 3 s.h.

129:67 The New Era and the New Deal 1920-1940 3 s.h.

129:68 The Contemporary United States 1940-Present 3 s.h.

**Supervised reading in African-American culture.**

129:75 Individual Study 0 s.h.

Arranged, with approval.
129:80 Critical Skills Seminar 3 s.h. Skill development in writing, analysis, research techniques essential to advanced study. Open only to majors.
129:95 Honors Project arr. Independent research and writing on interdisciplinary topic. Consent of instructor required.
129:99 Senior Seminar 3 s.h. Comparative study of Afro-American, African, and Afro-Caribbean culture and experience intended to synthesize students' earlier studies. Open only to senior majors. Consent of instructor required.

For Advanced Undergraduates and Graduates

129:103 African Drama 3 s.h. Dramas by contemporary Africans; plays for staging, one-act plays, radio plays. Same as 141:103.
129:107 Art of West Africa 3 s.h. Same as 1H:107, 141:107.
129:10 Art of Central Africa 3 s.h. Same as 1H:108, 141:108.
129:13 Africans in the New World 3 s.h. Social and cultural history of Black populations in the New World. Same as 113:113.
129:114 Race and Ethnic Relations 3 s.h. Multidisciplinary study of intergroup relations; social, historical, political issues in study of African minority groups. Same as 34:155, 113:155.
129:115 Social Anthropology of the Caribbean 3 s.h. GIER: foreign civilization and culture. Same as 113:118.
129:16 Afro-American Literature 3 s.h. Afro-American writers from eighteenth century to 1940 examined in relation to cultural, social, literary, historical influences. Same as 8:116.
129:19 Senior Seminar 3 s.h. Topics vary. Same as 16W:120, 141:120.
129:212 Advanced Readings in Black Culture arr. Seminar on textual, social, political analyses of works by Black authors.
129:228 Studies in African-American Literature 3 s.h. Synthesis of primary, secondary research materials for analytical and comprehensive studies in Black culture, in other related graduate courses and for future publications.
129:288 Studies in African-American Literature 3 s.h. Same as 8:228.
AFRICAN STUDIES PROGRAM

Chair: Peter Nazareth (English)
Committee members: Joseph Ascroft (Journalism and Mass Communication), Joel Barkan (Political Science), Sandra Barkan (Honors Program/Comparative Literature), Jacques Bourgeoix (French and Italian), Phil Carls (International Education and Services), Christopher Culy (Linguistics), William DeWey (Art and Art History), Frank Fairfax (Anthropology), James Giblin (History/African-American World Studies), Ab Gratama (Art and Art History), John Howell (University Libraries), Michael McNulty (Geography), Peter Nazareth (English/African-American World Studies), Allen Roberts (Anthropology/African-American World Studies), Christopher Roy [Art and Art History], Abdi Samatar (Geography), Randall Thomas (Law), Adrian Wing (Law), Frederick Woodard (English/African-American World Studies)

Undergraduate degrees: African studies option in the B.A. in African American World Studies, certificate in African Studies

The African Studies Program helps students gain a broader understanding of traditional and contemporary life in Africa, and of the historical and contemporary forces that shape the continent. It fosters an environment of cooperation and collaboration among students and faculty that leads to increased opportunities for teaching and research.

African studies is a constituent program of the Center for International and Comparative Studies. Several established programs and resources at The University of Iowa benefit the African Studies Program: the Stanley Collection of African art at the Museum of Art, African writers who participate in the International Writing Program, and African scholars and leading Africanists who visit the Center for International and Comparative Studies. The program also maintains exchange programs with the University of Ibadan (Nigeria), the University of Nairobi (Kenya), and the University of Ouagadougou (Burkina Faso).

Undergraduate Programs

The African Studies Program gives undergraduate students two opportunities for the interdisciplinary study of Africa: a major track offered as an option in the B.A. in African-American World Studies, and a certificate program.

AFRICAN STUDIES OPTION IN THE B.A. IN AFRICAN-AMERICAN WORLD STUDIES

The African studies option is administered jointly by the chair of the African-American World Studies Program and the chair of the African Studies Program acting in consultation with the faculties of their respective programs. Students in this option are advised by the chair of the African-American World Studies Program acting in consultation with the chair of the African Studies Program.

Required Courses

The program consists of 33 semester hours of course work in addition to four semesters, or the equivalent, of instruction in an indigenous African language.

For course descriptions, see the appropriate departmental sections of the Catalog.

CORE COURSES

141:7 Introduction to African Studies 3 s.h.
141:120 Pre-Colonial African History 3 s.h.
141:121 African History Since 1880 3 s.h.
129:80 Critical Skills Seminar 3 s.h.
141:180 Advanced Undergraduate Seminar in African Studies 3 s.h. (usually taken during the senior year)

LANGUAGE REQUIREMENT

The African languages offered at The University of Iowa are Swahili and Yoruba.
141:15-16 Elementary Swahili I-II 8 s.h.
141:17-18 Intermediate Swahili I-II 8 s.h.
141:25-26 Elementary Yoruba I-II 8 s.h.
141:27-28 Intermediate Yoruba I-II 8 s.h.

Graduate students may enroll in 100-level Swahili and Yoruba courses.

Students also may fulfill the language requirement by demonstrating competence in another African language. Students who declared the African studies option before fall semester 1992, and who already had achieved sophomore status by that time, may fulfill the requirement by taking four semesters or the equivalent in French, Portuguese, or Spanish.

HUMANITIES ELECTIVES

Two courses (6 semester hours) focused on Africa, chosen from the following art, history, and literature courses.

141:30 Introduction to African Art 3 s.h.
141:107 Art of West Africa 3 s.h.
141:108 Art of Central Africa 3 s.h.
141:111 The Art of Southern and Eastern Africa 3 s.h.
141:112 Art and Archaeology of Ancient Africa 3 s.h.
141:202 Seminar: Problems in African Art 2-3 s.h.
141:120 Pre-Colonial African History (counts as elective for certificate only) 3 s.h.
141:121 African History Since 1880 (counts as elective for certificate only) 3 s.h.

SOCIAL SCIENCE ELECTIVES

Two courses (6 semester hours) focused on Africa, chosen from the following.
44:162 Geography of Underdevelopment 3 s.h.
141:146 African Development 3 s.h.
141:148 The Politics of Southern Africa 3 s.h.
141:157 Peoples and Cultures of Africa 3 s.h.
141:158 Myth, Magic, and Mind 3 s.h.
141:159 Anthropology of African Art 3 s.h.

AFRICAN CONTENT ELECTIVE

One course (3 semester hours) in African studies or having a significant African content, chosen from the following.
IH: 2 Art of Africa, Oceania, and Pre-Colonial America 3 s.h.
IH: 109 The Arts of the African Diaspora 3 s.h.
30:150 The Political Economy of the Third World 3 s.h.
42:273 Women, Men, and Global Social Change 3 s.h.
44:94 International Development 3 s.h.
44:157 Third World Development Support (same as 19:157) 3 s.h.
44:162 Geography of Underdevelopment 3 s.h.
44:194 Geographic Perspectives on Development 3 s.h.
91:296 Law in Radically Different Cultures 3 s.h.
113:134 Diaspora African Cultural and Political Movement 3 s.h.
129:176 Black Action Theater 3 s.h.
141:110 African News Colloquium (may be combined with 141:105 Independent Study to fulfill elective requirement) 2 s.h.
141:115 Topics in African Studies 3 s.h.

DIASPORA ELECTIVE

One course (3 semester hours) focused on the experience of Blacks in the Diaspora, chosen from courses offered by the African-American World Studies Program (see “African-American World Studies” in this section of the Catalog).

Honors

Students enrolling in the African studies option of the B.A. in African-American World Studies may earn the degree with honors by completing an appropriate honors project (see “African-American World Studies” in the Catalog).
Certificate Program

The certificate program in African studies complements a departmental major and helps prepare students for graduate study or careers related to Africa. The curriculum for an undergraduate certificate includes 21 semester hours of courses on Africa, divided into three levels of study: introductory, intermediate, and advanced. There also is a foreign language requirement.

A minimum grade-point average of 2.00 is required in all course work applied toward the certificate. Courses applied toward the certificate also may be used to satisfy the General Education Requirements 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. Students interested in pursuing a Certificate in African Studies should contact the Center for International and Comparative Studies to make an appointment with an African Studies Program adviser.

Required Courses

For course descriptions, see the appropriate departmental sections of the Catalog.

FOREIGN LANGUAGE

Certificate students must take four semesters, or the equivalent, of any foreign language spoken in Africa. Languages currently taught at The University of Iowa that meet this requirement are French, Portuguese, Spanish, Swahili, and Yoruba.

INTRODUCTORY COURSE

Certificate students take 141:7 Introduction to African Studies (3 semester hours) as an introduction to the continent and its history, art, literature, politics, and peoples, and as an introduction to the Africanist faculty at Iowa.

INTERMEDIATE COURSES

Students take five courses, with at least one from each of four areas of study—art, history, literature, and social science—for a total of 15 semester hours. Courses are listed under “Humanities Electives” and “Social Science Electives” for the African studies option in African-American world studies, in this section of the Catalog.

COLLOQUIUM, SEMINAR, OR ADVANCED COURSE

Senior students complete the course of study with a colloquium, seminar, or advanced course (3 semester hours) in any of the four areas listed above. Approved courses include, but are not limited to, the following. Students should discuss their plans for the advanced course with an African Studies Program adviser.

Study Abroad

Studying for a semester or an academic year at an African university is recommended, though not required, for students in the African Studies Program. Two programs are offered through the University of Iowa. The first lasts one semester, the second an academic year.

Course work successfully completed on these and other approved study abroad programs in Africa may satisfy specific requirements for the B.A. or the Certificate in African Studies.

Contact an African Studies Program adviser or the Study Abroad Center for more information.

Scholarships

Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Research/Fieldwork through the Center for International and Comparative Studies. 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. The Project for the Advanced Study of Art and Life in Africa (PASALA) also provides scholarships. Other awards are offered through the University of Iowa Study Abroad Center.

Visiting Scholars and Professionals

The African Studies Program supports U.S. and international researchers for one month to one year of residence through the Visiting Research Fellows Program sponsored by the Center for International and Comparative Studies. The program also brings highly qualified nonacademic to the campus for extended stays through the center’s Distinguished Visiting Professionals Program. These guests present public lectures, seminars, and private consultations during their stay.

University Linkage Agreements

The University of Iowa and the University of Ouagadougou (Burkina Faso) established a formal linkage in 1983 with a grant from the United States Information Agency. That linkage has continued actively since the expiration of the grant. Two additional linkages were established in 1988—one with the University of Ibadan (Nigeria) and the other with the University of Nairobi (Kenya). The linkage programs involve exchanges of African and Iowa faculty members and students for teaching, curriculum development, study, and joint research.

In 1992, the University of Iowa received a five-year grant from the U.S. Agency for International Development to establish a university development linkage program between four Iowa institutions of higher learning and four Nigerian institutions. The linkage program’s goals are to establish joint research, training programs, and faculty and student exchanges that will enhance the participating institutions’ abilities to address development planning, management, and analysis of issues.

Courses

141:7 Introduction to African studies 1-3 s.h.
141:14 Literatures of the African peoples 3 s.h.
141:26 Elementary Yoruba I 4 s.h.
141:15 Elementary Swahili I 4 s.h.
141:16 Elementary Swahili II 4 s.h.
141:17 Intermediate Swahili I 4 s.h.
141:18 Intermediate Swahili II 4 S.h.
141:25 Elementary Yoruba I 4 s.h.
141:26 Elementary Yoruba II 4 s.h.
141:27 Intermediate Yoruba I 4 s.h.
141:28 intermediate Yoruba II 4 s.h.
141:30 Introduction to African Art 3 s.h.
141:71 Social Science Perspectives on Contemporary Africa 3 s.h.
141:103 African Drama Same as 129:123.
141:105 Independent Study arr.
141:107 Art of west Africa Same as 1H:103, 129:107.
141:110 African News Colloquium 2 s.h.
141:111 The Art of southern and Eastern Africa Same as 1H:111.
141:112 Art and Archaeology of Ancient Africa Same as 1H:12.
141:15 Topics in African Studies arr.
141:120 Pre-Colonial African History Same as 10H:120, 129:120.
141:121 African History Since 1880 Same as 10H:121, 129:121.
141:123 Topics: Modem African History Same as 10H:123, 129:123.
141:125 Elementary Swahili I for Graduates Same as 103:125, 129:145.
141:126 Elementary Swahili II for Graduates Same as 103:126, 129:146.
141:127 Intermediate Swahili I for Graduates Same as 103:127, 129:147.
141:180 Advanced Undergraduate Seminar in African Studies 3 s.h.
141:110 African News Colloquium 2 s.h.
141:202 Seminar: Problems in African Art 3 s.h.
141:227 Three African Writers 3 s.h.
141:28 intermediate Yoruba II 4 s.h.
141:110 African News Colloquium 2 s.h.
141:111 The Art of southern and Eastern Africa Same as 1H:111.
141:112 Art and Archaeology of Ancient Africa Same as 1H:12.
141:15 Topics in African Studies arr.
141:120 Pre-Colonial African History Same as 10H:120, 129:120.
141:121 African History Since 1880 Same as 10H:121, 129:121.
141:123 Topics: Modem African History Same as 10H:123, 129:123.
141:125 Elementary Swahili I for Graduates Same as 103:125, 129:145.
141:126 Elementary Swahili II for Graduates Same as 103:126, 129:146.
141:127 Intermediate Swahili I for Graduates Same as 103:127, 129:147.

Courses
**Programs**

**Certificate**

The certificate in aging studies requires 21 approved semester hours of course work related to aging at the 100 level or above. This aging-specific course work is defined as University of Iowa courses that focus principally on older persons, the aging process, or interventional methods or techniques whose target is the older adult or aging. A minimum grade-point average of 2.00 is required in all course work applied toward the certificate.

Students are required to take an introductory aging course and complete either a research project or a practicum course. With the approval of their major department, students may apply course work to their major or professional program of study. Six semester hours must be taken outside the major department.

Students should take the introductory aging course prior to, or concurrently with, other courses in the program. The research project or the practicum course should not be taken until the first 9 semester hours of the program are completed.

**Eligibility**

The program is open to all interested graduate students, upper-level undergraduates who have completed at least 45 semester hours, and special status students whose career interests and needs are served by completing the program.

Students in good standing at the above-mentioned levels may establish study plans with the Aging Studies Program coordinator, who works with them and their advisers to shape a study plan complementary to their academic program and career interests. Students should contact the aging studies coordinator to develop an appropriate study plan. The program includes required courses and recommends the sequence in which course work should be taken. The coordinator 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 Program, the coordinator 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.

A student may not be awarded both a minor and a certificate in aging studies.

**Option for an Individualized Major**

Students in the College of Liberal Arts 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 into the program requires approval of a plan of study that includes 36 semester hours of upper-level course work. Students enrolled in this program also may meet the requirements for a certificate in aging studies.

**Course Requirements**

For full descriptions of each of the courses listed below, see the listings in the appropriate departmental sections of the Catalog.

**INTRODUCTORY COURSES**

All students must take at least one and no more than two introductory courses. The introductory courses accepted in the program include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>42:108</td>
<td>Basic Aspects of Aging</td>
<td>3</td>
</tr>
<tr>
<td>34:130</td>
<td>Aging and Society</td>
<td>3</td>
</tr>
<tr>
<td>42:184</td>
<td>Multidisciplinary Perspectives on Aging</td>
<td>3</td>
</tr>
<tr>
<td>96:129</td>
<td>Introduction to Gerontology</td>
<td>2-3</td>
</tr>
</tbody>
</table>

**PRACTICUM AND RESEARCH COURSES**

At least 3 semester hours in a practicum and/or research course are required and no more than 6 are accepted to meet the requirements of the Aging Studies Program. Practicum and research courses include the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>42:190</td>
<td>Field Work in Gerontology</td>
<td>arr</td>
</tr>
<tr>
<td>*96:133</td>
<td>Nursing Practice in Chronic Illness</td>
<td>7</td>
</tr>
<tr>
<td>*96:145</td>
<td>Leadership, Management, and Research in Nursing Practice</td>
<td>8</td>
</tr>
</tbody>
</table>

Other departmental practicum or research courses are accepted if the content and focus of the course of study is aging-specific.

**ELECTIVE COURSES**

Students may take elective courses to meet their particular needs and interests. Additional courses that fulfill the requirements for the program may be selected from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>113:136</td>
<td>Aging: A Cross-Cultural Perspective</td>
<td>3</td>
</tr>
<tr>
<td>113:147</td>
<td>Special Topics in Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>2:271 Seminar in Cell Physiology: Biology of Aging</td>
<td>2</td>
</tr>
<tr>
<td>Biomedical Engineering</td>
<td>51: 154 Biomechanics of Aging</td>
<td>3</td>
</tr>
</tbody>
</table>
Counselor Education
7C:280 Topical Seminar in Counselor Education arr.

Dentistry
112: 145 Introduction to Geriatric Dentistry 2 s.h.

Health and Hospital Administration
80:208 Long-Term Care Administration 3 s.h.
80:210 Long-Term Care Management 3 s.h.

Internal Medicine
78:805 Geriatrics Seminars 1 s.h.

Nursing
96:30 Human Development and Behavior 3 s.h.
96: 116 Loss and Death in Clinical Nursing Practice 3 s.h.
96: 130 Normative and Psychopathological Aspects of Aging 3 s.h.
96: 131 Psychological and Biological Aspects of Aging 3 s.h.
96:230 Nursing of Older Adults: Health Promotion 4 s.h.
96:231 Nursing of Older Adults: Response to Illness 4 s.h.

Sport, Health, Leisure, and Physical Studies
28:136 Physical Activity and Aging 3 s.h.
28:146 Health Promotion for Older Adults 3 s.h.
28:166 Exercise Programs: Special Populations 3 s.h.
28:168 Aging and Leisure 3 s.h.
28:171 Issues in Recreation and Leisure 3 s.h.

Religion
32:163 Introduction to Biomedical Ethics 2-3 s.h.
32:193 Suffering, Death, and Faith 2 s.h.

Social Work
42:185 Social Policy and the Elderly 3 s.h.
42:211 Individual and Family Development: Life Span 3 s.h.
42:219 Aging and the Family 3 s.h.
42:222 Social Policy Issues in Health Care 3 s.h.

Sociology
34:220 Sociology of the Family 3 s.h.
34:233 Aging and Human Development 3 s.h.

Speech Pathology
3:165 Communication Disorders and Aging 2 s.h.
3:530 Seminar: Communication Disorders and Aging 2 s.h.

*Some, but not all, of the material in these courses deals with aging. Only a portion of the credit fulfills the requirements for the Aging Studies Program. See program office for details.

American Indian and Native Studies Program

Chair: June Helm
Professors: Robert N. Clinton (Law), Joe Dan Coulter (Anthropology), Wayne Franklin (American Studies/English), June Helm (Anthropology)
Associate professor: Mary Whelan (Anthropology)

Undergraduate degree: certificate, minor in American Indian and Native Studies

The American Indian and Native Studies Program (AINSP) is an interdisciplinary undergraduate program that focuses on the histories, cultures, languages, arts, crafts, beliefs, political and social organizations, economies, geographies, literatures, and contemporary legal and political problems of Native Americans and other Indians of the Western Hemisphere.

AINSP helps students understand historical and contemporary human relations issues among indigenous peoples of the Americas. It helps them acquire expertise for jobs involving cross-cultural work and understanding of ethnic, social, and political diversity, and it provides a background for more specialized or advanced work in a variety of social science areas, including anthropology, psychology, geography, economics, education, history, and political science. It also provides preparation for professional training in museum work, health care, business, and law.

Undergraduate Programs

Students may earn a minor or certificate in American Indian and native studies. All students plan their programs in close cooperation with AINSP advisers.

Certificate

Students pursuing the certificate in American Indian and native studies must earn at least 20 semester hours of credit in courses selected from the list of approved AINSP courses, with a minimum grade-point average of 2.00. These courses should include 149: 100 Introduction to American Indian and Native Studies (3 semester hours); enrollment for at least two semesters (2 semester hours) in 149:101 American Indian and Native Studies Seminar; and at least 3 semester hours in each of at least two departments chosen from anthropology, art and art history, English, and history.

Courses applied toward the AINSP certificate may also be used to satisfy the General Education Requirements 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. Students may not be awarded both a minor and a certificate in American Indian and native studies.

Minor

To earn a minor in American Indian and native studies, students complete 15 semester hours in courses selected from the list of approved AINSP courses, with a minimum grade-point average of 2.00. Twelve of the 15 semester hours must be taken in advanced courses (100-level) at The University of Iowa. To preserve the interdisciplinary character of the AINSP minor, students majoring in anthropology, English, or history may not count toward the minor more than 6 semester hours from courses in their major department.

Cultural Experience

It is highly recommended, but not required, that students have an in-depth American Indian cultural experience, usually through study or volunteer work, before they complete their undergraduate requirements. Students should consult AINSP advisers about available options.

Associated Courses

In addition to the courses listed below, courses concerned in part with American Indians or with issues relevant to American Indians sometimes may be used as electives to satisfy requirements for the certificate or minor. Students should consult AINSP advisers for approval.

Courses taken in other departments maybe applied toward meeting the recommended cultural experience and/or the certificate and the minor, subject to prior approval by the AINSP advisers.

For course descriptions, see the appropriate departmental sections of the Catalog.

American Studies

45:110 Literature and Culture of America Before 1800 (Same as 8:141) 4 s.h.
45:155 Cultural Diversity in America (when content is appropriate) 3 s.h.

Anthropology

113: 110 Indians of North America 3 s.h.
113: 14 Lowland South American Indians 3 s.h.
113: 17 The Maya 3 s.h.
113:163 Archaeology of Mesoamerica 3 s.h.
13: 1 166 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.
113:167 North American Archaeology 3 s.h.

Art and Art History

IH: 2 Art of Africa, Oceania, and Pre-Columbian America 3 s.h.
IH: 105 Art of Pre-Columbian America 3 s.h.
IH:104 American Indian Art 3 s.h.
IH: 199 Topics in Art History (American Indian Art of the Southwest) 3 s.h.
American Studies Program ● Liberal Arts

English

8:105 Literature and Culture of 19th Century America 3-4 s.h.
8:113 American Indian Literature 3 s.h.
8:141 Literature and Culture of America Before 1800 (Same as 45:110) 4 s.h.

History

16A: 131 The Frontier in American History to 1840 3 s.h.
16A: 132 The Frontier in American History 1840-Present 3 s.h.

Law

91:319 Native American Law (Same as 144:211) 3 s.h.
91:635 Indigenous Peoples in the International Legal System arr.
91:676 Self-Determination in International Law arr.

Nursing

96:172 Health and Cultural Diversity (Same as 113:108) 3 s.h.
96:174 Transcultural Mental Health (Same as 113:107) 3 s.h.

COURSES

149:100 Introduction to American Indian and Native Studies 3 s.h.
Themes, methodologies m study of American Indians, other indigenous peoples; instructors, approaches from disciplines such as anthropology, history, law, literature.
149:101 American Indian and Native Studies Seminar 1 s.h.
Historical and contemporary issues addressed m weekly presentations by faculty, students, guest speakers. May be repeated.
149:199 Special Topics: American Indian and Native Studies arr.
Study of American Indians and other indigenous peoples; concepts, problems, issues.

AMERICAN STUDIES PROGRAM

Chair: John Raeburn
Professors: Wayne Franklin (American Studies/English), Richard P. Horwitz (American Studies), John Raeburn (English/American Studies)
Professors emeriti: Alexander C. Kern (English/American Studies), Albert E. Stone (American Studies/English)
Associate professor: Jane Desmond (American Studies/Women’s Studies), Lauren Rabinowitz (American Studies/Communication Studies)
Undergraduate degree: B.A. in American Studies; minor in American Studies
Graduate degrees: M.A., Ph.D. in American Studies

The American Studies Program provides an interdisciplinary introduction to American culture, past and present. It helps students and critics of culture 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 there is no explicit vocational training, the program provides preparation for a career in business, education, government, journalism, or social service; for advanced studies in the humanities, the social sciences, theology, or business; or for professional studies in law or medicine. Internships can be arranged.

Plan of Study

American studies majors develop individual plans of study that combine courses from cognate departments with integrative American Studies Program offerings. Proposed plans of study are reviewed by the American Studies Program faculty to ensure that they are manageable and flexible.

Prospective American studies majors are required to submit a preliminary one- to two-page plan of study, which must be approved before they can be considered for admission to the major. Each plan of study should indicate why the prospective student wants to undertake the American studies major and should outline an 18-semester-hour area of specialization in American studies. The area of specialization should be interdisciplinary and should focus on a theme, problem, body of materials, group of people, or time period in American life. It also should integrate varied approaches to the chosen topic as represented by relevant courses from multiple disciplines.

Plans of study may be submitted for approval to the director of undergraduate study in the American Studies Program any time during the academic year. Applications are reviewed regularly throughout each semester.

If the director of undergraduate study does not approve a plan of study, the student may revise and resubmit the plan at any time. In some cases, students may be referred to a more appropriate departmental major. Students who wish to appeal the director’s decision may submit the plan of study and an accompanying letter to the American Studies Steering Committee.

Required Courses

The major usually consists of 12 courses totaling 36 semester hours. Students are especially encouraged to complete courses in women’s studies and African-American world studies. Courses in American studies must include 45:1 American Values and 45:90 Seminar in American Cultural Studies. Requirements are as follows.

American studies core (four courses, including 45:1 and 45:90) 12 s.h.
American history (two courses) 6 s.h.
Area of concentration (six courses in American studies or other departments) 18 s.h.

General education courses in historical perspectives, humanities, literature, and social sciences provide relevant preparation for the American studies major. 8G:9 American Lives is especially recommended.

Honors

The American studies honors program offers students the opportunity to pursue special interests in individual, in-depth research. Honors candidates in American studies must be members of the University Honors Program.

Under the guidance of the undergraduate honors adviser, the honors candidate defines a research project using primary sources. Project proposals should be made by the end of the candidate’s junior year. Each candidate completes the project under the guidance of a supervising faculty member and may register for up to 6 semester hours in 45:95 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 adviser, and a third faculty member of the student’s choice. (When the honors adviser is the supervising faculty member, the candidate may select second and third faculty members.) The candidate’s committee may choose to hear an oral defense of the final project, usually in the twelfth week of the student’s last semester.

Minor

Students interested in a minor in American studies should consult program faculty members. The minor requires a minimum of 15 semester hours of credit in American studies with a minimum grade-point average of 2.00. At least 12 of the 15 semester hours must be taken at The University of Iowa in courses numbered 45:100 and above, but 45:90 may count toward this requirement.

Graduate Programs

Master of Arts

The M.A. in American studies may be a terminal degree or a degree preliminary to the Ph.D. in American studies or a traditional discipline.

The M.A. program in American studies includes 12 courses usually totaling 36 semester hours. Requirements include:

45:200-201 Theory and Practice in American Studies 1-11 (6 semester hours) plus at least
two other courses (6 semester hours) or seminars in American studies; five to eight additional courses selected in relation to a topic or period of cultural history; these courses may be grouped to address more than one topic, and they must be chosen from more than one discipline; they usually include at least two courses in American history and some work in African-American world studies and women’s studies; and satisfactory performance in 45:400 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, in which case a student may receive up to 6 semester hours of thesis credit. Students should consult the program chair for details.

A joint program leading to the M.A. in American studies and the 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, including journalism and social work.

Doctor of Philosophy

The Ph.D. program in American studies requires a minimum of 72 semester hours of course work that provides a core of American studies courses in interdisciplinary methods and substantial course work in three major fields. Course requirements are as follows.

45:200-201 Theory and Practice in American Studies I-II 18 s.h.
- First field (six courses) 18 s.h.
- Second field (six courses) 18 s.h.
- Third field (six courses) 18 s.h.
- Electives 12 s.h.

Although permitted considerable flexibility in planning a program, American studies Ph.D. candidates must meet certain basic requirements. One is that through course work and reading, all students address the cultural diversity of American life. Since race and gender issues are specifically explored on the oral portion of the comprehensive examination, some course work is required in African-American world studies and women’s studies.

Students also must design a plan of study that emphasizes a particular period of American cultural history. Hence, history is considered either background to or the center of all doctoral programs.

Finally, students must complete significant course work in American studies itself. Graduate students normally must take 45:200-201 Theory and Practice in American Studies I-II consecutively during the first year of graduate study. At least two additional graduate courses in American studies are required. These courses provide interdisciplinary training and background for a position paper that is required for the Ph.D. comprehensive examination.

Students must work carefully with advisers to be sure each major field is a well-designed dimension of a coherent plan of study.

Admission to Ph.D. Candidacy

A student’s plan of study and evaluation by instructors must be presented to the American studies faculty for review after about 30 semester hours of course work have been completed. Students who have been admitted to Ph.D. candidacy should finish the courses approved in the plan of study and prepare for comprehensive examinations.

Comprehensive Examinations

Each field must include at least 6 courses (18 semester hours), including tutorials. In defining a field, students should consider covering not only a body of material, a time period, interpretive theory, comparative studies, or a theme and courses in women’s studies and African-American world studies, but also a foreign language, media production skills (e.g., photography, video), and internships.

Comprehensive examination of two of the fields is normally through two four-hour written examinations or, with the consent of the examiners, essays written over the course of a single semester. The third field is tested through an annotated bibliography. The oral portion of the comprehensive examination focuses on the position paper, the two written examinations or essays, and the annotated bibliography.

Thesis

The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis on a topic whose investigation involves more than one field or discipline. The candidate may petition to present a creative thesis, such as fiction, autobiography, or film, combined with a critical analysis of the cultural experiences the thesis reflects. Permission to undertake such a thesis is granted only by the American Studies Steering Committee.

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, Living History Farms, the Herbert Hoover National Historic Site, and the Putnam Museum. Internships in Chicago can be negotiated with Hull House, Newberry Library, Church Council of Chicago, Speratus Museum of Judaica, DuSable Museum of African-American History, and the National Training Institute. With special permission, candidates conducting research during such on-the-job training may receive academic credit through 45: 100 Independent Study or 45:350 Material Culture Internship. Other internships in social agencies, government, or business also may be arranged.

Courses

Primarily for Undergraduates

45:000 cooperative Education Internship 0 s.h.
45:1 American Values 3 s.h.
- Representative texts, artifacts, cultural values in historical and contemporary perspective. GER: humanities.
45:5 American Issues 3 s.h.
45:30 Introduction to Afro-American Culture 3 s.h.
GER: humanities. Same as 129:61.
45:35 Race and Ethnicity in the U.S. 3 s.h.
45:40 Gender in the U.S. 3 s.h.
- Representative topics include sex roles and gender relations, feminine and masculine dimensions of American culture. Same as 131:40.
45:42 Women and Work in the U.S. 3 s.h.
- Pink collar labor and housework, gender and division of labor, sexual harassment, affirmative action. Same as 131:42.
45:44 Lesbian Lives in the U.S. 3 s.h.
Same as 131:44.
45:50 Family in the U.S. 3 s.h.
- Traditional and alternative households, Images, narratives, experiences of kinship.
45:55 Sexuality and American Culture 3 s.h.
- Content varies; focus on different definitions of sexuality prevalent at various times.
45:65 American Places 3 s.h.
- The West, the South, images of city or mad in American culture.
45:70 Popular Arts and Entertainment in the U.S. 3 s.h.
- Rock ‘n’ roll, jazz, humor, sport.
45:75 American Music 3 s.h.
- Cultural, historical study of rock ‘n’ roll, jazz, blues, country and western, folk music.
45:80 Asian Encounter Americans 3 s.h.
- Diplomatic relations, immigration, international perspectives, Asian-American experiences.
45:90 Seminar in American Cultural Studies 3 s.h.
- Interdisciplinary perspectives on a single theme or period.
45:95 Honors Project arr.
- Independent interdisciplinary research, writing.

For Undergraduates and Graduates

45:100 Independent Study arr.
- Consent of instructor required.
45:110 Literature and Culture of America Before 1800 4 s.h.
- Formative period in American culture, through historical records, artifacts, the arts; emphasis on spatial, political, social order, psychology of colonialism. Same as 18:141.
45:115 American Culture of the 1900’s 3 s.h.
- Title: Great Depression through historical records, literature, photography, movies, other arts; emphasis on expression of American life and thought, social and cultural experience.
45:130 Dance as Cultural Practice 3 s.h.
- Social, popular, theatrical forms since the 1960’s; emphasis on relationships between aesthetics, cultural politics. Graduate standing or consent of instructor required. Same as 131:130.
45:140 The Cultures of American Women 3 s.h.
- Women’s experience; emphasis on relationships between individual lives, broad social and cultural content. Same as 131:140.
45:155 Cultural Diversity in America 3 s.h.
- Contact exchange among different cultures in America, especially Native Americans and Euro- and African-Americans; historical survey relying on primary documents.
45:157 Gender on Stage
How gendered bodies and roles are displayed on stage; popular, elite, experimental, traditional, mass media theatre, dance, music; topics include performing gender in everyday life, theory, spectatorship, politics of drag, feminist theatre. Graduate standing or consent of Instructor required. Same as 131:157.

45:170 Work and Leisure in American Culture
Same as 28:179.

45:175 The Politics of American Culture
Roles of power, political institutions and ideologies; contexts, periods, themes.

45:180 Survey of American Autobiography
Personal writing in the United States from colonial era to present; emphasis on variety of forms, cultural context, literary and social meanings.

45:185 International Views of America
Same as 36F:185.

45:188 American Autobiography I
Cultural life, life experiences of subculture members, to 1860; focus on complex nature of narrative. Same as 185:188.

45:192 American Popular Arts
History, interpretation, criticism of popular arts such as bestselling fictions, movies, television. Same as 129:192.

45:193 American Autobiography II
Cultural life, life experiences of subculture members, after 1860; focus on complex nature of narrative. Same as 185: 193.

45:194 American Popular Arts
Same as 185:194.

45:197 Landscape
Development of land use patterns in rural America; emphasis on cultural values, agricultural traditions, impact of modern technology.

45:198 American Autobiography I
Cultural life, life experiences of subculture members, to 1860; focus on complex nature of narrative. Same as 185:188.

45:199 American Autobiography II
Cultural life, life experiences of subculture members, after 1860; focus on complex nature of narrative. Same as 185:193.

45:200 Theory and Practice of American Studies

45:250 Seminar in Theories of Culture
Academic cultures, focus on social, intellectual history of the humanities and social sciences in the United States and professors’ personal experience.

45:269 Readings on the American South: Gender and Race in American History
Same as 16:269.

45:275 Politics and American Culture
Roles of power, political institutions, ideologies; contexts, periods, themes. Open only to graduate students.

45:290 Seminar in Writing about Cultures
Strategies for writing about particular peoples and places, especially those encountered through fieldwork experience.

45:293 Seminar in American Visual Culture
Visual expression, its relation to cultural history.

45:295 Seminar: American Material Culture
Relationships between film, culture as a particular approach, period, subject. Same as 36 F:300.

45:300 American Film and American Culture
Same as 36M:300.

45:350 Material Culture Internship
Independent work fit the field or in a field school, curating or interpreting material culture.

45:360 American Studies Pedagogy
First teaching experience or preparation of new course.

45:370 Writing for Publication
Writing or revision of paper to be delivered at scholarly meeting or submitted to journal.

45:400 Masters Preparation
Writing for M.A. exam. Open only to candidates for M.A. in American Studies without thesis.

45:450 M.A. Thesis

45:500 American Studies Position Paper
Writing for the Ph.D. comprehensive exam.

45:600 Ph.D. Thesis

Independent Study
Consent of instructor required.

45:200 Theory and Practice of American Studies
3 s.h.

45:250 Seminar in Theories of Culture
3 s.h.

45:269 Readings on the American South: Gender and Race in American History
arr.

45:275 Politics and American Culture
3 s.h.

45:290 Seminar in Writing about Cultures
3 s.h.

45:293 Seminar in American Visual Culture
3 s.h.

45:295 Seminar: American Material Culture
4 s.h.

45:300 American Film and American Culture
3 s.h.

45:350 Material Culture Internship
0-5 s.h.

45:360 American Studies Pedagogy
0-5 s.h.

45:370 Writing for Publication
0-5 s.h.

45:400 Masters Preparation
0-3 s.h.

45:450 M.A. Thesis
0-5 s.h.

45:500 American Studies Position Paper
3 s.h.

45:600 Ph.D. Thesis
arr.

Primarily for Graduates

45:200 Theory and Practice of American Studies
1

45:250 Seminar in Theories of Culture
3 s.h.

45:269 Readings on the American South: Gender and Race in American History
arr.

45:275 Politics and American Culture
3 s.h.

45:290 Seminar in Writing about Cultures
3 s.h.

45:293 Seminar in American Visual Culture
3 s.h.

45:295 Seminar: American Material Culture
4 s.h.

45:300 American Film and American Culture
3 s.h.

45:350 Material Culture Internship
0-5 s.h.

45:360 American Studies Pedagogy
0-5 s.h.

45:370 Writing for Publication
0-5 s.h.

45:400 Masters Preparation
0-3 s.h.

45:450 M.A. Thesis
0-5 s.h.

45:500 American Studies Position Paper
3 s.h.

45:600 Ph.D. Thesis
arr.

Undergraduate Program

Students who earn a B.A. in anthropology receive a broad liberal arts education that provides excellent preparation for a variety of careers. They gain special understanding of human relations and expertise for jobs involving international or cross-cultural work, and social and ethnic diversity in the United States. Upon graduation, anthropology majors embark on careers in government work, international affairs, gerontology, urban and regional planning, social work, and education. Many become Peace Corps or Vista volunteers or work for international nongovernmental organizations. Others pursue graduate study in anthropology, other social science disciplines, or professional school (health care, law, business).

The major requires at least 30 semester hours of course work in anthropology, including the following.

113:3 Introduction to the Study of Culture and Society
3-4 s.h.

113:12 Introduction to Prehistory
3 s.h.

113:13 Human Origins
3 s.h.

113:14 Language and Human Behavior
3 s.h.

In addition, students must take one course in archaeology (a real or topical), one course in ethnology, and one course in sociocultural anthropology. The remaining semester hours should be selected in consultation with the adviser.

Anthropology electives offer a wide range of choices, including courses dealing with language and culture, medical anthropology, religious activity in folk and tribal settings, gender, biological anthropology, identity, social science approaches. Open only to American studies graduate students or to others with consent of instructor.

45:200 Theory and Practice of American Studies
1

45:269 Readings on the American South: Gender and Race in American History
arr.

45:275 Politics and American Culture
3 s.h.

45:290 Seminar in Writing about Cultures
3 s.h.

45:293 Seminar in American Visual Culture
3 s.h.

45:295 Seminar: American Material Culture
4 s.h.

45:300 American Film and American Culture
3 s.h.

45:350 Material Culture Internship
0-5 s.h.

45:360 American Studies Pedagogy
0-5 s.h.

45:370 Writing for Publication
0-5 s.h.

45:400 Masters Preparation
0-3 s.h.

45:450 M.A. Thesis
0-5 s.h.

45:500 American Studies Position Paper
3 s.h.

45:600 Ph.D. Thesis
arr.

Chair: Nora England
Adjunct professor: Toni Tripp Reimer
Associate professors: Florence E. Babb, Russell Ciochon, Marshall McKusick, Douglas Midgett, Allen Roberts, Mary Whelan
Adjunct associate professor: Jeffrey Ehrenreich
Assistant professors: James Enloe, Frank Fairfax, Laura Graham, Obiagel Lake, Scott Schnell, Glenn Storey
Adjunct assistant professors: Fred Finney, William Green, Stephen C. Lensink, Kendall Thu
Undergraduate degree: B.A. in Anthropology; minor in Anthropology
Graduate degrees: M.A., Ph.D. in Anthropology

Anthropology is the study of human beings in all walks of life, in all kinds of societies, in all parts of the world, and at all points in time. The discipline’s four major subfields have important connections to the other social sciences, the physical and biological sciences, the arts, and the humanities.

Anthropology offers a framework for understanding the place of human beings in relation to the natural environment and to the myriad social and cultural worlds that humans have created. It provides insight into our biological and cultural evolutionary background; our economic, social, and political organization; our cultural and symbolic systems; the prehistoric and historic development of our social systems; and the interrelations among our individual selves, our societies, and the canons of thought and feelings we share with others.

Honor's Program

The honors program in anthropology is open to students with a minimum cumulative grade-point average of 3.20 both overall and in anthropology. In addition to the regular requirements for a major in anthropology, honors students complete an honors seminar or graduate-level course and an honors research project. Consult the department honors adviser for more information.
At least 12 semester hours must be taken at
The University of Iowa in courses numbered 113:100 and above.

Graduate Programs

Master of Arts

The M.A. program consists of four program tracks: general anthropology (thesis or nonthesis), designed to prepare students to deal with any aspect of anthropology at an introductory level; economic anthropology (thesis only); feminist anthropology (thesis only); and anthropology with a concentration in museology.

The M.A. program without thesis precludes consideration for admission to the Ph.D. program at Iowa.

The number of semester hours of credit required for the M.A. with thesis varies from 30 to 36, depending on the student’s previous anthropological training. The nonthesis program requires at least 36 semester hours of graduate work. The department also offers a 38-semester-hour M.A. without thesis in anthropology with a concentration in museology.

No more than 9 semester hours of courses outside of anthropology and no more than 3 semester hours of independent study may be applied toward the M.A. requirements in anthropology.

Students with previous training in anthropology, whatever their undergraduate major, may petition for permission to waive any part of the distribution requirements listed below.

The following are the requirements for each M.A. program track.

General Anthropology
(Thesis or nonthesis)
113:102 Anthropological Data Analysis 3 s.h.
113:171 Anthropological Linguistics 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
113:285 Seminar: Biological Anthropology 3 s.h.

Economic Anthropology
(Thesis only)
113:102 Anthropological Data Analysis 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.

Students also must take one course from each of the three groups below, for an additional 9 semester hours.
113:135 Work and Society 3 s.h.
113:141 Economic Anthropology 3 s.h.

Feminist Anthropology
(Thesis only)
113:190 Feminist Perspectives on Biology and Culture 3 s.h.
113:220 Seminar: Feminist Anthropology 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.

Students also take three courses from the two groups below, with at least one course from each group, for an additional 9 semester hours.
113:154 Anthropologies and Sexualities 3 s.h.
113:156 Women’s Roles in Cross-Cultural Perspective 3 s.h.
113:175 Gender and Development Studies 3 s.h.
113:221 Seminar: Feminist Ethnography 3 s.h.
113:271 Seminar in Anthropological Linguistics: Language and Gender in Cross-Cultural Perspective 3 s.h.
113:171 Anthropological Linguistics 3 s.h.
113:172 Language and Culture 3 s.h.
113:201 Seminar: Anthropological Theory 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
113:285 Seminar: Biological Anthropology 3 s.h.

M.A. in Anthropology with a Concentration in Museology

In cooperation with the Museum of Natural History, the Department of Anthropology offers a 38-semester-hour nonthesis program of study leading to an M.A. in anthropology with a concentration in museology. Instruction in the organization and management of museums with emphasis on exhibit design, curation, and educational outreach development forms part of the graduate program.

REQUIRED COURSES

Anthropology
113:240 Seminar: Sociocultural Anthropology 3 s.h.
113:285 Seminar: Biological Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
Electives in anthropology 6 s.h.

Museum Studies
(Total of 15 semester hours)
24:102 Introduction to Museology 3 s.h.
24:104 Principles of Exhibit Design 2 s.h.
24:106 Museum Laboratory Methods 2 s.h.

Doctor of Philosophy

Graduate training in anthropology at the Ph.D. level is designed to lead to professional competence in scholarly research and teaching. Students at The University of Iowa currently may select specializations in all four subfields of anthropology: archaeology, biological anthropology, linguistic anthropology, and sociocultural anthropology.

Training in a specialization is guided by a Ph.D. committee composed of appropriate faculty members. Students work closely with their committee to plan a program consistent with their subfield interests.

The requirements are:

- at least 72 semester hours of graduate course work; students specializing in sociocultural anthropology must take 113:201 Seminar: Anthropological Theory;
- demonstration of a reading knowledge of one foreign language;
- ethnographic or archaeological specialization in a major geographic area (for example, North America, Mesoamerica, South America, Oceania, Southeast Asia, the Caribbean, Europe, Africa) approved by the student’s Ph.D. advisory committee;
- specialization in a major and minor topical area;
- a written comprehensive examination in the student’s areas of specialization; and
- preparation and oral defense of a dissertation.

The major topical area is the area of theoretical concentration and orientation for the dissertation. Topics that may serve either as major or minor areas in sociocultural or linguistic anthropology include kinship and social organization, ethnohistory, economic anthropology, feminist anthropology, symbolic anthropology, expressive culture, development anthropology, language and culture, religion, cultural ecology, and medical anthropology. Major topical areas for students in archaeology include settlement archaeology, environmental archaeology, and faunal and floral analysis. Those for students in biological anthropology include human evolution, primate evolution, human anatomy, and primate behavior.

The comprehensive examination ordinarily is taken when the student’s course work is completed or nearly completed, after the language requirement has been satisfied, and
before the student begins fieldwork. All doctoral candidates are required to carry out original anthropological research. Ordinarily, students conduct fieldwork as the basis for their dissertations; occasionally, however, a research proposal may be carried out using only documents, collections, or other source materials.

All doctoral candidates are required to be adequately trained in methods of gathering primary data in archaeological, biological, linguistic, or ethnographic field research.

Field Research
Opportunities are available for students to participate in archaeological field research in central Mexico, France, or at various sites in the Midwest. Under the direction of University archaeologists, students acquire skills in data recovery and interpretive techniques. Occasional fieldwork in East and Southeast Asia is also 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. Admission to the department’s graduate program may be at either the M.A. or Ph.D. level; however, full admission to the Ph.D. program depends on successful fulfillment of all department requirements.

Any student with an M.A. with thesis may apply for admission to the Ph.D. program. A student admitted with an M.A. in anthropology from another institution may proceed directly to a specialized Ph.D. program.

An applicant with an M.A. in another discipline must seek admission as a first-year graduate student and complete necessary background courses in anthropology before proceeding to the Ph.D. The number of such courses is determined on a case-by-case basis, depending on the student’s prior training.

Applicants for admission to the graduate program must meet the general admission requirements of the Graduate College (see the Graduate College section of the Catalog) and are required to submit a completed University application form, transcripts of all previous undergraduate and graduate work, three letters of recommendation from individuals competent to judge their potential for graduate training, scores from the aptitude portion of the Graduate Record Examination (GRE) Aptitude Test, and at least one written example of previous work (for example, a term paper or an original experiment).

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.

Applicants should have at least a 3.00 grade-point average. However, applicants with lower grade-point averages may be admitted with conditional status if other criteria indicate potential for graduate work.

Assistantships
Financial aid awards for incoming students are limited and highly competitive, most graduate students receive some financial aid in the form of teaching and research assistantships during a portion of their studies at Iowa. Application for awards should be made directly to the department chair.

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

individual faculty members maintain field laboratories and conduct research outside the United States, maintaining ties with research institutions in foreign countries, including the Teotihuacan Archaeological Research Facility, in Mexico, and the Laboratoire d’Ethnologie Prehistorique at Pincevent and the Centre de Recherches Archeologiques at Verberie, in France.

The department also has well-equipped laboratories for the study of archaeology, biological anthropology, and linguistic anthropology.

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. The HRAF and other library resources make source materials on more than 400 different cultures available to anthropologists. Through the Project for the Advanced Study of Art and Life in Africa (PASALA), anthropology students also have access to the Stanley Collection of African Art at The University of Iowa Museum of Art. 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 the Pacific Islands, Asia, the Caribbean, Mesoamerica, South America, and the Subarctic. Recent field research has been conducted in Brazil, Mexico, Guatemala, Nicaragua, Peru, Micronesia, Hawaii, Iceland, Great Britain, France, Mali, Burkina Faso, Benin, Chad, Gabon, Ghana, Nigeria, Zaire, the eastern Caribbean, China, Japan, Papua New Guinea, India, Myanmar (formerly Burma), Vietnam, Israel, the Canadian Subarctic, and the United States.

Current faculty research topics include paleoanthropological investigations of Pleistocene Karst caves in northern Vietnam; precontact state systems and the historical archaeology of the Valley of Mexico; faunal analyses from Paleolithic sites in France; comparative syntax and Mayan languages; Peruvian underdevelopment and consequences for women workers; patterns of political and economic development of emerging nations; agricultural and economic decision making among rural peoples in the Peruvian Amazon; women in socialist societies; alcohol and drug studies; ethnography, ecology, and social organization of Indian peoples of the American Subarctic; West Indian migrants in London; political economy of the eastern Caribbean; social impact of rural development projects in Africa; art, magic, and the generation of metaphors as adaptation to social change in Africa; politics, society, history, and literature of medieval Iceland; maritime anthropology and fisheries policy in the United States and Iceland; economic anthropology in Southeast Asia and Iceland; cultural politics, ethnicity, semiotics, critical discourses in the Middle East and Hawaii; diaspora Africans and African-American society and culture; sociolinguistics and expressive culture in the Brazilian Amazon; and ritual and social change in Japan.

Courses
For Undergraduates

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>113:00</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
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<tr>
<td>113:3</td>
<td>Introduction to the Study of Culture and Society</td>
<td>3-4 s.h.</td>
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<tr>
<td>113:10</td>
<td>Anthropology and Contemporary World Problems</td>
<td>3 s.h.</td>
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<tr>
<td>113:12</td>
<td>Introduction to Prehistory</td>
<td>3 s.h.</td>
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<tr>
<td>113:13</td>
<td>Language and Human Behavior</td>
<td>3 s.h.</td>
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<tr>
<td>113:20</td>
<td>Introduction to Midwestern Prehistory</td>
<td>3 s.h.</td>
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<tr>
<td>113:21</td>
<td>Individual Shady</td>
<td>1-3 s.h.</td>
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Advanced Courses

General Anthropology

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>113:101</td>
<td>General Anthropology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:102</td>
<td>Anthropological Data Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:103</td>
<td>Introduction to Museology</td>
<td>3 s.h.</td>
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For Undergraduates

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>111:20</td>
<td>Comparative study of culture, social organization. open only to nonmajors with advanced standing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>111:21</td>
<td>Quantitative procedures for analyzing field data, library materials; elementary statistics, introduction to computers.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:101</td>
<td>Anthropology and Contemporary World Problems</td>
<td>3 s.h.</td>
</tr>
</tbody>
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Courses
113:107 Transcultural Mental Health 3 s.h. Cross-cultural perspectives on mental health, mental illness; expected behavioral patterns for developmental ages in various cultures, deviations from these patterns. Prerequisite: 113:3 or 113:101 or consent of instructor. Same as 96:174.

113:108 Health and Cultural Diversity 3 s.h. Cross-cultural perspectives on dynamics of health, illness. Prerequisite: 113:3 or 113:101 or consent of instructor. Same as 96:172.

113:146 History of Anthropology 3 s.h. Development as a discipline; comprehending persons, concepts, paradigms, theories; cultural anthropology. Consent of instructor required.

13:147 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. See 113:147.

113:149 Special Topics in Anthropology 2-3 s.h. See 113:147.

113:151 sociology of the Third World 3 s.h. Economic development as a sociological problem: social institutions, social organization of underdeveloped areas; economic development programs; social change, consequences of industrialization and urbanization in underdeveloped areas. Prerequisite: 34:1 or 113:3 or 113:101. Same as 34:151.

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: 113:3 or 113:101 or consent of instructor.

113:203 Constructing Ethnographic Data 3 s.h. Constructing and assessing relevance of primary ethnographic data; internal and external points of view, state-of-the-art computer applications. Graduate standing in anthropology or consent of instructor required.

Ethnology

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. Junior, senior, or graduate standing or consent of instructor required.

113:105 Introduction to South Asia 3 s.h. Culture, emphasis on India; South Asian geography, demography, environment, prehistory, history, colonial period, contemporary political situation; regional ethnographic case studies, emphasis on religious systems. Prerequisite: 113:3 or 113:101 or consent of instructor.

113:106 Interviewing Americans 3 s.h. Contemporary Americans through interviews, questioning, recording techniques, ethnographic writing. Same as 45:199.

113:110 Indians of North America 3 s.h. History, culture of American Indian peoples; emphasis on North America.

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. Same as 129:113.

113:114 Lowland South American Indians 3 s.h. Native languages, cultures of indigenous lowland South America; theoretical problems that have guided research in area; areal patterns, social and linguistic groupings, theoretical perspectives that have shaped understanding of area.

113:117 The Maya 3 s.h. Maya of Guatemala, Mexico from the Classic Period (e.g., Chichén Itzá, Tulum, Palenque) 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 Afro-American populations, cultural components. GER: foreign civilization and culture. Same as 129:115.

Sociocultural Anthropology

113:109 Literature and Anthropology 3 s.h. Topics vary. Same as 8:115; 48:351.

113:112 Maritime Anthropology 3 s.h. Comparative and historical perspectives on access to resources, common property, risk, decision making, information management, folk models, political economy, policy formation in historical and dynamic systems. Prerequisite: 113:3 or other introductory level anthropology course.

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

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

113:135 Works and Society 3 s.h. How work is organized in society; social relations constructed of different modes of production; case studies of foraging, peasant, advanced capitalist societies. Junior standing or consent of instructor required.

113:136 Aging: A Cross-Cultural Perspective 3 s.h. Unique, varied forms of behaviors, human values, social organization associated with aging and the aged in different cultures.

113:138 The Anthropology of Museums 3 s.h. Curatorial authority, multivocal exhibition, non-western museums, replication, preserving cultural heritage, representing cultures other than mainstream America. Junior or higher standing required.

113:139 Anthropology of Architecture 3 s.h. Cultural construction of social space; meaning and sociocultural implications in built environment; representation and aesthetics in vernacular architecture; emphasis on ostentation, data, Africa. Graduate standing or consent of instructor required.

113:140 Valuing Tradition(s) and Politics of Value 3 s.h. Idea and invocation of tradition, traditionalism in relation to modernism, and the public discussion of value(s) in terms of tradition. Junior or higher standing required.

113:141 Economic Anthropology 3 s.h. Economic decision making; social institutions associated with production, distribution, consumption of goods; effects of economic development programs on Third World peoples. Graduate standing or anthropology honors undergraduate standing or consent of instructor required.

113:142 Anthropology of Religion 2-3 s.h. Approaches; religious roles; shamanism, witchcraft, curing; mythology; place of religion in social, cultural change. Same as 32:165.

113:143 Environment and Culture 3 s.h. Individual, group responses to resources of natural resources such as land, water, food. Prerequisite: 113:3 or 113:101 or 113:120 or consent of instructor.

113:145 Symbolism and Structuralism 3 s.h. Structuralist approach in anthropology, its major proponents (C. Levi Strauss), its critics; other approaches and symbolism, Geertz and Douglas.

113:150 Anthropological Paradigms in Historical Perspective 3 s.h. History and sociology of knowledge as seen through development of professional anthropology; emphasis on social, cultural, linguistic anthropology; biological and historical analyses. Junior or higher standing required.

113:152 Cognitive Anthropology 3 s.h. Processes, products, of capacities for knowledge; application and development of ideas about cognition in anthropological contexts; understanding culture, difference. Prerequisite: 113:3 or 113:101 or consent of instructor.

113:153 Culture Politics 3 s.h. Implicit, explicit manifestations of power in the arts, popular culture, institutions of learning, sites of historical preservation; illustrations, analyses drawn from a variety of contexts in addition to contemporary U.S. Sophomore or higher standing required.

113:154 Anthropologies and Sexualities 3 s.h. Feminist perspective on anthropological approaches to cultural construction of sexuality in societies; theory, research on sexuality in social, political, economic, historical contexts. Graduate standing or consent of instructor required.
113:155 Race and Ethnic Relations 3 s.h.

113:156 Women’s Roles in Cross-Cultural Perspective 3 s.h.

113:158 Myth, Magic, and Mind 3 s.h.

113:175 Gender and Development Studies 3 s.h.

113:180 Political Anthropology: Power and Authority 3 s.h.

113:181 Race, Ethnicity, and International Relations 3 s.h.

113:184 Political Economy of Food and Nutrition 3 s.h.

113:185 Medical Anthropology 3 s.h.

113:190 Seminar: Anthropological Theory 3 s.h.

113:191 Seminar: Feminist Perspectives on Biology and Culture 3 s.h.

113:194 Roman Archaeology 3 s.h.

113:195 Laboratory Methods in Biological Anthropology 3 s.h.

113:196 Advanced Field Research in Anthropology 3 s.h.

113:197 Special Topics in Archaeology 3 s.h.

113:198 Special Topics in Archaeology 3 s.h.

113:199 Field Research in Archaeology 3 s.h.

113:261 Rhetorics of Ethnographies 3 s.h.

113:262 Environmental Archaeology 3 s.h.

113:263 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.

113:265 History of Archaeology 3 s.h.

113:266 The Arts, Their Predecessors, and Their Contemporaries 3 s.h.

113:267 Anatomy, Prehistory, and Cultural Evolution 3 s.h.

113:268 Seminar: Archaeological Theory and Method 3 s.h.

113:269 Seminar: Archaeological Theory and Method 3 s.h.

113:270 Reading Social Structure 3 s.h.

113:271 Hunter-Gatherer Ethnoarchaeology 3 s.h.

113:272 Survey of the archaeology and ethnology of Roman civilization from Iron Age eighth century occupation of the Palatine Hill to the end of the Roman empire in the A.D. 476. Same as 20:194.

113:273 Paleoethnobotany 3 s.h.

113:274 Advanced Field Research in Anthropology 3 s.h.

113:275 Development Policy and Planning in the Third World 3 s.h.

113:276 Post-Processual Archaeology 3 s.h.

113:277 Cemetery 1 Seminar 1 s.h.

113:278 underground archaeology, anthropological, cultural studies adaptations; Durkheim, Influential modern/postmodern French scholars and their perspective; emphasis on investigation of gender, rising importance of women investigators; human evolution, rise of the state, division of labor, social stratification in prehistory. Consent of instructor required. Same as 131:156.

113:279 Field Research in Archaeology 3 s.h.

113:280 Reading and Writing Ethnography 3 s.h.

113:281 Seminar: Anthropological Theory 3 s.h.

113:282 Seminar: Feminist Anthropology 3 s.h.

113:283 Seminar: Feminist Ethnography 3 s.h.

113:284 Seminar: SocioCultural Anthropology 3 s.h.

113:285 Seminar: Biological Anthropology 3 s.h.

113:286 Evidence and Other Realities 3 s.h.

113:287 Reading French Theorists 3 s.h.

113:288 Primate Behavior, Ecology, and Evolution 3 s.h.

113:289 Special Topics in Archaeology 3 s.h.

113:290 Feminist Perspectives on Biology and Culture 3 s.h.

113:291 Seminar: Anthropological Theory 3 s.h.

113:292 Seminar: Feminist Anthropology 3 s.h.

113:293 Seminar: Paleoanthropology 3 s.h.

113:294 senior seminar 1 Seminar 1 s.h.

113:295 Seminar: Paleoanthropology 3 s.h.

113:296 Seminar: Anthropological Theory 3 s.h.

113:297 Seminar: Anthropological Theory 3 s.h.

113:298 Seminar: Anthropological Theory 3 s.h.

113:299 Seminar: Anthropological Theory 3 s.h.

113:300 Seminar: Anthropological Theory 3 s.h.
113:172 Language and Culture 3 s.h.
Language in relation to organization, variation, change in culture and society; origins and role in human evolution. Prerequisite: 113:171; or introductory course in linguistics and general social/cultural anthropology; or consent of instructor required. Same as 103:170.

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. See 113:170. Grading: A, B, C, D, F.

113:174 Ethnography of Communication 3 s.h.
Anthropological study of cultural patterning in communication; survey of historical and theoretical development of field; current theoretical issues, ethnographic case studies; emphasis on ethnography of speaking and verbal art. Open only to graduate students or to others with consent of instructor.

113:191 Structure of Mayan Languages 3 s.h.
Grammar; may include historical, social, cultural perspectives. Consent of instructor required. Same as 103:191.

113:271 Seminar: Anthropological Linguistics 3 s.h.
Same as 103:220.

Individual Recording and Research

113:176 Honors Research 2-4 s.h.
Project chosen in consultation with honors advisor. May be repeated.

113:181 Independent Study 3-5 s.h.
Consent of instructor required.

113:383 Independent Study: Anthropology 3 s.h.
Same as 103:383.

113:384 Research: Anthropology 3 s.h.

113:385 Thesis 3 s.h.

**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 foundation in related topics of theoretical mathematics. The individual programs also provide sufficient knowledge in a particular science to enable students to use mathematical techniques in that science.

Students can arrange their study plans to earn a master’s degree from a science or a mathematics science to enable students to use mathematical techniques in that science.

**Comprehensive Examinations**

Ph.D. comprehensive examinations cover three areas: theoretical foundations in mathematics, methods of application, and the chosen scientific 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.

**Assistantships, Application for Admission**

Research and teaching assistantships are available to qualified applicants. Support for students as research assistants is available during the summers. Applications for fall semester admission and for financial support should be received by March 1. For application forms and more information about the academic program, write to the chair of the Program in Applied Mathematical and Computational Sciences, The University of Iowa, Iowa City, Iowa 52242.

**Courses**

22A:399 Reading and Research 3 s.h.
Consent of adviser required.

**ART AND ART HISTORY**

**Director:** Craig E. Adcock

**Professors:** Keith Achenohl, Wayne Begley, Hans Breder, Chungli Choo, Richard De Puma, John Dilg, Peter Feldstein, Stephen Foster, Charles Hineks, Hsiung-Hua, Banny McBride, Virginia Myers, Joseph Patrick, Steven Prokopoff, Christopher Roy, Stephen Schulz, Wallace J. Tomassini, George Walker

**Professors emeriti:** Margaret A. Alexander, Robert L. Alexander, Byron Burford, Charles D. Cuttler, S. Carl Fracassini, Sue E. Hettmansperger, Mauricio Lasansky, James Lechay, Eugene Ludins, Howard Rogovin, Julius Schmidt, John H. Schulze, Norval Tucker

**Associate professors:** Ronald Cohen, David O. Dunlap, Robert Glasgow, Ab Gratama, Dorothy Johnson, Ann Roberts, Robert Rorex, John Scott, James Snitzer, Margaret Stratton

**Adjunct associate professors:** Tim Barrett, Estera Milman

**Assistant professors:** Deborah Boardman, William Dewey, Joni Kinsey, Erin Stack, Steve Thunder-McGuire

**Undergraduate degrees:** B.A., B.F.A. in Art, B.A. in Art History; minors 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

Established in 1936, the School of Art and Art History continues to provide a creative, multidisciplinary environment for students of the studio arts, the history of art, and art education. Firmly grounded within the College of Liberal Arts, the school 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, art historians, 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 questioned and interpreted by artists are the basis for an artist’s work. The diversity of concept and style among 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 the history of art.

Working within and studying the broad context out of which art is made, understood, and used by society prepares graduates in studio art to continue work in an academic setting as well as in museums, galleries, and a multiplicity of 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 and video art, metalsmithing and jewelry, painting, photography, printmaking, or sculpture.

Art History

The history of art, a discipline of intellectual richness and breadth, is central to the humanities. An exciting diversity of methodological approaches characterizes the program, which has developed strong interdisciplinary ties within and beyond the University. The primary mission of the program is to provide students with the tools to explore 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 thinking and research skills, it prepares students for graduate work in the history of art as well as other professional fields. Graduate students prepare for careers in college and university teaching and research or museum work. Ph.D. students acquire expertise in one of the following fields: African, American, ancient, Asian, baroque, medieval, nineteenth century, Renaissance, and twentieth century.

Art Education

The art education major prepares undergraduate and graduate students for licensure/certification to teach art in grades K-12. Because teaching, like art making, is informed by experience, the art education area has established one of the nation’s most extensive pre-service teaching programs. Students conduct case studies of individuals making and responding to art, observe in 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 arts to prepare for positions as teachers in museums, colleges or universities, or as art administrators.

Undergraduate Programs

Bachelor of Arts in Art

The undergraduate program in art 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. degree and pursue a broad-based knowledge in at least six areas of studio art. Especially talented students may transfer into the B.F.A. program. Application for such transfer normally should be 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.

B.A. students in art must earn at least 74 semester hours of credit in non-art courses. Cross-listed courses originating in the School of Art and Art History may not be counted as non-art electives.

The B.A. in art with an emphasis in art history is being discontinued and will not be awarded after August 1995. The requirements for this program are listed in the 1992-94 General Catalog. Students interested in art history should consider the B.A. in art history described below.

The B.A. in art requires the following courses and credits in art.

Two art history courses chosen from:

1H:2 Art of Africa, Oceania, and Pre-Columbian America (Students who declared a major in Art and completed 1H: 1 before August 1994 may use that course in place of 1H:2.)
1H:5 Western Art and Culture before 1400
1H:6 Western Art and Culture after 1400
1H: 16 Asian Art and Culture
Two additional art history courses

Three studio courses:
1A: 1-2 Colloquium
1A:3 Basic Drawing
1A:4 Basic Design
Any two of the following courses:
1C:60 Ceramics I
1G:84 Introduction to Metalsmithing and Jewelry
1J:90 Intermedia I
1N:15 Undergraduate Sculpture I
Two beginning courses are required, one each from two different studio areas:
1D:21 Problems in Design I–Form and Structure
1D:28 Graphic Design I
1E:7 Life Drawing I
1K:9 Painting I
1L:34 Beginning Photography
1M:21 Undergraduate Intaglio and Relief I
1M:31 Undergraduate Lithography
Electives, selected only from courses that originate in the School of Art and Art History, must bring the total number of credits in art history, studio art, and art education to a minimum of 38 semester hours. No more than 50 semester hours of credit in the combined art history, studio art, and art education courses may be counted toward the 124 semester hours required for the degree.

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

Undergraduate transfer students majoring in art must, during their first week in residence, show a portfolio of their art to a faculty review committee, which will determine students’ placement in, or exemption from, the sequence of basic studio courses.

Art Education

Students seeking licensure/certification in art education must complete the requirements for the B.A. degree in art. In addition to the general requirements for teacher licensure/certification (see the College of Education section of the Catalog), students must satisfy the following requirements.

1E:196 Concepts in Art Education 3 s.h.
1E: 198 Art Education Studio 3 s.h.
7E:143 Methods: Art 3 s.h.
7S: 105 Advanced Methods: Art 3 s.h.
7S:187 Seminar: Curriculum and Student Teaching 3 s.h.
7E: 192 Special Area Student Teaching 6 s.h.
7S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.

Students may elect to take 1E:230 Art Education and the Museum, for 3 semester hours.

Minor in Art

A minor in art requires 15 semester hours in art courses with a minimum grade-point average of 2.00. At least 12 of these hours must be in advanced-level art studio courses taken at The University of Iowa (those numbered 100 and above, plus 1K:49, 1M:22, and 1N:17).

Bachelor of Arts in Art History

Engaged as it is in problems of historical analysis and the interpretation of culture, the history of art offers undergraduate students a broad background in the humanities consistent with a liberal arts degree. The program is also designed to prepare students for competitive placement in ranking graduate schools across the country. The course of study is geared toward identifying the range of questions the discipline of art history asks about works of art and how art historians seek answers. As they progress through the program, students become familiar with the historical relationship between art making and social criticism, formal and technical aspects of objects, patronage and cultural context, iconography and meaning, and other topics of current discourse in art history, while exploring the relationship of art history to cultural studies and other related fields. In the process, undergraduate students are trained to sharpen their critical faculties, research methods, and theoretical skills.

The B.A. in art history requires the following courses and credits, for a total of 43-44 semester hours.

1H:5 Western Art and Culture before 1400 3 s.h.
1H:6 Western Art and Culture after 1400 3 s.h.

One course chosen from:

1H:1 Concepts and Context: Art and Culture 3 s.h.
1H:2 Art of Africa, Oceania, and Pre-Columbian America 3 s.h.
1H:4 Masterpieces: Art and Cultural Paradigms 3 s.h.
1H:13 Islamic Art and Civilization 3 s.h.
1H:16 Asian Art and Culture 3 s.h.
Four courses chosen from:

1H:20 Introduction to African Art 3 s.h.
1H:26 Introduction to Ancient Art 3 s.h.
1H:30 Introduction to East Asian Art 3 s.h.
1H:40 Introduction to Medieval Art 3 s.h.
1H:47 Introduction to Renaissance Art 3 s.h.
1H:53 Introduction to Baroque Art 3 s.h.
1H:62 Introduction to Twentieth-Century Art 3 s.h.
1H:63 Introduction to Twentieth-Century Art 3 s.h.
1H:66 Introduction to American Art 3 s.h.

Four courses chosen from 1H:103 through 1H:196 12 s.h.
1H:199 Topics in Art History 3 s.h.
1H: 10 Freshman and Sophomore Tutorial: Introduction to the History of Art 4 s.h.
or
1H:99 Undergraduate Seminar in the History of Art (normally in junior or senior year) 3 s.h.

Studio courses 4 s.h.

No more than 30 semester hours of credit in the combined areas may be counted toward the 124 semester hours required for the degree.

NON-ART HISTORY CREDIT

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 advisers, for a total of 12 semester hours.

Transfer Students

Transfer students planning to major in art history should meet with the faculty undergraduate adviser in art history to discuss the requirements that have been fulfilled by transfer courses.

Minor in Art History

A minor in art history requires 15 semester hours of courses in art history, with a minimum grade-point average of 2.00. Twelve of the 15 semester hours must be taken in advanced-level courses at The University of Iowa. These include courses numbered 1H:20 and above. It is strongly recommended that students planning a minor in art history take at least one of the five survey-level courses (1H:2, 5, 6, 13, 16).

Bachelor of Fine Arts in Studio

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 semester hours 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.

The B.F.A. requires that the 124 semester hours needed to graduate include 62 semester hours from courses taken outside the School of Art and Art History and 62 semester hours in School of Art and Art History courses.

In addition to the General Education Requirements (see the College of Liberal Arts section of the Catalog) and major requirements listed above for the B.A. degree in art, the B.F.A. candidate must complete three courses in a studio area of concentration beyond the fundamental course, and must complete at least the second semester of course work in each of two additional studio areas.

Art education majors in the B.F.A. program must meet the same teacher licensure/certification requirements and certification requirements as do students in the B.A. program.

Honors

Art and art history majors who are members of the University Honors Program may enroll in the honors program of the School of Art and Art History.

To earn a degree with honors in art history, the student must complete the requirements for the B.A. in art history with a grade-point average of 3.50 in art history courses. The student must prepare a thesis of 20 to 40 pages on a topic that has been determined in consultation with a faculty adviser; 3 semester hours credit may be awarded for the thesis, taken as 1H:190 Honors Research in Art History. The thesis should conform to the Graduate College format for theses and be read by and defended before a faculty committee.

Honors students in studio must maintain a minimum grade-point average of 3.50 in studio courses, hold an exhibition of their studio work, and prepare a statement of the sources of the exhibited studio work. The statement may be based on the history of art, history of ideas, philosophy, and so forth written under the supervision of faculty in the student's studio concentration area. Registration for the course of individual instruction that leads to the exhibition and related statement may be for 3 semester hours of credit.

Graduate Programs

Master of Arts in Art

The school offers the M.A. in art with majors in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, or sculpture. M.F.A. candidates must have an M.A. degree in art equivalent to that offered at The University of Iowa; a minimum of 60 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 6 semester hours in a minor studio field selected from the fields listed above, 9 semester hours in art history and theory of art, and 8 semester hours in courses originating outside the school; clearance for M.F.A. candidacy by faculty reviews; and studio and written theses.

One hour of credit for the written thesis can be earned by registering for 1A:304, with approval of the adviser.

Thesis credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.

Master of Fine Arts in Art

The school offers the M.F.A. with a major in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, or sculpture. M.F.A. candidates must have:

- an M.A. degree in art equivalent to that offered at The University of Iowa;
- a minimum of 38 semester hours of graduate credit, including 18 semester hours of studio and art history in a ratio of two to one (either 12 semester hours of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history), 8 semester hours in graduate seminars in art education, and 12 semester hours to be specified after the student begins the program; and
- a written thesis based on research in art education or art history, or a studio thesis accompanied by a brief statement of the student’s technical, aesthetic, and/or psychological approach, and clearance for M.A. candidacy by faculty review.

One hour of credit for the written thesis can be earned by registering for 1A:302, with approval of the adviser.

Art majors may elect to take art history courses on a satisfactory-unsatisfactory basis. Graduate students who have not had drawing at The University of Iowa must take at least one drawing course during the first year.

A student preparing to teach in both the studio and art history areas may complete an art history minor of 15 semester hours, including 1H:200 Historiography and Methodology of Art History and one other seminar. These hours are in addition to the University’s undergraduate requirement for an art history major and, in combination with the undergraduate hours, must satisfy the distribution requirement for art history.

Master of Fine Arts in Art

The school offers the M.F.A. with a major in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, or sculpture. M.F.A. candidates must have:

- an M.A. degree in art equivalent to that offered at The University of Iowa;
- a minimum of 60 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 6 semester hours in a minor studio field selected from the fields listed above, 9 semester hours in art history and theory of art, and 8 semester hours in courses originating outside the school; clearance for M.F.A. candidacy by faculty reviews; and studio and written theses.

One hour of credit for the written thesis can be earned by registering for 1A:304, with approval of the adviser.

Thesis credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.

Master of Arts in Art Education

Requirements for the M.A. in art education are:

- a B.A. or B.F.A. in art equivalent to that offered at The University of Iowa;
- teaching licensure/certification in art;
- completion of 38 semester hours of graduate credit, including 18 semester hours of studio and art history in a ratio of two to one (either 12 semester hours of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history), 8 semester hours in graduate seminars in art education, and 12 semester hours to be specified after the student begins the program; and
- a written thesis based on research in art education or art history, or a studio thesis accompanied by a brief statement of the student’s technical, aesthetic, and/or psychological approach, and clearance for M.A. candidacy by faculty review.
Art education majors who elect to do a studio thesis and who have not had drawing at The University of Iowa are required to take at least one drawing course, selected from the school’s regularly scheduled drawing courses, during the first year in residence.

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

Master of Arts in Art History

The M.A. program in the history of art provides students with training in diverse methodologies appropriate to subsequent specialization in the field. Students explore a number of different issues and vocabularies specific to the field’s major areas, thus acquiring a broad knowledge of art history. Because the M.A. culminates in a scholarly thesis or in-depth research paper in the candidate’s chosen area of focus, evidence of proficiency in research design and scholarly writing is prerequisite to graduation. Qualified candidates whose academic credentials include extensive training in art history may apply for entrance into the specialized area studies master’s program. M.A. students wishing to apply for direct entry into the Ph.D. program should refer to “Admission through Direct Entry” under “Graduate Admission” in this section of the Catalog.

To earn the M.A. in the history of art, students must complete a minimum of 30 semester hours of graduate-level course work with a grade-point average of 3.50 or higher. Only one semester of academic probation is allowed. Transfer students should note that the minimum residence requirement for the M.A. degree is 24 semester hours.

Requirements include the following:

- 1H/200 Historiography and Methodology of Art History 3 s.h.
- Two art history seminars (with different instructors) 6 s.h.
- Additional art history courses 14-21 s.h.
- Studio courses 0-6 s.h.
- Courses outside the School of Art and Art History 0-9 s.h.

Included within the art history courses and seminars offered for the degree must be semester-long post-B.A. courses in at least five of the following areas: African, American, ancient (to 300 A.D.), Asian, baroque, medieval (300-1500 A.D.), nineteenth century, Renaissance, and twentieth century. Students must earn an A or B in each of these courses.

The historiography and methodology proseminar is taken during the first fall semester the student spends in residence. Credit for graduate seminars can be applied toward the five-area distribution requirement if the student has earned a grade of B or higher in an undergraduate- or intermediate-level course in the same area during his or her undergraduate career. Students are expected to have 6 semester hours of studio training at either the undergraduate or graduate level, but they may petition to substitute courses in other fields, such as history or literature. M.A. candidates who majored in art history as undergraduates are strongly encouraged to take courses outside the School of Art and Art History.

Within the first 20 semester hours of graduate study, students must demonstrate an ability to read art history writings in an appropriate foreign language. This requirement may be fulfilled either by satisfactory completion of the second semester of a graduate-level reading-for-research language course or by a grade of B or higher for the fourth semester of an undergraduate language. Language requirements are normally fulfilled with German and French. With the advice of faculty advisers, however, students may petition to substitute other languages when their areas of concentration so warrant. Prior to graduation, M.A. candidates must complete either a written thesis, for which 3 semester hours of course credit may be allowed, or a substantial research paper.

Specialized Area Studies Master’s Program

The school also offers a specialized area studies program on the M.A. level. Formal approval to enter this program is based on the student’s background, intentions, and seriousness of purpose and requires that the candidate demonstrate potential for outstanding work in the area of his or her specialization.

To encourage in-depth work, students are expected to concentrate on major and related minor areas of focus, areas that must be identified prior to the students’ acceptance into the specialized area studies program. Emphases may be amended only with the consent of the major and minor advisers. Students consult with their faculty advisers to choose appropriate courses in related areas offered by other departments.

This program of study is concluded by the presentation of a written thesis, a three-hour major written exam, a one-and-a-half-hour minor written exam, and oral exams covering both the major and minor areas. Acceptance into the specialized area studies program does not change students’ normal obligations to the historiography and methodology proseminar, language, and seminar requirements.

Doctor of Philosophy in Art History

The Ph.D. degree is indicative of acquired expertise in a chosen area of specialization. Candidates are expected to contribute to the field of art history through the realization of original research that responds to issues deemed critical to current discourse within their field of concentration.

Degree Requirements

To earn a Ph.D. in art history, students must complete a minimum of 72 semester hours of graduate-level course work with a grade-point average of 3.50 or higher; a maximum of 38 semester hours of work taken for the M.A. may be applied to satisfy this requirement. Students are allowed only one semester of academic probation. The following course distribution is required.

- Two art history seminars (different instructors) 6 s.h.
- Additional art history courses 18-30 s.h.
- (UP to six semester hours of credit for dissertation research may be applied toward the satisfaction of this requirement.)
- Courses outside the School of Art and Art History 0-12 s.h.

Upon the successful completion of appropriate course requirements, a six-hour comprehensive examination in the major field and a three-hour examination in a related minor area are scheduled, followed by an oral examination. In consultation with the student’s Ph.D. advisor, minor fields may be selected from disciplines outside art history; for example, religion, history, literature, philosophy, or anthropology. The completion of a written dissertation on a topic that constitutes an original scholarly contribution to the field and the successful oral defense of this research are the final requirements for the Ph.D.

Doctor of Philosophy in Art Education

The Ph.D. 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.

Degree Requirements

Students must complete at least 60 semester hours of graduate work beyond the M.A. The curriculum must be planned with the adviser and must include at least 15 semester hours in the School of Art and Art History, 15 semester hours in art education graduate seminars, 15 semester hours in a related area (e.g., aesthetics, anthropology, higher education, psychology, sociology), and 15 semester hours in thesis and tool courses (7S:306 or 7E: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 semester hours 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.
Graduate Admission

Acceptance into the graduate program in art and art history requires admission into the Graduate College of The University of Iowa as well as admission to the School of Art and Art History. Decisions regarding admission and assistantships cannot be confirmed until applicant files are complete.

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

Applicants whose native language is not English must take and pass the Test of English as a Foreign Language (TOEFL), 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. A minimum TOEFL score of 530 is required for admission to the studio program; a minimum score of 600 is required for art history. The examination is given at various times of the year and in many centers worldwide. Inquiries should be addressed to the TOEFL Educational Testing Service, Princeton, New Jersey 08541.

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);
- 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 Aptitude Test scores with their application for admission, in accordance with the appropriate application deadlines. Studio or art education applicants who do not submit GRE Aptitude Test scores at the time of application must do so during their first semester in residence. In addition, applicants must meet the following graduate application requirements for the particular programs for which they seek admission, as follows.

STUDIO ART

Admission procedures for graduate studio programs include a committee review of applications and all of the applicant's supporting material. Complete application materials for graduate degrees in studio art must be on file in the School of Art and Art History by March 1 for the summer and fall terms, October 1 for the spring term. An on-campus interview is recommended.

Applicants must submit to the School of Art and Art History a one-page statement of purpose and three letters of recommendation assessing their potential as a graduate student. They also must submit one of the following portfolios. (Portfolios will be returned by mail only if return postage is supplied by the applicant.)

Drawing: eight slides or photos, including figure drawings, and two 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.

Sculpture: a selection of slides that include examples of work in at least one other area of competence.

Painting, Intermedia, Metalsmithing and Jewelry, Design, and Ceramics: all require submission of 8 slides and/or photos of work in the major area and 2 slides or photos of work in a second studio area.

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

ART HISTORY

At least 18 semester hours of undergraduate work in art history are recommended for applicants to the M.A. program in art history. Evidence of proficiency in at least one foreign language, satisfied by completion of the equivalent of two years of undergraduate level courses, is prerequisite to admission.

Although exceptions are sometimes made on the basis of the quality of one's undergraduate education or other relevant factors, applicants should have GRE Aptitude Test scores of at least 1800 combined verbal, quantitative, and analytic and an undergraduate grade-point average of at least 3.25 on a 4.00 scale.

Applicants must submit to the School of Art and Art History a one-page, single-spaced statement of their conception of the field, which outlines their purpose in pursuing graduate studies, and three letters of recommendation assessing potential as a graduate student. They also must submit a term paper or undergraduate thesis indicative of their ability to write in the field.

Applicants for admission to the Ph.D. program in art history must possess an M.A. in art history, or a related graduate degree. In addition, the admission materials required by the Graduate College, applications should include a copy of a thesis or other in-depth research paper; a one-page, single-spaced statement of the applicant's purpose in pursuing graduate studies, which describes their conception of their specific area of concentration; and three letters of recommendation, including one from the applicant's M.A. thesis adviser. Although exceptions may be made on the basis of quality of prior education or other relevant factors, applicants should have GRE Aptitude Test scores of at least 1800 combined verbal, quantitative, and analytic, and a graduate grade-point average of at least 3.50 on a 4.00 scale.

Students who have completed their M.A. degrees at The University of Iowa and who wish to apply for entrance into the Ph.D. program should note that their applications will be reviewed alongside those of applicants from outside institutions. Evidence of proficiency in at least two foreign languages, satisfied by 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, is prerequisite to admission.

Completed applications for the M.A. or Ph.D. program and requests for financial aid must be submitted to the Graduate College by February 1.

Admission through Direct Entry

A graduate student pursuing an M.A. in the history of art at The University of Iowa may apply at any time to enter the Ph.D. program directly, without first acquiring an M.A. degree. Following consultation with major and minor area faculty advisers, students who wish to exercise this option must submit a letter of intent and statement of purpose to the head of the art history division, along with a significant research paper in art history.

Students may apply for this option only twice. If the second application fails, they must complete the M.A. before again applying for admission to the Ph.D. program through regular art history admission procedures detailed above.

ART EDUCATION

Applicants must submit to the School of Art and Art History a one-page statement of purpose and three letters of recommendation assessing potential as a graduate student.

Applicants to the M.A. graduate 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, students must meet the Graduate College’s general admission requirements for doctoral students and must have an M.A. degree 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 School of Art and Art History by March 1 for summer or fall admission; by October 1 for spring admission.

Fellowship, Assistantships, and Scholarships

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.
which gives faculty members an opportunity to observe their performance and potential.

Special Resources

Reference Collections

The art library contains 80,000 volumes, an outstanding periodical collection, and an extensive microfilm and microfiche archive. The school's Office of Visual Materials contains 255,000 slides, 80,000 photographs, a videotape library, and a videodisc facility that includes an extensive videodisc of African Art.

Museum of Art

The University's Museum of Art has a significant permanent collection that includes major holdings of contemporary art, African art including the Stanley Collection, European and American prints, drawings, and photographs, and Etruscan and Iranian pottery. 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

In the studio area, collogia, visiting artists programs, and graduate workshops bring in visitors and provide open forums for the discussion of alternative concerns.

The school's Program for Modern Studies embraces the Fine Arts Dada Archive and Research Center and Alternative Traditions in the Contemporary Arts. It has become one of the best known centers of modern art historical research in the United States. Responsible for symposia, exhibitions, scholarly catalogs and anthologies, and national and international collaborative research and collections, the program gives students outstanding opportunities to work on projects with distinguished scholars from a variety of fields and institutions. As part of the modern studies teaching program, faculty address a diversity of perspectives to annually designated topics central to the problematic of modernism. These coordinated course offerings are designed to allow undergraduate and graduate students in residence to make long-term plans for in-depth work in an area and to permit students enrolled in other programs to come to Iowa for an intense period of study.

Among the school's major assets is the Project for 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 and outstanding breadth and depth of expertise. PASALA is among the most active of such programs in the country, organizing annual 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. The major asset of PASALA is the Stanley Collection of African Art in the University of Iowa Museum of Art, a large collection of exceptional quality that is the focus of study by students in Iowa's African Studies Program.

The school also maintains an affiliation with the University's American Studies Program 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 30 individual studios for painting and drawing graduate students in a separate building; a well-equipped darkroom; 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 typography studio; and video equipment.

Courses

Art History

Primarily for Undergraduates

I H: Concepts and Context: Art and Culture 3 s.h.
Concepts that informed the making of particular works of art; historically specific contexts to which groups of artists respond. GER: humanities.

I H: Art of Africa, Oceania, and Pre-Columbian America 3 s.h.
Traditional arts of Black Africa, the Pacific, the Americas before European conquest. GER: humanities.

I H: Masterpieces: Art and Cultural Paradigms 3 s.h.
Architecture, painting, sculpture in cultural context. GER: humanities.

I H: Western Art and Culture before 1400 3 s.h.
Art, its creation, culture of prehistoric, ancient, medieval periods. GER: foreign civilization and culture, historical perspectives.

I H: Western Art and Culture after 1400 3 s.h.
M, artists, culture from Renaissance to present. GER: foreign civilization and culture, historical perspectives.

I H: Introduction to the History of Art 4 s.h.
Introduction to the history of art. GER: humanities.

I H: Art and Architecture of Islam 3 s.h.
Historical approach. GER: foreign civilization and culture, historical perspectives.

I H: Asian Art and Culture 3 s.h.
India, China, Southeast Asia, Japan. GER: foreign civilization and culture, historical perspectives. Same as 39:16.

I H: Introduction to African Art 3 s.h.
M, architecture of Mediterranean civilizations from Minnow times to age of Constantine. Same as 14:26.

I H: Introduction to East Asian Art 3 s.h.
History of visual arts of China, Korea, Japan; chronological and geographical approaches; emphasis on understanding the arts within cultures producing them. Prerequisite: 1H:16 or 38:16 or equivalent or consent of instructor. Same as 39:30.

I H: Introduction to Medieval Art 3 s.h.
M, architecture in Europe from 300 to 1400 A.D.

I H: Introduction to Renaissance Art 3 s.h.
M, architecture in Europe from early Renaissance to 1600.

I H: Baroque Art 3 s.h.
M, architecture in Europe from 1600 to 1750.

I H: Introduction to Nineteenth Century Art 3 s.h.
Major European artists, works, movements; aesthetic theories from late 18th century to 1950; works in their aesthetic, cultural, intellectual, political contexts; boundaries, definitions of movements such as Neoclassicism, Romanticism, Realism, Impressionism, Post-Impressionism, Symbolism.

I H: Introduction to Twentieth Century Art 3 s.h.
Historical, context specific artistic responses to modernism. European, North American, Latin American developments in traditional genre, temporal arts, artistic action; art's relationship to culture.

I H: American Art 3 s.h.
Architecture, painting, photography, sculpture from colonial times to present. GER: humanities.

I H: Undergraduate Seminar in the History of Art 3 s.h.
Characteristic problems, methodological issues, critical thinking and writing.

For Undergraduates and Graduates

Art introductory course in the appropriate art history area or permission 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.

I H: Themes in African Art 3 s.h.
Current topics organized thematically rather than chronologically. May be repeated.

I H: Art of the South Pacific 3 s.h.
Traditional arts of Polynesia, Micronesia, Melanesia.

I H: American Indian Art 3 s.h.
Sculpture, painting, architecture, crafts, arts of personal adornment of native peoples of North America.

I H: Art of Pre-Columbian America 3 s.h.
Architecture, of Mexico, Peru before C.E.

I H: Art of West Africa 3 s.h.
M of western Sudan, Guinea coast. Same as 129:107, 141:107.

I H: Art of Central Africa 3 s.h.
M of equatorial forest, southern Savanna. Same as 129:110, 141:108.

I H: The Arts of the African Diaspora 3 s.h.
Aesthetic, philosophical, religious patterns of African descendants of Brazil, Surinam, Caribbean, the United States.

I H: Egyptian Art 3 s.h.
Sculpture, painting, architecture, minor arts from close of Stone Age to Classical times. Same as 32:104. Prerequisite: 1H:5 or consent of instructor.

I H: Art of Southern and Eastern Africa 3 s.h.
Scultpure, painting, minor arts of continent from Stone Age to present. Same as 32:104. Prerequisite: 1H:5 or consent of instructor.

I H: Art and Archaeology of Ancient Africa 3 s.h.
Prehistoric rock art, Ance, Nok, Igbo Ukwu, Sanga, Ife, Benin. Great Zimbabwe. May be repeated. Prerequisite: 1H:4 or 1H:20 or consent of instructor. Same as 14:1 112.

I H: Art of Islam 3 s.h.
Architecture, painting, minor arts in Spain, North Africa, Egypt, Syria, Israel, Coen, Iran, Afghanistan, India, from 650 to 1800 A.D. Same as 32:168.

I H: Buddhist and Hindu Iconography 2-3 s.h.
Historical development of religious imagery in India, Central and Southeast Asia, China, Japan. Same as 32: 181.
Art and Art History  Liberal Arts 85

IH:240 Proseminar in Medieval Art 3 s.h.
Monuments, historiography, methods of medieval art history.

IH:245 Proseminar in Renaissance Art 3 s.h.
Monuments, historiography, methods.

IH:243 Proseminar/Twentieth-Century Art 3 s.h.
Historiography, methods of twentieth-century art historical studies. May be repeated. Consent of instructor required.

IH:265 Proseminar in American Art 3 s.h.
Historiography, problems in American art. Prerequisites: 1H:106, 1H:166, and 1H:167 or consent of instructor.

IH:300 Directed Studies arr.


IH:310 Seminar Problems in African Art 2-3 s.h.
May be repeated. Same as 39:255.

IH:316 Seminar Problems in Asian Art 2-3 s.h.
Current issues. May be repeated. Same as 39:256.

IH:326 Seminar Problems in Ancient Art 3 s.h.
May be repeated. Same as 39:210.

IH:340 Seminar: Problems in Medieval Art 3 s.h.
Major issues, methodologies.

IH:345 Seminar: Problems in Renaissance Art 3 s.h.
Special problems. Issues. May be repeated.

IH:353 Seminar: Problems in Baroque Art 3 s.h.
May be repeated.

IH:359 Seminar: Problems in Nineteenth-Century Art 3 s.h.
May be repeated.

IH:362 Seminar: Twentieth-Century Art 3 s.h.
May be repeated. Consent of instructor required.

IH:366 Seminar: Problems in American Art 3 s.h.
May be repeated.

IH:400 Ph.D. Readings arr.


IH:405 Ph.D. Seminar arr.
Intensive consideration of topics for dissertation students. May be repeated.

Studio
Courses numbered through 99 are primarily for undergraduates and may not be repeated for credit except where indicated. Courses numbered 100-199 may be repeated.

Fundamentals
IA:1 Colloquium 1 s.h.
Problems m visual arts. Offered fall semesters. Open only to majors.

IA:2 Colloquium 1 s.h.
Offered spring semesters. Open only to majors. Continuation of IA: 1.

IA:3 Basic Drawing 2 s.h.
Two-dimensional visual language, media, space, form; color. Open only to majors. Corequisite: 1A:1 or 1A:2.

IA:4 Basic Design 2 s.h.
Two- and three-dimensional concepts and their relations; working with basic drawing instruments. Open only to majors or others with consent of instructor. Corequisite: 1A:1 or 1A:2.

IA:302 M.A. Written Thesis 1 s.h.
Consent of instructor required.

IA:304 M.F.A. Written Thesis 1 s.h.
Consent of instructor required.

Elements
IB:1 Elements of Art 2 s.h.
Drawing, composition, lected reading. Open only to studio nonmajors.

IB:2 Elements of Art 2 s.h.
Continuation of IB:1; emphasis on color. Open only to studio nonmajors. Prerequisite: IB: 1.

IB:101 Individual Instruction in Elements of Art arr.

Ceramics
IC:50 Ceramics I 2 s.h.
Basic handbuilding methods of forming, firing, glazing clay.

IC:61 Ceramics II 2-3 s.h.
Basic wheel throwing techniques; clay, glaze formulation and preparation in kiln firing. Prerequisite: IC:60 or equivalent.

IC:170 Ceramics III 3 s.h.
Advanced throwing techniques; larger scale, more professional goals; projects may be more sculptural or one of a kind. Consent of instructor required. Prerequisites: IC:60 and IC:61.

IC:171 Ceramics IV 3 s.h.
Advanced individual projects. Consent of instructor required. Prerequisite: IC:170.

IC:172 Ceramic Materials and Effects 1-2 s.h.
Empirical, practical methods of glaze and body formulation; effects of various types of kilns and firing atmospheres on glaze materials, clay bodies. Consent of instructor required. Prerequisite: IC:170 or equivalent.

IC:174 Kiln Construction I-2 s.h.
Kiln theory, design, construction methods. Consent of instructor required. Prerequisite: IC:170 or equivalent.

IC:270 Individual Instruction in Ceramics arr.

IC:275 Ceramics Workshop arr.
Advanced graduate studio; critique of student work; visiting artists, field trips. Consent of instructor required. Prerequisite: IC:171 or equivalent.

Design
ID:21 Problems in Design I-Form and structure 2 s.h.
Materials, their formal and structural possibilities. Prerequisite: IA:4.

ID:22 Problems in Design II- Form and Function 2 s.h.
Products and how they are designed; modeling, graphic skills necessary to basic project development. Prerequisite: IA:4.

ID:28 Graphic Design I 2 s.h.
Basic principles, techniques, and applications of graphic design, typography, composition, visual perception; creative problem-solving aspects of graphic design. Consent of instructor required. Prerequisite: IA:4. Same as 108:28.

ID:110 Perspective and Shadow 2-3 s.h.
Theories of perspective, application of their basic principles; one, two, or three-point perspective scale drawings based on analytical specifications; principles of light, shadow, reflecting mirrors.

ID:124 Color Theory 3 s.h.
Exploration of color perception; practical application of basic elements of theories of color. Prerequisite: IA:4; ID:28 recommended.

ID:125 Typography 3 s.h.
Principles and history; designing with type; functional, aesthetic dimensions of typography. Consent of instructor required. Prerequisites: IA:4, ID:28, and ID: 130. Same as 108: 125.

ID:130 Design Seminar 1 s.h.
Current issues, planning of a public lecture series.

ID: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. Consent of instructor required. Prerequisite: ID:28.

ID:135 Graphic Design Workshop arr.
Compiles problems in graphic design; planning, development, organization of integrated design programs. Consent of instructor required. Prerequisites: ID:28, ID:125, and ID: 133.

ID:137 Environmental Design I 3 s.h.
Essential technology employed in architectural, industrial design; human and geographical environmental factors. Consent of instructor required. Prerequisites: ID:21 and ID:22, or equivalents. Same as 49:158.

ID:141 Interior Design I 3 s.h.
Relationship of interior design to its architecture, environment, human element; color, materials, furnishings, lighting; projects. Consent of instructor required. Prerequisites: ID:21 and ID:22.

ID:145 Industrial Design I 3 s.h.
Design related to human factors, methods of manufacture, marketing. Consent of instructor required. Prerequisites: ID:21 and ID:22.

ID:238 Environmental Design II 3 s.h.
Design in relation to human psychology, physiology, to physical environment; to architectural and machine resources. May be repeated. Consent of instructor required. Prerequisite: ID: 137.

ID:240 Individual Instruction in Design arr.
Graduate standing or consent of instructor required.

ID:242 Interior Design II 3 s.h.
Continuation of ID: 141; display design. May be repeated. Consent of instructor required. Prerequisite: ID:141.

ID:246 Industrial Design II 3 s.h.
Design, development of products for mass consumption; emphasis on new developments in technology and materials. May be repeated. Consent of instructor required. Prerequisite: ID: 145.

ID:249 Advanced Problems in Design 3 s.h.
Advanced standing and consent of instructor required. Open only to graduate design majors. Prerequisite: ID: 145.

- Art and Art History -

IF:7 Life Drawing I 2 s.h.
Study of figurative form in its spatial contexts; drawing in varied media. Prerequisite: IA:3.

IF:103 The Media of Drawing 2-3 s.h.
Varied drawing media; development of personal drawing idiom. Consent of instructor required. Prerequisite: IF: 7. or equivalent.

IF: 105 Life Drawing II 3 s.h.
Study of figurative form in its spatial contexts; drawing in varied media. Consent of instructor required. Prerequisite: IF:7 or equivalent. Same as 49: 157.

IF:106 Undergraduate Seminar in Drawing and Painting arr.
Contemporary issues, practical and professional skills, interdisciplinary concerns, education and career goals. Offered fall semesters.

IF:109 Life Drawing III 4 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. Consent of instructor required. Prerequisite: IF: 105.

IF:201 Graduate Drawing 3 s.h.
Compositional drawing as related to the student's major interest; varied media. Prerequisite. 6 semester hours of IF: 105 or equivalent.

IF:205 Individual Instruction in Drawing arr.

Metalsmithing and Jewelry
IG:84 Introduction to Metalsmithing and Jewelry 2 s.h.
Basic metalworking techniques; forming, joining, surface embellishment and anodizing applied to jewelry, hokkoware, flatware, small sculptural forms.

IG:185 Advanced Metalsmithing and Jewelry 3 s.h.
Continuation of IG:84; casting, electroforming. Prerequisite. IG:84 or equivalent.

IG:186 Metalsmithing and Jewelry Workshop arr.
Individual work. Open only to majors and other advanced students. Prerequisites: IG:84 and IG:185.

Intermedia, Video Art
IJ:990 Intermedia I 2-3 s.h.
Interdisciplinary areas; new materials; emphasis on conceptual, environmental, video, performance art.

IJ:100 Intermedia II 2-3 s.h.
Interdisciplinary investigation of materials and concepts in relation to time based arts; performance, video, environments; discussions, individual collaborative projects. Consent of instructor required. Prerequisite: IJ:950.

IJ:305 Video Art 2-3 s.h.
Studio experimentation, individual projects. Consent of instructor required. Prerequisite: IJ:90 or equivalent.

IJ:110 Intermedia Workshop 2-3 s.h.
Projects, critiques, visiting artists and scholars.

IJ:201 Individual Instruction in Intermedia and Video Art arr.
Graduate standing or consent of instructor required.
Painting

1K:9 Painting I 2 s.h.
Emphasis on observational painting, theory and development of pictorial. Pre- or corequisite: 1F:7 or equivalent.

1K:10 Painting II 3 s.h.
Materials, techniques, relationship to a personal painting language. Prerequisite: 1K:9.

1K:46 Intermediate Painting 3 s.h.
Continued discussion of personal painting language as augmented by contemporary issues. May be repeated. Prerequisites: 1K:45 or 1K:10 or equivalents.

1K:49 Advanced Painting 2-3 s.h.
Individual projects as they aid the realization of a personal vision. May be repeated. Prerequisite: 1K:46 or equivalent.

1K:111 Watercolor Painting 3 s.h.
Prerequisites: 1K:9 and 1K:10, or equivalents.

1K:205 Graduate Painting 3 s.h.
Oil, gouache, watercolor, tempera, acrylic, other media. Consent of instructor required. Prerequisite: 1K:49 or equivalent.

1K:206 Graduate Painting: Topics 3 s.h.
Individual painting projects in desired medium; topics vary. Corequisite: 1K:206.

1K:207 Graduate Drawing and Painting Workshops 3 s.h.
Group and individual criticism, team taught. Corequisite: 1K:207.

1K:208 Graduate Drawing and Painting Forum 1 s.h.
Problems and issues of contemporary artists. Graduate standing and consent of instructor required.

1K:215 Individual Instruction in Painting m.
Graduate standing and consent of instructor required.

Photography

1L:34 Beginning Photography 2 s.h.
Camera, light meter, darkroom; history, theory of photography.

1L:101 Intermediate Photography 3 s.h.
Photographic materials, development of personal vision. Prerequisite: IL:34 or equivalent.

1L:105 Advanced Photography 3 s.h.
Projects; alternative photographic techniques, digital imaging, color photography; development of personal vision. Prerequisite: 1L:101.

1L:125 Color Photography 3 s.h.
Basic color printing procedures. Prerequisite: IL:101.

1L:129 Materials and Techniques 3 s.h.
Zone system, studio photography, view camera, or photographic processes; readings. Consent of instructor required. Prerequisite: 1L:101.

1L:134 Silkscreen 3 s.h.
Photographic, non-photographic stencil techniques for silkscreen printing. Consent of instructor required. Prerequisite: 1A:3 or 1A:4 or equivalent. Same as 108:134.

1L:135 Offset Productions Workshop 3 s.h.
Graphic arts techniques for production of postcards, broadsides, visual books on a commercial offset press. Consent of instructor required. Same as 108:135.

1L:231 Individual Instruction in Photography arr.
Consent of instructor required.

1L:236 Graduate Photography Workshop arr.
Projects; group critiques; readings. Consent of instructor required.

Printmaking

1M:21 Undergraduate Intaglio and Relief I 2 s.h.
Concepts, techniques; Renaissance and contemporary ideas, methods; emphasis on metal plate printing, including etching, drypoint, engraving, softground, aquatint.

1M:22 Undergraduate Intaglio and Relief II 3 s.h.
Individual instruction, with emphasis on development of personal visual language; woodcut, metal plate, color prints. May be repeated. Consent of instructor required. Prerequisite: 1M:21 or equivalent.

1M:31 Undergraduate Lithography II 2 s.h.
Fundamental techniques, characteristics of lithography; basic direct drawing, processing, printing of stone and plate images in black and white. Consent of instructor required. Prerequisite: 1F:7 or equivalent.

1M:131 Lithography 3 s.h.
Technical, aesthetic characteristics; basic direct drawing, processing, printing of stone and plate images in black and white. Consent of instructor required. Prerequisite: 1F:7 or equivalent.

1M:132 Advanced Lithography 3 s.h.
Technical, aesthetic aspects; emphasis on color printing reducible image-forming processes. Consent of instructor required. Prerequisite: 1M:131 or equivalent.

1M:141 Monotype 3 s.h.
Historical, technical, aesthetic aspects of unique printed images. Offered fall semesters. Consent of instructor required. Prerequisite: 1F:7 or equivalent.

1M:151 Foil-Stamping I 3 s.h.
Reflective surfaces, color in creation of original prints using Iowa foil printer. Consent of instructor required.

1M:152 Foil-Stamping II 3 s.h.
Creation of editable prints using roll-off, other printmaking techniques. Consent of instructor required. Prerequisite: 1M:151 or equivalent.

1M:160 special workshop in Printmaking 3 s.h.
Issues, themes, or studio practice. Consent of instructor required.

1M:221 Graduate Print Workshops 3 s.h.
Orientation to campus facilities including lithography, intaglio, papermaking; art of the book; mechanics, practice, concepts of printmaking. Consent of instructor required.

1M:222 Graduate Intaglio and Relief 3 s.h.
Concepts, techniques; etching, engraving, drypoint, softground, aquatint, color printing, editing, relief, emphasis on developing personal vision. Consent of instructor required.

1M:250 Individual Instruction in Printmaking arr.

Sculpture

1N:15 Undergraduate sculpture I 2 s.h.
Basic sculptural concepts, processes; emphasis on developing personal ideas, acquiring basic skills and knowledge of materials; spatial, conceptual, technical issues.

1N:16 Undergraduate Sculpture I 3 s.h.
Continuation of In: 15; form, materials and processes, expanding concept development; contemporary sculptural formats, collaborative process. Prerequisite: 1N:15.

1N:17 Undergraduate Sculpture Workshop 3 s.h.
Development of body of work that reflects students' interests; nontraditional materials, processes, individualized instruction, development of critical thinking. Prerequisite: 1N:16.

1N:18 Undergraduate Sculpture in Cast Metal 3 s.h.
Beginning four-year course in processes, problems of cast metal sculpture; moldmaking, gating, casting, pagination in lost wax, ceramic shell and sand (piece molds and open face); approach based on transformation, not duplication of objects. Maybe repeated. Consent of instructor required. Prerequisites: In:15 and In:16.

1N:120 Welding 3 s.h.
Techniques, processes of metal fabrication, including arc welding, oxygen-acetylene welding and cutting, forging, MIG, TIG; ideas relevant to 'drawing in space' and transformation of found objects are stressed beyond technique. Offered fall semesters only. Prerequisite: In: 15.

1N:130 Wood Fabricated Sculpture 3 s.h.
Workshop techniques, their sculptural applications; bend and stack lamination, joinery, construction, finishes. Offered spring semesters. Consent of instructor required. Prerequisites: In: 15 and In:16.

1N:140 Topics in Sculpture 3 s.h.
Projects; reading, specialized conceptual forms and issues in contemporary sculpture, such as public art, installation, performance. Consent of instructor required.

1N:150 Figure Modeling 3 s.h.
Working directly from model in clay, wax, plaster to include armature building, anatomy, drawing from the figure; conceptual approach based on perception, not replication or three-dimensional rendering. Consent of instructor required.

1N:260 Individual Instruction in Sculpture arr.

1N:261 Graduate Sculpture I 3 s.h.
Studio course for graduate sculptors and nonscience graduate students; emphasis on gaining a more profound critical and historical perspective of student's own work and work of peers. Consent of instructor required.

1N:264 Graduate Sculpture Workshop 3 s.h.
Seminar for graduate sculptors and nonscience graduate students; lectures, readings, discussions, research projects concerning contemporary critical issues in twentieth century sculptural history; topics vary. Offered fall semesters only. Consent of instructor required.

1N:265 Graduate Sculpture in Cast Metal 3 s.h.
Advanced foundry for graduate sculptors, nonscience graduate students; known, experimental casting techniques; conceptual, metaphorical issues explored beyond process and technique. Consent of instructor required.

Interdepartmental

1P:000 Cooperative Education Internship 0 s.h.

1P:134 Scene Design I 3 s.h.
Introduction to design process; research, rendering, model building. Same as 46:134.

Papermaking

1X:110 Papermaking 3 s.h.
History, fundamental techniques of Western, Eastern hand papermaking; projects in traditional sheet forming, paper chemistry, creative techniques Offered fall semesters. Consent of instructor required. Same as 108:110.

1X:120 Advanced Papermaking 3 s.h.
Traditional Eastern, Western sheet forming techniques; emphasis on fiber selection and preparation, paper testing, watermarking, sizing. Offered spring semesters. Consent of instructor required. Prerequisite: 1X:110. Same as 108:120.

1X:130 Paperwork 3 s.h.
Techniques, approaches using pulp/paper as arc medium; emphasis on fiber selection, preparation, coloring, 2-D forming methods to create unique and edition works. Offered spring semesters. Consent of instructor required. Prerequisite: 1X:110. Same as 108:130.

1X:210 Individual Instruction in Papermaking/Paperworks arr.
Consent of instructor required. Prerequisite: 1X:120 or 1X:130.

Studio

1Y:140 Calligraphy I 3 s.h.
Western style letterform produced with a broad edge pen; emphasis on learning how to practice correctly and critically. Same as 108:140.

1Y:141 Calligraphy II 3 s.h.
Adaptation of historical Western style letterforms to contemporary format; brush, broad edge pen. Consent of instructor required. Prerequisite: 1Y:140 or equivalent. Same as 108:141.

1Y:150 Bookbinding: Non-Adhesive Binding 3 s.h.
Types of nonadhesive book structures; history, terminology of bookbinding, skill development. Same as 108:150.

1Y:151 Bookbinding: Case Binding 3 s.h.
Emphasis on case binding; book enclosures. Same as 108:151.

1Y:152 Bookbinding: Advanced Structures 3 s.h.
Sewing methods and laced supports, book boxes, historical models. Special projects can be substituted with prior consent of instructor. Prerequisites: 1Y:150 or 1Y: 151. Offered spring semesters. Consent of instructor required. Prerequisites: 1Y:150 or 1Y:151. Same as 108:152.

1Y:153 Studies in Bookbinding 3 s.h.
Decorated papers, their relevance to history of binding; bookbindings using the papers made. Same as 108:153.

1Y:154 Bookbinding: Non-Traditional Structures 3 s.h.
Innovative binding structures, emphasis on nontraditional techniques. Same as 108:154.
Art Education

1E:195 Methods and Material: Art for the Classroom Teacher 2 s.h.
Techniques, processes m art for teachers; studio projects. Same as 7E:122.

1E:196 Concepts in Art Education 3 s.h.
Overview; craft, adolescent art; relationships with art, education; survey of literature: community art teaching experiences.

1E: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: 1 E: 196. Corequisite for those m the Teacher Education Program: 7S:90.

1E:230 Art Education and the Museum 3 s.h.
Methods for structuring appreciation experiences in museums, education; survey of literature: community art teaching; studio methods applied to teaching children, adolescents. Prerequisite: 1 E: 196. Corequisite for those m the Teacher Education Program: 7S:90.

1E:406 Research in Art Education 3 s.h.

B.A. in Asian Languages and Literature (Chinese, Hindi, Japanese, Sanskrit)

Majors are required to complete 30 semester hours of advanced courses, as follows.

STUDENTS OF CHINESE
39:10-11 Second Year Chinese: First-Second Semesters 12 s.h.
39:105-106 Third Year Chinese: First-Second Semesters 12 s.h.
39:141 Chinese Literature: Poetry 3 s.h.
39:142 Chinese Literature: Prose or 1980 Modern Chinese Writers 3 s.h.

STUDENTS OF HINDI
39:23-24 Second Year Hindi: First-Second Semesters 8 s.h.
39:135-136 Indian Literature 6 s.h.
39:137 Modern Indian Mystical Literature 3 s.h.

STUDENTS OF JAPANESE
39:10-11 Second Year Japanese: First-Second Semesters 12 s.h.
39:105-106 Third Year Japanese: First-Second Semesters 12 s.h.
39:141 Traditional Japanese Literature in Translation 3 s.h.
39:142 Modern Japanese Fiction in Translation 3 s.h.

STUDENTS OF Sanskrit
39:23-24 Second Year Sanskrit: First-Second Semesters 6 s.h.
39:186-187 Third Year Sanskrit: First-Second Semesters 6 s.h.
39:135-136 Indian Literature 6 s.h.
39:163 Indian Religious Texts 3 s.h.

STUDENTS OF Sanskrit
39:23-24 Second Year Sanskrit: First-Second Semesters 6 s.h.

B.A. in Asian Studies (East Asia or South Asia)

Students majoring in Asian studies must complete 30 semester hours of courses on Asia, as follows.

East Asia
39:10-11 Second Year Chinese: First-Second Semesters 12 s.h.
39:105-106 Second Year Japanese: First-Second Semesters 12 s.h.
At least one course on the history of the area whose language they are studying, chosen from the following.
39:153 Traditional China 3 s.h.
39:154 Modern China: 1800 to Present 3 s.h.
39:172 Japan 1800 to 1900 3 s.h.
39:173 Japan 1900 to 1945 3 s.h.

Other courses on East Asia, 100 level or above 15 s.h.

South Asia

REQUIRED
39:23-24 Second Year Sanskrit: First-Second Semesters 6 s.h.
39:33-34 Second Year Hindi: First-Second Semesters 8 s.h.
39:176 South Asia Social Science History (Same as 16W:189) 3 s.h.

One course in a related area, discipline or method emphasizing social science, e.g. anthropology, development studies, economics, geography, linguistics, political science, sociology or women’s studies, or other area studies social science course.

In addition, students earn 18 semester hours by taking courses chosen from the following listings.

Anthropology
113:105 Introduction to South Asian Anthropology 3 s.h.
113:147 Special Topics in Anthropology 2-3 s.h.

Art
11H:113 Art of Islam 3 s.h.
11H:114 Buddhist and Hindu Iconography 2-3 s.h.
11H:115 Art of India (Same as 39:181) 3 s.h.
11H:118 Painting of India (Same as 39:168) 3 s.h.

Asian Languages and Literature
39:125 or 136 Indian Literature 3 s.h.
39:137 Indian Mystical Literature 3 s.h.
39:184-185 Third Year Hindi: First-Second Semesters 6 s.h.
39:186-187 Third Year Sanskrit: First-Second Semesters 6 s.h.
39:188-189 Fourth Year Hindi: First-Second Semesters 6 s.h.
39:216 Individual Sanskrit for Advanced Students
arr.
39:217 Individual Hindi for Advanced Students
arr.

History
16W: 181 Contemporary Asian News Colloquium (Same as 39:150) 2 s.h.
16W: 194 Imperialism and Modern India (Same as 39:134) 3 s.h.

Religion
32: 80 Karma, Rebirth, and Human Destiny (Same as 39:80) 3 s.h.
32: 171 Indian Religious Texts (Same as 39:163) 3 s.h.
32: 173 Readings in Sanskrit Texts 3 s.h.
32: 180 Buddhist Sacred Texts (Same as 39:162) 3 s.h.
32: 191 Religion in India (Same as 39:167) 3 s.h.

Independent Study
39: 199 Asian Studies
arr.

Others
To be arranged with permission of student’s adviser; particularly appropriate for students engaged in study abroad.

RECOMMENDED
Students are strongly recommended to meet their GER requirements in historical perspectives, humanities, and foreign civilizations and culture by taking
16W: 7 Civilization of Asia: South Asia 3 s.h.
(for historical perspectives requirements)
and
39: 18 Asian Humanities: India 3 s.h.
(for humanities or foreign civilizations and culture requirements)

It is strongly recommended that advanced undergraduates and graduate students register for 39:250 South Asian Research Seminar (arr.) each semester they are in residence.

Honors
Students with a grade-point average of 3.20 or above are encouraged to enroll in the University Honors Program. With the permission of the departmental chair and a faculty sponsor selected from Asian specialists in any department, students register for 39: 191 Honors Tutorial and 39: 195 Senior Honors Thesis. To receive a B.A. with honors, students must complete an acceptable thesis based on original research in an appropriate area of Asian studies.

Minor in Asian Languages
A minor in Asian languages requires a minimum of 15 semester hours with a grade-point average of 2.00. Of the 15 semester hours, at least 12 must be taken at The University of Iowa in advanced courses. Students may earn minors in Chinese, Hindi, Japanese, or Sanskrit. The following courses are considered advanced for the minor.

CHINESE
39:10 Second Year Chinese: First Semester 6 s.h.
39: 11 Second Year Chinese: Second Semester 6 s.h.

HINDI
Students of Hindi are permitted to complete the advanced course requirement with 11 semester hours.
39:33 Second Year Hindi: First Semester 4 s.h.
39: 34 Second Year Hindi: Second Semester 4 s.h.
39: 184 Third Year Hindi: First Semester 3 s.h.

JAPANESE
39:10 Second Year Japanese: First Semester 6 s.h.
39:11 Second Year Japanese: Second Semester 6 s.h.

SANSKRIT
39:22 First Year Sanskrit: Second Semester 4 s.h.
39:23 Second Year Sanskrit: First Semester 3 s.h.
39:24 Second Year Sanskrit: Second Semester 3 s.h.
39:186 Third Year Sanskrit: First Semester 3 s.h.

Students who began work on minors in fall semester 1989 or earlier may choose to meet the old requirements. Students who use the old requirements must complete the minor by August 1996. Consult with an adviser in the Department of Asian Languages and Literature.

Minor in Asian Studies
A minor in Asian studies requires a minimum of 15 semester hours with a grade-point average of 2.00. Of the 15 semester hours, at least 12 must be taken at The University of Iowa in advanced courses. Courses numbered 39:100 or 39:100 and above are considered advanced for the minor. Students are encouraged to take 39:55 or 39:56 or 39:57 Civilizations of Asia (pre-modern China and Japan, Modern China and Japan, or South Asia), or 39:18 or 39:19 or 39:20 Asian Humanities (India, China, or Japan) as their lower-level course.

Students who began work on minors in fall semester 1989 or earlier may choose to meet the old requirements. Students who use the old requirements must complete the minor by August 1996. Consult with an adviser in the Department of Asian Languages and Literature.

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 College of Business Administration and the College of Liberal Arts. The wide range of electives in the program permits undergraduate students to tailor it to their individual interests and to complement majors in the Colleges of Business Administration and Liberal Arts (see the College of Business Administration section of the Catalog).

Elementary and Secondary 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 its equivalent, plus designated courses on pedagogy 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 Division of Curriculum and Instruction 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.

Graduate Programs

Master of Arts in Asian Civilizations
The graduate Program in Asian Civilizations provides preparation 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 toward a concurrent degree in Asian civilizations.

The Master of Arts in Asian Civilizations requires a minimum of 30 semester hours of approved course work, 24 of which must be 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 the adviser and in accordance with guidelines for specializations within the program.

All students must maintain a 3.00 minimum grade-point average. 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 for graduate admission must meet the general admission requirements of the Graduate College, except that a minimum grade-point average of 2.50 is required for conditional admission, 3.00 for regular admission. In addition, applicants must submit a
writing sample in English—such as a term paper, seminar paper, or graduation thesis—to the Department of Asian Languages and Literature.

Both foreign and nonforeign graduate applications requesting financial support for the following academic year are due February 1. Nonforeign applications for admission without support are accepted until June 15 for the fall semester or December 1 for the spring semester. Foreign applications for admission without support are accepted until February 1 for the summer or fall semester and October 1 for the spring semester. Candidates should take the Graduate Record Examination (GRE) General Test early, since an admission decision usually cannot be made until scores are received.

**Financial Aid**

The Department of Asian Languages and Literature offers two kinds of support for graduate students in Asian civilizations: teaching assistantships and research assistantships. At the time of application, students should request information about special requirements for teaching assistantships.

Currently enrolled undergraduate and graduate students are eligible to compete for summer scholarship aid for intensive language study. A limited number of scholarships are available each year, and proposals for study in non-Western European countries are especially encouraged.

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. The center offers both intensive Japanese language instruction at all levels and courses in a wide variety of disciplines in Japanese studies taught in English. Home stays may be arranged for students who wish to experience life in a Japanese family.

**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.

**Japanese Language House, Student Association**

The Foreign Language House in Hillcrest Residence Hall includes a Japanese House that is a focal point for activities among both resident and nonresident students and the Japanese Student Association, including weekly dinners.

**Library Facilities**

Since 1960 the Main Library has routinely acquired most American titles in Asian studies and selected overseas scholarly publications in English and other Western languages. The 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**

### Undergraduate language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>39:00</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>39:1 Ch</td>
<td>Chinese 1: Non-Intensive</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>39:2 Ch</td>
<td>Chinese 11: Non-Intensive</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>39:8 Ch</td>
<td>First Year Chinese: First semester</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>39:9 Ch</td>
<td>First Year Chinese: Second Semester</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>39:10 Ch</td>
<td>Second Year Chinese: First Semester</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>39:108 Cl</td>
<td>Classical Chinese: First Semester</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:31 H</td>
<td>First Year Hindi: First Semester</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>39:32 H</td>
<td>First Year Hindi: Second Semester</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>39:33 H</td>
<td>Second Year Hindi: First Semester</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:34 H</td>
<td>Second Year Hindi: Second Semester</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:1 Business Chinese</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>39:130</td>
<td>Business Chinese</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:129</td>
<td>Fourth Year Chinese: Second Semester</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:130</td>
<td>Business Chinese</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:128</td>
<td>Fourth Year Chinese: First Semester</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:109</td>
<td>Classical Chinese: Second Semester</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:30</td>
<td>Classical Chinese: First Semester</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39:31</td>
<td>First Year Hindi: First Semester</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>39:32</td>
<td>First Year Hindi: Second Semester</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>39:33</td>
<td>Second Year Hindi: First Semester</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>39:34</td>
<td>Second Year Hindi: Second Semester</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>39:1 J</td>
<td>Japanese 1: Non-intensive</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Library Facilities

- W. H. Auden, *The Age of Anxiety*
- *The Life and Times of Arturo Ui* by Eugene Ionesco
- *The Glass Bead Game* by Hermann Hesse
- *Proust* by Marcel Proust
- *The Iliad* by Homer
- *The Odyssey* by Homer
- *The Aeneid* by Virgil
- "The Rime of the Ancient Mariner" by Samuel Taylor Coleridge
- "The Rhinegold" by Richard Wagner
- *The Metamorphosis* by Franz Kafka
- *The Metamorphosis* by Franz Kafka
- "The Rime of the Ancient Mariner" by Samuel Taylor Coleridge
- "The Rhinegold" by Richard Wagner
- *The Metamorphosis* by Franz Kafka
- "The Rime of the Ancient Mariner" by Samuel Taylor Coleridge
- "The Rhinegold" by Richard Wagner
- *The Metamorphosis* by Franz Kafka
Graduate language

CHINESE

39:115 Beginning Chinese for Graduate Students 6 s.h.
See 39:1. Offered fall semesters.

39:116 Beginning Chinese for Graduate Students 6 s.h.
See 39:1. Offered spring semesters. Prerequisite: 39:115 or 39:2.

39:117 Beginning Chinese for Graduate Students 6 s.h.
Sec 39:10. Offered fall semesters. Prerequisite: 39:116.

39:118 Beginning Chinese for Graduate Students 6 s.h.
See 39:1. Offered spring semesters. Prerequisite: 39:117.

39:213 Advanced Classical Chinese 3 s.h.
Readings from *Zhoukan*, *Qym*, other texts of early classical period.
Prerequisite: 39:109.

39:220 Literary Chinese I 3 s.h.
Readings from literary, historical texts of Han and Wei-in periods.
Prerequisite: 39:109 or consent of instructor.

HINDI

39:123 Beginning Hindi for Graduate Students 5 s.h.
See 39:3. Offered fall semesters. Prerequisite: 39:124.

39:124 Beginning Hindi for Graduate Students 5 s.h.
Continuation of 39:123, which is prerequisite. Offered spring semesters.

39:126 Intermediate Hindi for Graduate Students 4 s.h.
Continuation of 39:126, which is prerequisite. Offered spring semesters.

39:183 Buddhist Worlds and Worldviews 3 s.h.
Concepts, practices common to pars Asia Buddhist traditions;
civilization and culture, humanities. GER: humanities.

39:20 Asian Humanities: Japan 3 s.h.
Literary, philosophical texts of China in English translation.
GER: foreign civilization and culture, humanities.

39:50 Non-Western Literary Traditions 3 s.h.
Literatures of non Euro American cultures. GER: humanities.
Same as 48:50.

39:115 Indian literature 3 s.h.
Readings from ancient, classical periods in English translation.

39:136 Indian Literature 3 s.h.
Readings from medieval, modern periods in English translation.
Same as 32:177.

39:175 Mystical Literature 3 s.h.
Ongoing, development of ascetical devotional tradition of
medieval and modern South Asia; emphasis on emotional
poetry, ideology, Performance traditions. Same as 32:170.

39:140 The Literature of Daoism 3 s.h.
Texts of philosophical, religious Daoism; Daoism in traditional
Chinese political theory, literature and the arts, alchemy and
medicine, sexual custom,; m English translation. Same as 32:178.

39:141 Chinese Literature: Poetry 3 s.h.
Readings m classical, modern Chinese poetry in English translation.
Same as 48:141.

39:141 Traditionalist Japanese Literature in Translation 3 s.h.
From seventh century to early modern times.

39:142 Chinese Literature: Prose 3 s.h.
Readings m Chinese prose, primarily fiction, from third century
B.C. to 1900 A.D., in English translation.

39:142 Modern Japanese Fiction in Translation 3 s.h.
From nineteenth century to present. Same as 48:142.

39:143 Topics in Japanese Literature in Translation 3 s.h.
May be repeated.

39:155 The Literary Tale 3 s.h.
Readings in storyteller literature, thematic, structural, rhetorical
characteristics of the tale.

39:158 East-West Literary Relations 3 s.h.
Topics in cross cultural study based in Asian/EuroAmerican
literary and film texts. Same as 48:158.

Same as 32:183.

39:173 Alternate Universes: Readings in Hindu Mythology 3 s.h.
English translations of the Sanskrit Purana or “ancient stories”-encyclopedic
collections of myth and ritual that have profoundly influenced
the worldview of contemporary Hinduism. Same as 32:194.

39:180 Modern Chinese Writers 3 s.h.
Readings from fiction, in English translation.

39:182 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 45:182.

39:183 Buddhist Worlds and Worldviews 3 s.h.
Concepts, practices common to pars Asian Buddhist traditions;
cultural developments in historic contexts. Sophomore standing
or above, or consent of instructor required. Recommended:
Asian culture or history. Same as 32:185.

39:184 Religious Themes in Japanese Literature 3 s.h.
Same as 32:184.

39:189 Religious Life in Modern Japan 3 s.h.
Religion since late Tokugawa period; emphasis on variety of
religious expressions, experiences in modern Japanese
society. Sophomore standing or above, or consent of instructor required:
Recommended: 32:162 or 39:161. Same as 32:189.

39:240 Seminar in Chinese Fiction 3 s.h.
Novels, novellettes of sixteenth to eighteenth centuries (Ming
and Qing periods). Prerequisite: ability to read original texts.

6 s.h.

6 s.h.

6 s.h.
Asian Languages and Literature ● Liberal Arts 91

39:241 Seminar in Chinese Literature 3 s.h.
Prerequisites: two years of modern Chinese and one year of classical Chinese, or equivalent. Same as 48:241.

39:245 Seminar in Japanese Literature 3 s.h.
May be repeated. Consent of instructor required. Prerequisite: three years of Japanese.

39:252 Readings in Japanese Literary Texts 3 s.h.

Civilization

Instruction is in English.

39:16 Asian Art and Culture 3 s.h.
GER: foreign civilization and culture, historical perspectives. Same as 1H:16.

39:30 Introduction to East Asian Art 3 s.h.
History of visual arts of China, Korea, Japan; chronological and geographical approaches; emphasis on understanding the arts within cultures producing them. Prerequisite: 39J:16 or I H: 16 or equivalent or consent of instructor. Same as 1H:30.

39:55 Civilizations of Asia: Premodern China and Japan 3 s.h.
GER: foreign civilization and culture, historical perspectives. Same as 16S.

39:56 Civilizations of Asia: Modern China and Japan 3 s.h.
GER: foreign civilization and culture, historical perspectives. Same as 16W.

39:57 Civilizations of Asia: South Asia 3 s.h.
Pre modern and modern topics in history, art, religion, philosophy, politics, and culture of India, nearby states. Same as 16T.

39:64 Living Religions of the East 3 s.h.
GER: foreign civilization and culture, historical perspectives. Same as 32:4.

39:85 Zen and Japanese Culture 3 s.h.
Relationship between Zen and Japanese culture, especially medieval, early modern periods of Japanese history; manifestations such as painting, architecture, poetry, drama, gardens, tea culture, related arts. Same as 32:85.

39:120 Chinese Painting I 3 s.h.
Same as 1H:120.

39:121 Chinese Painting II 3 s.h.
Same as 1H:121.

39:123 Japanese Painting 3 s.h.
Same as 1H:123.

39:125 Japanese society and Culture 3 s.h.
GER: foreign civilization and culture. Same as 112:125.

39:126 Japanese Values Through literature and Film 3 s.h.
Investigation of Japanese social relationships, attitudes, perceptions as expressed through literature and film; focus on dramatic changes resulting from rapid urban-industrialization in recent decades. Same as 112: 126.

39:131 Themes in Asian Art History 3 s.h.
Prerequisite: 39:16 or 1H:16 or equivalent or consent of instructor. Same as 1H:131.

39:132 Vietnam War in Historical Perspective 3 s.h.
Same as 16W:182.

39:133 History of Ancient and Traditional India 3 s.h.
Same as 16: 103.

39:134 Imperialism and Modern India 3 s.h.
GER: foreign civilization and culture. Same as 16W:194.

39:139 Chinese Historical Phonology 3 s.h.
Phonology of Mandarin, other major Chinese dialects; reconstruction of Middle, Old Chinese; possible relationships between Chinese, other language families. Conducted in English. Same as 103: 139.

39:144 Introduction to Chinese Linguistics 3 s.h.
Phonology, syntax, pragmatics, discourse analysis, sociolinguistics, dialectology; contemporary linguistic theories, their implications for study of Chinese language, pedagogy. Same as 103:144.

39:145 Topics in Asian Cinema 3 s.h.
Contemporary films from mainland China and Taiwan. Same as 36F:106.

39:150 Contemporary Asian News Colloquium 2 s.h.
Same as 16W:181.

39:153 Traditional China 3 s.h.
GER: foreign civilization and culture. Same as 16W:195.

39:154 Modern China: 1800 to Present 3 s.h.
GER: foreign civilization and culture. Same as 16W:196.

39:156 Art of Japan 3 s.h.
Same as 1H:122.

39:157 Chinese Calligraphy Brushwork, ink technique. 2 s.h.

39:159 Art of China 3 s.h.
Same as 1H:119.

39:161 Chinese Religions 3 s.h.
GER: foreign civilization and culture. Same as 32: 176.

39:163 Buddhist Sacred Texts 3 s.h.
Same as 32:180.

39:164 Buddhist Religions 3 s.h.
GER: foreign civilization and culture. Same as 32:191.

39:167 Painting of India 3 s.h.
Same as 32:175. 1H:118.

39:168 Zen Buddhism 3 s.h.
Same as 32:188.

39:171 Buddhism and Chinese Culture 3 s.h.
Same as 32: 186.

39:172 Comparative Ritual 3 s.h.
Same as 32: 172.

39:173 Zen Buddhism 3 s.h.
Same as 32:188.

39:177 Buddhism and Indian Culture 3 s.h.
Same as 32: 173.

39:178 Government and Politics of the Far East 3 s.h.
GER: foreign civilization and culture. Same as 30:143.

39:179 Scripture, Cult and Practice in Chinese Religions 3 s.h.
Same as 32:179.

39:181 Art of India I 3 s.h.
Same as 16W:172.

39:182 Art of India II 3 s.h.
Same as 16W:173.

39:190 Indian Religion and social Science 3 s.h.
Study of classical Indian religion according to social scientific principles; issues of ethnographic and sociohistorical method. Same as 32:190.

39:193 Comparative Cultural Criticism 3 s.h.
Same as 8: 168, 48:193.

39:194 Indian Theater 3 s.h.
Two millennia of South Asian performance traditions, from classical Sanskrit dramas to contemporary folk pageants; emphasis on ritual, aesthetic, social contexts. Same as 49:189.

39:197 Gender in Chinese Literature and Culture 3 s.h.
Gender issues as represented in literary, other cultural texts. Same as 131: 197.

39:199 Asian Studies 3 s.h.

39:202 Japanese linguistics for Pedagogy 3 s.h.
Focus on syntax, discourse analysis, sociolinguistics. Prerequisite: 39J:106 or consent of instructor.

39:204 Seminar in Japanese Pedagogy 3 s.h.

39:212 Seminar in Chinese Linguistics: Historical Phonology 3 s.h.
Topics in Chinese historical phonology chosen m accordance with instructor’s and students’ interests.

39:250 South Asian Research Seminar 3 s.h.
Faculty and student research; occasional outside lectuers.

39:251 Critical Theory and the Non-West 3 s.h.
Relationship between critical theory and the non-West; usefulness and relevancy of critical theory for study of the non-West; theory of modernity, imperialism, colonialism. Same as 48:251.

39:254 Seminar: Modern Chinese History 3 s.h.
Same as 16W:191.

39:255 seminar: Problems in Asian Art 3 s.h.
Same as 16W:316.

39:257 Readings: Japanese History 3 s.h.
Same as 16W:394.

39:258 Readings in Chinese History 3 s.h.
Same as 16W:292.

39:263 Seminar: Buddhism 3 s.h.
Same as 32:233.

39:267 Seminar: Religion in Modern India 3 s.h.
Same as 32:232.

39:285 Vernacular Narrative, 13th-17th Centuries 3 s.h.
Same as 48:285.

39:295 Readings in the History of India 3 s.h.
Same as 16W:265.

Individual Study for the Advanced Student

39:191 Honors Tutorial 3 s.h.

39:195 Senior Honors Thesis 3 s.h.

39:200 Methods of Teaching Chinese 3 s.h.
Basic principles of elementary language instruction. Prerequisite: 38:106 or equivalent.

39:200 Methods of Teaching Japanese 3 s.h.
Basic principles, methodologies of Japanese language instruction. Prerequisite: 39J:106 or equivalent.

39:202 Teaching Chinese as a Foreign Language 3 s.h.
Issues in language pedagogy in general, Chinese pedagogy in particular.

39:203 Teaching Chinese as a Foreign Language 3 s.h.
N: Curriculum, Materials, Practicum 3 s.h.
Multilevel of major Chinese textbooks, curricular organizational schemes, existing language programs, teacher-centered/student centered classroom instruction; development of supplementary materials for a University Chinese course.

39:209 Chinese Bibliography and Reference Works 3 s.h.
Sources, research aids in traditional, modern Chinese scholarship.

39:209 Japanese Bibliography 3 s.h.
Sources, research aids in traditional, modern Japanese scholarship.

39:215 Individual Study for Advanced Students 3 s.h.
Research, translation projects. Consent of instructor required. Prerequisite: 39: 129 or equivalent.

39:215 Individual Japanese for Advanced Students 3 s.h.
Research, translation projects. Consent of instructor required. Prerequisite: fourth-year proficiency.
Biochemistry

Head: Alan G. Goodridge

Assistant professor: Robert J. Deschenes, Pamela A. Spector, Lewis D. Stegink, Earle Stellwagen, Charles A. Swenson, Joseph Walder

Associate professor emeritus: Gene F. Lata Vestling

Vestling, Joseph I. Routh, Genevieve Steams, Carl S. Vesling

Adjunct professor: Nancy C. Stellwagen

Associate professors: Theodore A. Koemer, David H. Price, Larry S. Tobacman, Daniel L. Weeks

Associate professor emeritus: Gene F. Lata

Adjunct associate professor: Robert E. Cohen

Assistant professors: Robert J. Deschenes, Pamela Geyer, Andrew D. Robertson, Madeline A. Shea, Marc S. Weld

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

Graduate degrees: M.S., Ph.D. in Biochemistry

Biochemistry is the study of the basic chemical processes that occur in all living systems. Currently one of the most active sciences, it also 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 administers undergraduate programs and grants undergraduate degrees in biochemistry. See the College of Liberal Arts introductory section of the Catalog for general information about undergraduate study at the University.

The department offers both Bachelor of Science and Bachelor of Arts degrees; requirements are outlined below. Students choose the advanced science electives to supplement biochemical studies or as part of a minor or a double major (e.g., 2: 128 Fundamental Genetics or 22C:7 Introduction to Computing with Fortran). Science elective courses need not be numbered above 100 to be counted toward the degree.

Bachelor of Science

The B.S. degree program in biochemistry prepares students to work in positions that require a basic mastery of 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.

In addition to the College of Liberal Arts General Education Requirements, the B.S. degree in biochemistry requires 76-78 semester hours in courses, as follows.

22M:25-26 Calculus I-II
22M:35-36 Engineering Calculus I-II
2:10-11 Principles of Biology I-II
4:13 Principles of Chemistry I
4:14 Principles of Chemistry II
4:16 Principles of Chemistry Lab I
4:121-122 Organic Chemistry I-II
4:131 Physical Chemistry I
4:132 Physical Chemistry II
4:141 Organic Chemistry Laboratory
29:17-18 Introductory Physics I-II
99:1 Orientation and Introduction to the Field of Biochemistry
99:101 Technical Writing in Biochemistry
99:102 Undergraduate Seminar
99:120 Biochemistry and Molecular Biology I
99:130 Biochemistry and Molecular Biology II
99:140 Experimental Biochemistry
99:155 Research, Independent Study

*Registration in 99:155 is permitted only if grades of A or B have been earned in 99:120, 99:130, and 99:140, or by consent of adviser and instructor.

Bachelor of Arts

In addition to the College of Liberal Arts General Education Requirements, the B.A. degree in biochemistry requires 60-62 semester hours earned in courses as follows.

*2:10-11 Principles of Biology I-II
4:13 Principles of Chemistry I
4:14 Principles of Chemistry II
4:16 Principles of Chemistry Lab I
4:121-122 Organic Chemistry I-II
4:131 Physical Chemistry I
22M:15 Mathematics for the Biological Sciences
22M:16 Calculus for the Biological Sciences
29:1 1-12 College Physics
99:1 Orientation and Introduction to the Field of Biochemistry
99:101 Technical Writing in Biochemistry
99:102 Undergraduate Seminar
99:120 Biochemistry and Molecular Biology I

99:130 Biochemistry and Molecular Biology II
99:140 Experimental Biochemistry

Advanced science electives (chosen in consultation with adviser) 6 s.h.

*Students who have completed 2:3 Principles of Animal Biology may use that class instead of 2:10-11 if they declare a biochemistry major by the first day of class fall 1996.

In addition, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include 4 semester hours or more of 99:155 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. Students should consult with an adviser in the College of Education.

Honors

Qualified students may earn an honors degree in biochemistry. They must be enrolled in the College of Liberal Arts Honors Program and must do special work in 99:155 Research, Independent Study. Honors students 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, prelaw, psychology, or journalism. This prepares them for one of the many vocations on which biochemistry has an impact.

Graduate Programs

The College of Medicine administers graduate programs in biochemistry; graduate degrees are granted through the Graduate College. See the College of Medicine introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

The Department of Biochemistry offers programs of study leading to the M.S. and Ph.D. degrees. The department also offers opportunities for qualified and interested students to pursue combined programs leading to the M.S.-M.D. or Ph.D.-M.D. (medical scientist training) degrees.

The focus of the graduate program is on the individual student. In the first year, students’ educational needs are met with formal course work and tutorial research experiences that serve as the basis for selecting a thesis topic.

First-year students spend half of their time taking biochemistry courses-usually 99:241, 99:242, 99:282, and the interdisciplinary molecular biology courses 142:210 and 142:215 (for course descriptions, see “Molecular Biology” in this section of the Catalog). Students spend the other half of their time working in three different faculty laboratories (99:261 Research Techniques),
learning research techniques in the context of ongoing projects.

After the first year, students choose research laboratories for Ph.D. thesis research, begin their thesis projects, and take courses that supplement and complement their interests and preparation. During this time, they must complete a minimum of 9 semester hours consisting of a seminar and two short courses (1 semester hour each) in biochemistry and 6 semester hours of elective science courses (100 or 200 level) in other departments.

The comprehensive examination is taken in May of the second year. After this examination, students are admitted formally to degree candidacy and concentrate on thesis research. The program culminates in the successful defense of the completed thesis work before an examining committee.

In addition to meeting these requirements and the general ones 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 small research seminar groups and receive close personal attention from the biochemistry faculty members who serve as research advisers.

**Admission**

The graduate program in biochemistry is sufficiently flexible 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 course in biochemistry, but those with demonstrated ability may make up deficiencies after they enroll.

Minimum requirements for admission to the department include a 3.00 undergraduate grade-point average and acceptable scores on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) General Test. Candidates are more competitive if they also submit scores for the advanced examinations in chemistry, biology, or biochemistry, molecular and cell biology.

**Financial Aid**

Usually, all students admitted to the Ph.D. graduate program in biochemistry receive financial assistance.

**Research**

The department’s current research interests include the study of protein structure and function, complex carbohydrate structure and function, regulation of gene expression, mechanisms involved in transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, structure, membrane determinants of cell shape and motility, and mechanisms of hormone action.

**Facilities**

The Department of Biochemistry occupies modern research quarters in the Bowen Science Building, where the Departments of Anatomy, Microbiology, Pharmacology, and Physiology and Biophysics also are located. Most of its research and teaching facilities are located on a single floor. However, a few of the department’s research groups are located in adjacent buildings.

The University of Iowa maintains a number of central research support facilities and equipment that promote campuswide interactions between research groups. These include the Electron Microscopy Facility, Fermentor Facility, Image Analysis Facility, High Field NMR Facility, High Resolution Mass Spectrometry Facility, and Weeg Computing Center. Other facilities operated by the College of Medicine and available to biochemistry researchers include the Protein Structure Facility, Flow Cytometry Facility, DNA Synthesis Core Facility, Molecular Biology Core Facility, Hybridoma Facility, ESR Facility, Radiation Facility, and Cytegenetics Facility.

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 can provide virtually all of the equipment required for modern biochemical research. Examples of such equipment include analytical and preparative ultracentrifuges, computerized fluoroscopes, optical rotator, dispersion, high-field NMR, ultraviolet-visible and rapid kinetic instruments, infrared spectrometer, amino acid analyzers, protein sequenator, peptide synthesizer, gas chromatography, preparative high performance liquid chromatography, liquid scintillation counters, electrophoresis equipment, instrumentation for protein X-ray crystallography, computer terminals, a number of Cary spectrophotometers, an automatic DNA synthesizer, and an automatic DNA sequencer.

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 near the Bowen Science Building. Excellent resources also are provided by other departmental branches of the University Libraries system and by computer access to Bibliographic Retrieval Services.

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>99:000</td>
<td>Cooperative Education Internship</td>
<td>0</td>
</tr>
<tr>
<td>99:101</td>
<td>Technical Writing in Biochemistry</td>
<td>1</td>
</tr>
<tr>
<td>99:102</td>
<td>Undergraduate Seminar</td>
<td>1</td>
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**99:102 Undergraduate Seminar**

Techniques of oral presentations, including preparation of audiovisual materials; reports of general biochemical topics; student research results.

**99:1 Biochemistry**

Chemistry, metabolism, molecular biology of living systems. Prerequisites: two semesters of general chemistry, one semester of organic chemistry, and one of the following: a life science course, an additional organic chemistry course, or the consent of instructor.

**99: 120 Biochemistry and Molecular Biology I**


**99:130 Biochemistry and Molecular Biology II**

Molecular dynamics of biological systems, metabolism of lipids and nitrogen containing compounds; information transfer in procaryotes, eucaryotes; recombinant DNA techniques; chemistry and enzymology of replication, transcription, translation, cell transformation, regulation of gene expression. Prerequisite: 99: 120.

**99:140 Experimental Biochemist**

Quantitative, qualitative experiments on identification, fractionation, characterization of constituents of biochemical systems; use of modern instruments and techniques for spectrophotometry, chromatography, electron microscopy, centrifugation, radiography studies; emphasis on experimental design, interpretation. Prerequisites: 99: 120 and 4: 16.

**99:155 Research, Independent Study**

Undergraduate participation in biochemical research. Prerequisite: 99: 120.

**99:160 Biochemistry Tutorial**

Elements of biochemistry, their relationship to medicine. Open only to students who have been accepted in the health science colleges. Offered summer sessions. Consent of instructor required.

**99:161 Biochemistry for Dental Students**

Open only to dental students and those with consent of instructor. Prerequisite: 4: 121 or consent of instructor. Recommended: 4: 122.

**99:162 Biochemistry for Pharmacy Students**

Open only to pharmacy students and to others with consent of instructor. Prerequisite: 4: 121 or consent of instructor. Recommended: 4: 122.

**99:163 Biochemistry for Medical Students**

Concepts of biochemistry, their application to understanding of clinical problems. Open only to medical students.

**99:164 Biochemistry for physician Assistant Students**

Aspects of general biochemistry necessary for understanding the biochemical basis of human disease analysis of appropriate clinical cases. Prerequisite: 99: 110 or equivalent survey of biochemistry.

**99:215 Genetics Seminar**

May be repeated. Prerequisite: 2:128 or consent of instructor. Same as 61: 215, 2:215.

**99:228 Regulation Intermediary Metabolism**

Regulation of central metabolic pathways. Prerequisite: 99: 130 or consent of instructor.

**99:237 Topics in Biochemistry**

May be repeated. Prerequisite: 99: 130.

**99:241 Biophysical Chemistry I**

Quantitative analyses of biochemical systems; application of thermodynamics, equilibria, spectroscopy, hydrodynamics, electrophoresis, chromatography, X-ray crystallography to study of structure, function of macromolecules. Consent of instructor required. Prerequisite: one year of biochemistry. Recommended: course in physical chemistry.

**99:242 Biophysical Chemistry II**

Continuation of 99:241, which is prerequisite: enzyme kinetics and mechanisms, macromolecular interactions and dynamics, regulatory systems.

**99:261 Research Techniques**

Laboratory rotation for first year graduate students in biochemistry.

**99:272 Seminar in Cellular and Molecular Biology**

Same as 60:272, 71:272, 72:272.
requirements follow. Students who completed the course 2:3 Principles of Animal Biology and declared a biology major by the first day of class in fall semester 1994 may use the old requirements for the degree. (See the 1992-94 General Catalog.) Students who completed 2:3 during or before summer session 1994 may declare a biology major and use the old requirements if they declare the major by the first day of classes of the fall semester 1996. All other students must complete the new major.

Bachelor of Science in Biology

The B.S. program is designed to be somewhat more rigorous than the B.A. program (see “Bachelor of Arts in Biology” in this section of the Catalog). Accordingly, the B.S. major or program of choice for students who plan to do graduate work. However, selection of a degree program should be dictated more by the student’s personal taste, since there is little indication that employers or admission committees prefer one degree over the other.

Students seeking the B.S. in biology are required to take the following three breadth menus:

BIOLOGICAL SCIENCES

Total of 31-40 semester hours as follows. 2:10-11 Principles of Biology I-II 8 s.h.
2:128 Fundamental Genetics 4 s.h.
2:131 Evolution 4 s.h.

Breadth Menus

At least one course (minimum of 3 semester hours) from each of the following three breadth menus.

Molecular and cellular biology:
2:114 Cell Biology 3 s.h.
2:155 Cell Physiology 4 s.h.
2:161 Plant Molecular Biology 3 s.h.
2:171 Molecular Genetics I 4 s.h.

Developmental biology and physiology:
2:104 Introduction to Developmental Biology 3 s.h.
2:110 Plant Physiology 3-4 s.h.
2:117 Plant Developmental Biology 3 s.h.
2:124 Animal Physiology 3 s.h.
2:150 Endocrinology 3 s.h.
2:180 Fundamental Neuroscience 3 s.h.

Ecology and evolutionary biology:
2:103 Biogeography 3 s.h.
2:111 Plant Ecology 4 s.h.
2:134 Ecology 4 s.h.
2:140 Systematic 3 s.h.

Investigative Laboratory

At least one course chosen from: 2:116 Field Ecology 4 s.h.
2:129 Fundamental Genetics Laboratory 3 s.h.
2:130 Fundamental Genetics Laboratory: Molecular Biology of Yeast 3 s.h.
2:152 Endocrinology Laboratory 2 s.h.
2:155 Cell Physiology 4 s.h.
2:196 Honors Investigations 3 s.h.

2:199 Introduction to Research (minimum total of 3 semester hours) 6 s.h.

Electives

In addition, at least two elective courses (minimum of 2 semester hours each) must be chosen from advanced courses in the Department of Biological Sciences, advanced courses offered at the Iowa Lakeside Laboratory, and/or from a specific list of acceptable courses in biochemistry, geology, exercise science, microbiology, or anthropology (students should consult the list of approved courses available from their biology adviser or the departmental office). Courses listed as investigative laboratory courses may be used as electives unless they already have been used to satisfy the investigative laboratory requirement. No more than 3 semester hours of 2:196 and 2:199 may be counted toward the electives requirement.

OTHER DISCIPLINES

4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry 2 s.h.
4:121-122 Organic Chemistry I-II 6 s.h.
99: 110 Biochemistry 3 s.h.
99: 120, 130 Biochemistry and Molecular Biology I, 11 8 s.h.
(Half of the total of 8 semester hours for these two courses may be counted toward the electives requirement.)
29: 11-12 College Physics I-11 8 s.h.
or
29: 17-18 Introductory Physics I-11 8 s.h.
22M:16 Calculus for the Biological Sciences 4 s.h.
or
22M:25 Calculus I 4 s.h.
or
22M:35 Engineering Calculus I 4 s.h.
or
22M:45 Accelerated Calculus I 4 s.h.
63:161 Introduction to Biostatistics 3 s.h.
or
22S:102 Introduction to Statistical Methods 3 s.h.
or
22S:148 Intermediate Statistical Methods 3 s.h.

SUGGESTED FRESHMAN YEAR SCHEDULE

The following first-year schedule of science courses is recommended for students seeking either the B.S. or B.A. degree in biology.

First Semester
4:13 Chemistry 4 s.h.
Calculus or mathematics leading to calculus 3-4 s.h.

Second Semester
4:14, 4:16 Chemistry 5 s.h.
2:10 Principles of Biology I 4 s.h.
calculus 4 s.h.

Students who are sufficiently prepared in biology and chemistry from high school are encouraged to start 2:10 Principles of Biology I the first semester of the freshman year.
Bachelor of Arts in Biology

Students seeking the B.A. in biology are required to take the following courses.

**BIOLOGICAL SCIENCES**

Total of 31-39 semester hours, as follows.

2:10-11 Principles of Biology I-II 8 s.h.
2:128 Fundamental Genetics 4 s.h.
2:131 Evolution 4 s.h.

**Breadth Menus**

At least two courses from at least two of the three breadth menus listed under “Bachelor of Science in Biology.”

**Science in History, Society**

At least one course selected from:

16E:139 Ancient and Medieval Science 3 s.h.
16E:140 The Scientific Revolution 3 s.h.
16E:141 Science in the Modern Age 3 s.h.
16E:142 Science and Society 3 s.h.
26:104 Introduction to Philosophy of Science 3 s.h.

**Electives**

In addition, at least three elective courses (total of 6-12 semester hours must be chosen) from advanced courses in the Department of Biological Sciences, including at least one laboratory course or a course with a laboratory. Other rules governing choice of electives are the same as for the B.S. degree.

**OTHER DISCIPLINES**

Total of 29-33 semester hours, as follows.

4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Laboratory 2 s.h.
4:121 Organic Chemistry I 3 s.h.
4:122 Organic Chemistry II or
99:110 Biochemistry 3 s.h.
29:11-12 College Physics I-II or
29:17-18 Introductory Physics I-II 8 s.h.
22M:16 Calculus for the Biological Sciences 4 s.h.
or
22M:25 Calculus I 4 s.h.
or
22M:35 Engineering Calculus I or
22M:45 Accelerated Calculus I 4 s.h.
63:161 Introduction to Biostatistics or
22S:102 Introduction to Statistical Methods and
22S:148 Intermediate Statistical Methods 3 s.h.

**Bachelor of Science in Botany**

In addition to the General Education Requirements of the College of Liberal Arts, students seeking the B.S. in botany are required to take the following courses.

**BIOLOGICAL SCIENCES**

2:1 Introduction to Botany 4 s.h.
2:10 Principles of Biology I 4 s.h.
2:11 Principles of Biology II 4 s.h.
2:100 Land Plants: An Evolutionary Survey 4 s.h.
2:13 Plant Anatomy 4 s.h.
2:128 Fundamental Genetics 4 s.h.
2:136 Field Mycology 3 s.h.

**Taxonomy-one of these:**

2:101 Flowering Plants: Dealing with Diversity 2-4 s.h.
2:151 Summer Flora 3 s.h.
L:105 Plant Taxonomy 5 s.h.

**Physiology-one of these:**

2:110 Plant Physiology 3-4 s.h.
2:155 Cell Physiology 4 s.h.

**Ecology-one of these:**

2:111 Plant Ecology 4 s.h.
2:116 Field Ecology 4 s.h.
2:134 Ecology 4 s.h.
2:196 Honors Investigations 1-3 s.h.
or
An investigative laboratory or field course

**OTHER DISCIPLINES**

4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab 2 s.h.
4:121 Organic Chemistry I 3 s.h.
or
4:122 Organic Chemistry II 3 s.h.
or
99:110 Biochemistry 3 s.h.
or
99:120 Biochemistry and Molecular Biology I 4 s.h.
22M:9 Elementary Functions 3 s.h.
or
22M:15 Mathematics for the Biological Sciences 4 s.h.
or
22M:16 Calculus for the Biological Sciences 4 s.h.
or
22M:25 Calculus I 4 s.h.

**Honors in Biology or Botany**

The honors program in biology or botany gives superior 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 or by participating in independent research projects guided by faculty members.

Students in the University Honors Program may graduate with honors in biology or botany by completing the following requirements, in addition to the regular requirements for the B.S. or B.A. All honors students must maintain a grade-point average of at least 3.20 both overall and in all biology course work. Those majoring in biology must complete at least 7-8 semester hours of honors course work in biology, consisting of at least 6 semester hours in 2:196 Honors investigations (readings and laboratory research over at least two semesters) and 1-2 semester hours in 2:198 Honors Seminar in Biology, or a graduate-level seminar in biology. Botany honors majors must complete 4-6
semester hours of honors course work, of which at least 4 must be in 2:196 Honors Investigations.

All honors candidates must write a research proposal and a final research paper (honors thesis). Both must be approved by the student’s research supervisor and must be submitted to the honors advisor or program director. Botany majors defend the honors thesis before a committee of the honors research advisor, the student’s research supervisor, and a third faculty member chosen by the student and the honors advisor.

Minor in Botany
The botany minor requires 15 semester hours of credit in botany with a minimum grade-point average of 2.00, at least 12 of which must be taken at The University of Iowa in courses numbered 2:100 and above.

Minor in Biology
Students majoring in other subjects may earn a minor in biology. The biology minor requires 15 semester hours of credit in biology, at least 12 of which 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 100-level courses other than L101 offered at Iowa Lakeside Laboratory. Students must earn a grade-point average 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 science course taken at other institutions, except Iowa Lakeside Laboratory, do not apply to the 100-level course requirement in the biology minor.

Introduction to Research
The department offers 2:199 Introduction to Research to acquaint students majoring in the biological sciences with the nature of practicing scientists’ work—through association with one of the department’s research groups in experiments, discussion of current research, study of specialized topics, and attendance at research lectures.

Graduate Programs
The graduate programs of the department are designed to train scientists who can participate in research in private, educational, or government environments, and who are experienced in the skills required for teaching biology. In the last two decades, some 70 Ph.D. graduates of this department have subsequently been appointed to college or university faculties, while most of the others are in research positions. A substantial number of students completing their training with an M.S. degree have obtained technical or professional positions. Other graduates are teaching at the secondary-school level or in community colleges.

Prior to registration in August, all new graduate students take a course-equivalency examination covering topics in four areas of biology: developmental biology, genetics, cell physiology or animal physiology, and evolution or ecology. On the basis of examination results, students may be excused from further work in one or all of these fields, or may be advised to take specific courses to enhance their backgrounds in these areas. Students must make up any undergraduate deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor’s degree outside of the biological sciences may request modification of certain area requirements; the student’s degree committee will decide whether portions of the requirements may be waived.

All members of the biological sciences faculty engage in research asking fundamental questions about major biological problems. Areas of departmental research include cell biology, developmental biology, genetics, molecular biology, neurobiology, ecology, physiology, anatomy, botany, mycology, paleobiology, palynology, plant biochemistry, taxonomy, and parasitology. If appropriate, projects can involve work in other departments; graduate students sometimes are advised jointly by faculty in those departments.

On admission, each new graduate student is assigned a temporary adviser, chosen to complement the research interests of the student. The temporary adviser guides the student through initial requirements and acts as the student’s advocate. For purposes of graduate student evaluation, research training is categorized by four designations: development biology, ecology and evolution, genetics, and physiology. The department expects new students to do research in three laboratories on a rotating basis during their first year.

A graduate affairs committee evaluates and advises students initially. After the first two semesters, students choose a permanent sponsor (adviser) and a Ph.D. advisory (dissertation) committee. Afterwards, responsibility for evaluation is shared by the dissertation committee and the sponsor’s area committee.

Master of Science in Biology
Although the department emphasizes the Ph.D. degree, M.S. programs are available with and without thesis.

With Thesis
The M.S. in biology with thesis requires 30 semester hours of graduate credit and a library research report for which no more than 4 semester hours of credit may be granted. Credit may be earned in graduate courses in biology or cognate sciences; these courses are determined in consultation with the student’s thesis committee and are tailored to fit the student’s background and career goals.

Credit earned in courses at the 100 level or above—without the exception of courses in biology required to make up deficiencies (see above)—may be included in the 34-semester-hour minimum if approved by the advisory committee. On completion of the hours requirement and acceptance of the research report by their faculty sponsor, students must pass a written examination covering their graduate program in biology, including the area of their report.

Without Thesis
The M.S. in biology without thesis requires 34 semester hours of graduate credit and a library research report for which no more than 4 semester hours of credit may be granted. Credit may be earned in graduate courses in biology or cognate sciences; these courses are determined in consultation with the student’s thesis committee and are tailored to fit the student’s background and career goals.

Credit earned in courses at the 100 level or above—without the exception of courses in biology required to make up deficiencies (see above)—may be included in the 34-semester-hour minimum if approved by the advisory committee. On completion of the hours requirement and acceptance of the research report by their faculty sponsor, students must pass a written examination covering their graduate program in biology, including the area of their report.

Master of Science in Botany
The department offers the M.S. both with and without thesis. For both options, students must submit a program of study approved by a guidance committee composed of three members of the graduate faculty, one of whom may be from another department. Students should prepare the program of study during their first semester in residence as regular graduate students. Students also must maintain a grade-point average of 3.00 in all courses (except research) that they complete before taking the final exam. Additional requirements for the two options are as follows.

With Thesis
Students complete at least 30 semester hours of graduate courses in biological sciences or supporting areas, as prescribed by the guidance committee. Of these, 9 semester hours of research and thesis (2:229 and 2:301) are required; additional research hours may be taken, but no more than 9 may be counted toward the 30-semester-hour degree requirement. Candidates prepare a thesis on the research they have conducted and defend the thesis in an examination during the term in which they are to graduate.

Without Thesis
Students complete at least 34 semester hours of graduate courses in biological sciences or supporting areas, as prescribed by the guidance committee. Of these, 6 must be in research (2:301); additional research hours may be taken, but no more than 6 may be counted toward the 34-semester-hour degree requirement. Candidates pass a written examination during the term in which they are to graduate (individual committee members may opt not to give a written examination in their area), followed within a week by an oral examination. These examinations cover the student’s courses and research experience.
Doctor of Philosophy in Biology

The formal course or 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 work or proficiency requirements must be completed before the comprehensive examination, which admits students to full candidacy for the Ph.D. In this examination, students must demonstrate knowledge of biology fundamentals and the analytic and synthetic skills necessary to become creative, independent scientists.

The program culminates in students’ preparation of a dissertation based on original, independent research. Students must take a final examination, which covers the thesis and the specialized field the thesis represents, before the department can accept the thesis.

Doctor of Philosophy in Botany

The Ph.D. is primarily a research degree. The student must conduct original research of sufficient magnitude and value to be able to write a thesis and defend it successfully before the final examination committee. In addition, the student must complete 72 semester hours of graduate course work and research as prescribed by the guidance committee (hours earned for the master’s degree may be counted toward the 72-semester-hour minimum).

The guidance committee also may require that course work beyond the 72 semester hours be taken to meet specific proficiency requirements (e.g., language or statistics) or to make up for background deficiencies (e.g., chemistry or general botany course work).

During the first semester in residence as Ph.D. candidates, students must submit a program of study for approval by a guidance committee. Students must fulfill all course work requirements of the program of study, with changes made only with the formal (written) approval of the guidance committee.

Students complete an initial research proposal within two or three semesters after admission to the Ph.D. program (post-M.S.). The proposal, which should outline the specific objectives, significance, and methodology of the chosen research project, must gain written acceptance from members of the guidance committee and copies of it must be distributed. An oral presentation of the proposed research must follow acceptance of the initial research proposal within six months.

Once their formal course work has been completed or nearly completed, candidates pass a written and oral comprehensive examination. They submit a doctoral thesis based on original research to the final examination committee for review, presentation of the results of the thesis research in a departmental seminar, preferably before the thesis defense; and pass the final doctoral examination, which is primarily a defense of the ideas, methods, and significance of the doctoral thesis.

Financial Aid

All graduate students making satisfactory progress in the department receive support from teaching assistantships, fellowships, or research assistantships provided by the University or by individual research grants administered by faculty members. First-year students ordinarily are supported by department fellowships during the research rotation period. Subsequently, students may be considered for any of the following.

- Teaching assistantships: Appointment to an assistantship requires that the student provide approximately 20 hours of work per week. Appointees pay resident tuition rates.
- Summer research fellowships: These are available for outstanding graduate students. Recipients are expected to do full-time research for any two-month period between mid-May and mid-August and to enroll for at least 2 semester hours of credit in 2301 Research: Biology. Awards are made on a competitive basis.
- Summer appointments: These depend on available summer session budgets. Summer session stipends are awarded for half-time service or 20 hours of time per week for the eight-week summer session. Selection of teaching assistants for the summer is made by the instructor in charge of the course to be served.
- Faculty members with individual grants-in-aid: Faculty members may employ half-time or quarter-time research assistants. These awards are made by the principal investigator in charge of the grant and carry stipends similar to those available from departmental resources. Graduate College and departmental regulations and standards apply to these appointments.
- Grants-in-aid for graduate students: Agencies such as NIH, NSF, and Sigma Xi make grants-in-aid to graduate students. Announcements of availability are made from time to time. Students should consult the department chair for details. The Graduate College also provides information regarding grants available to graduate students.

Students who apply for one departmental award also may be considered for others.

Admission

An application form for admission to the Graduate College must be completed and sent to the director of admissions. Official transcripts from each undergraduate and graduate institution attended and scores on the Graduate Record Examination (GRE) General Test (verbal and quantitative parts) should be submitted with the application. A valid B.S. or B.A. degree from an accredited institution is required. Applicants for graduate admission should have a grade-point average of at least 3.00 and a Graduate Record Examination (GRE) General Test (verbal plus quantitative) score higher than 1100. These criteria are not absolute; instead, they serve as general guidelines to the admissions committee, which also considers applicants’ letters of recommendation, research experience, and other appropriate criteria.

Applicants also should take the Graduate Record Examination advanced biology test and submit their scores. Although most applicants have completed undergraduate programs in biology, the department considers applicants with backgrounds in biophysics, botany, biochemistry, molecular biology, microbiology, and other related areas. Applications should be submitted by February 1.

Master of Science

Students applying for admission to the one of the master’s programs in biology or botany 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 special students (A9) and make up the equivalent of the department’s bachelor’s degree program prior to consideration for admission. Special students must complete chemistry, physics, and mathematics requirements in addition to the biology courses listed in the undergraduate program. Special students should consult the department chair before attempting to set up a program.

Foreign Students

Admission of foreign students is based on the GRE General Test, a score of 550 or higher on the Test of English as a Foreign Language (TOEFL), an evaluation of the applicant’s transcript(s), and letters of recommendation.

Facilities

The department is housed in four separate buildings, with facilities for the care of many kinds of animals and for research with viruses, DNA sequencing and synthesis, electron microscopy, fruit flies, plants, and marine organisms. It has numerous walk-in and reach-in environmental chambers for special cell culture or plant and animal care needs.

The department is equipped to carry out state-of-the-art research in all areas in which graduate teaching is conducted. All modern equipment including ultracentrifuges, fluorescent microscopes, controlled environment rooms, and scintillation counters, is available for graduate student research.

A number of research laboratories are equipped with standard as well as sophisticated apparatus for research in growth regulation, photosynthesis, plant biochemistry, plant molecular biology, biochemical systematic, paleobotany, cytogenetics, ecophysiology, pollination biology, morphogenesis, and cell biology.

Students conducting research projects that require plant cultivation have access to greenhouses and special culture rooms with controlled environments. A plant physiology laboratory with associated greenhouses is available.

An herbarium for research and general study contains more than 200,000 specimens. Standard specimens include extensive collections of seed plants and ferns from Iowa and the Midwest, and there are special research specimens from Mexico and Central America and the Conard herbarium of bryophytes. There
is also a growing repository of fossil paleozoic plants. A forest preserve is available within a few miles of the campus for field trips and experimental projects.

In addition to department facilities, a number of campuswide facilities exist. A DNA oligonucleotide synthesis and enzyme lab is available, as is oligopeptide synthesis and sequencing equipment, mass- and NMR spectroscopy facilities, and a computerized image analysis facility. A hybridoma facility does spectroscopy facilities, and a computerized sequencing equipment, mass- and NMR oligonucleotide synthesis and enzyme lab is available, as is a University electron microscopy/lab with scanning and transmission electron microscopes.

Computing facilities are available in the department and at the University's Weeg Computing Center. Graduate students have their own computer room with IBM PCs and terminals linked to the campus mainframe. One of the only computerized motion analysis facilities in the world is available in the basement of the Biology Building. Finally, there are animal rooms and growth media preparation labs.

In short, the department and the University provide the resources necessary to do biological science from the molecular to the population level.

**Iowa Lakeside Laboratory**

Courses in biology at Iowa Lakeside Laboratory are accepted for elective credit in the biology 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" in this section of the Catalog.

**Courses**

Many courses include field and/or laboratory components.

### Primarily for Undergraduates

2:000 Cooperative Education Internship 0 s.h.

2:1 Introduction to Botany 4 s.h.

**Biology of plant life; emphasis on structure, function, reproduction, diversity, inheritance. GER: natural sciences.**

2:2 Introductory Animal Biology 4 s.h.

**Fundamental principles: cells and macromolecules, energy metabolism, organismic physiology, genetics, development, ecology, and evolution. GER: natural sciences. Recommended: 4:7.**

2:4 Secondary Student Training Program 3-4 s.h.

**Special projects. Open only to secondary school students. May be repeated.**

2:5 Iowa Flora 2 s.h.

**Native and cultivated trees, shrubs, flowering herbs in Iowa; focus on identification, recognition, reproductive biology, evolutionary relationships.**

2:10 principles of Biology I 4 s.h.

**Structure, function of cells; structure, function, reproduction of higher plants and vertebrate animals; first part of two semester course. GER: natural sciences. Prerequisite: high school chemistry. Pre or corequisite: 4: 13.**

2:11 Principles of Biology II 4 s.h.

**Continuation of 2:10; inheritance, development, immunology, ecology, evolution. GER: natural sciences. Prerequisites: 2:10 and 4:13.**

### Elementary Topics of General Interest

These courses are not open to graduate students and do not provide credit toward a biology major.

2:21 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, discussion, laboratory. Open only to nonscience majors. GER: natural sciences.**

2:22 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. GER: natural sciences.**

2:40 Biology of the Brain 3 s.h.

**Scientific and philosophical approaches to study of brain and use of results to understand relationship of mind, brain; relative contributions of environmental, genetic determinants to behavior; nature of mental disorders. GER: natural sciences. Open only to nonscience majors. Offered spring semesters.**

2:80 Plant propagation 2-3 s.h.

**Vegetative and seed propagation techniques; cuttings, budding and grafting, soil preparation, cultivation techniques, seed quality, seed dormancy, seedling biology.**

2:81 Human Genetics 3 s.h.

**Hereditary in human families, populations; genetic basis of normal, abnormal traits; chromosome behavior; sex determination. GER: natural sciences. Offered fall semesters.**

2:87 Spring Flora 3 s.h.

**Recognition, identification of flowering herbaceous plants, native woodland trees and shrubs, woody landscape plants; family characteristics, use of taxonomic key.**

2:95 Plants and Human Affairs 2-3 s.h.

**How plants are useful to people: food, clothing, shelter, social, economic, ecological significance of plants.**

### For Undergraduates and Graduates

2:100 Land plants: An Evolutionary Survey 4 s.h.

**Major groups, including bryophytes, ferns and fern allies, gymnosperms, primitive angiosperms; emphasis on evolution--implications of structure, reproductive biology, ecological adaptations; extant representatives of each plant group; reference to paleobotanical evidence. Prerequisite: 21 or equivalent.**

2:101 Flowering Plants: Dealing with Diversity 2-4 s.h.

**Evolutionary diversity within, among flowering plant families that dominate woodlands, prairies; identification of native and cultivated spring flowering plants; field trips; laboratory on development of taxonomic relations. Offered spring semesters. Prerequisite: 2:1 or 2:5 and 2:10.**

2:103 Biogeography 2-3 s.h.

**Patterns of plant, animal distribution and their interpretation; historical geography, including glaciation, plate tectonics; ecological geography, including physical factors such as climate, geology. Prerequisite: 2:1 or 443 or consent of instructor. Same as 44:103.**

2:104 Introduction to Developmental Biology 3 s.h.

**Fundamental mechanisms in differentiation, organogenesis, morphogenesis; mechanistic approach at molecular, cellular, tissue levels of organizations. Prerequisites: grade of C or higher in 2:10, 2:11 and 4:14.**

2:106 Bryology-Lichenology 4 s.h.

**Structure, reproductive biology, ecological adaptations, evolutionary relationships of mosses, liverworts, lichens. Prerequisite: 2:1 or consent of instructor.**

2:107 Invertebrate Biology 4 s.h.

**Major evolutionary trends: structural, physiological, behavioral adaptations; laboratory emphasis on living material. Prerequisites: 2:2 or 2:10 and 2:11, or equivalent.**

2:108 Vertebrate Zoology 4 s.h.

**Vertebrate diversity, success m 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: 2:10 and 2:11, or consent of instructor.**

2:109 Lectures in Cell, Tissue, Organ Biology 3 s.h.

**Structural and functional cell diversity; how cells are organized into different tissues, how tissues are organized into organ systems with diverse functions. Prerequisites: 2:2 or 2:10 and 2:11, or equivalent.**

2:11 Plant Physiology 3-4 s.h.

**Nutrients, metabolism, growth and development of higher plants; emphasis on photosynthesis, hormone actions, field data; methods for describing ecological phenomena in quantitative terms. Prerequisites: 2:1 or 2:10 and 2:11, or equivalent.**

2:111 Plant Ecology 4 s.h.

**Interactions between organisms, their environments; communities, succession, climax, gynecology, breeding systems, pollination systems, ecological interactions. Prerequisite: 2:1 or equivalent. Recommended: a genetics course.**

2:112 Cell, Tissue, and Organ Biology 5 s.h.

**Microscopic structure in relation to function in animal cells; tissues, organs, emphasis on mammals. Prerequisite: 2:2, or 2: 10 and 2:11, or equivalent.**

2:113 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: 2:1 or equivalent.**

2:114 Cell Biology 3 s.h.

**Structures of cells, organelles in relation to their functions at molecular, cellular levels; emphasis on higher eukaryotic cells. Offered spring semesters. Prerequisites: 2:10 and 2:11, or 4:14 or equivalent.**

2:116 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: 2:11 or 2:134 or consent of instructor.**

2:117 Plant Developmental Biology 3 s.h.

**Developmental processes throughout life cycle of vascular plants; current knowledge of key mechanisms, control; emphasis on molecular, genetic approaches to development, including transposon tagging, transformation. Prerequisite: 2:1, or 2:10 and 2:11, or 2:12 and 2:13.*

2:118 Parasitology 4 s.h.

**Morphology, physiology, importance of parasites in humans, animals; laboratory emphasis on morphology, experiments; emphasis on host-parasite relationship. Prerequisites: 2:1, or 2:10 and 2:11, or equivalent.**

2:119 Plant-Animal Interactions 4 s.h.

**Ecology, evolution; effects of herbivores on individual plants, plants, adaptations of herbivores; evolution of herbivore feeding strategies; fruit dispersal, pollination ecology. Prerequisite: 2:111 or 2:131 or 2:134 or consent of instructor.**

2:120 Paleobotany 4 s.h.

**Origin, early evolution of plant life; biological and geological significance of major plant groups. Prerequisite: 2:1 or equivalent, or consent of instructor. Same as 12: 128.**

2:121 Quaternary Palynology and Paleoecology 4 s.h.

**Natlants, origin, use of pollen and spores; pollen-bearing deposits; application to geological, ecological, botanical, archeological problems. Prerequisite: college geology or botany. Same as 12:128.**

2:122 Cell Biology of Protozoa 3 s.h.

**Basic biological principles: focus on free-living amoebas, flagellates, ciliates, some parasitic forms; evolution, locomotion and behavior, endocytosis, genetics, development; basic cellular functions such as feeding, conjugation, regeneration, cell division. Prerequisites: 2:10 and 2:11.**

2:123 Plant Biochemistry 3 s.h.

**Primary biochemical processes in plants; photosynthesis, respiration, metabolism of carbohydrates, lipids, proteins and nucleic acids, nitrogen fixation; emphasis on nature, subcellular localization of processes unique to plant metabolism. Prerequisite: 4:12 or consent of instructor.**
Biological Sciences . Liberal Arts 99

3 s.h.

2:124 Animal Physiology

Principles of cellular and systems physiology. Offered spring
semesters. Prerequisites: 2:10 and 2:1 I and college physics or
consent of instructor.

2 s.h.

2:125 Cytogenetics
Chromosomes; process of recombination; chromosome

3 s.h.

Theoty, operation, application of scanning electron microscopy
and X ray microanalysis for advanced students, staff,
investigators. Same as 12: 156, 52: 156, 60: 156.

3 s.h.

2:161 Plant Molecular Biology

aberrations; heterochromatin; meiotic mutants; chromosome
banding, transposition. Prerequisite: 2: 128.

2-3 s.h.
2:126 Biochemistry of Plant Natural Products
Secondary plant products leg. flavonoids, alkaloids, cyanogenlc
glycosides), their diversity, natural distribution, biosynthesis,
biodegradation, tissue and subcellular Iocalizations; emphasis on
proposed biochemical, ecological roles in plant metabolism.
Prerequisite: 4:121 or 99: 110 or 99.120 or consent of
instructor.
4 s.h.

2:128 Fundamental Genetics

Nature, function of genetic material: classical, molecular,
developmental aspects. Prerequisites: 2: 10, 2: 11, and 4: 14.

2:129 Fundamental Genetics laboratory

2:156 Scanning Electron Microscopy and X-ray
Microanalysis

1.3 s.h.

3 s.h.

1-2 s.h.

2:165 Seminar in Plant Development

1 s.h.

Drosophila; major genetic principles; emphasis on methods of
genetic analysis. Offered spring semesters. Prerequisite: 2: 128.

Recent knowledge m plant development, morphogenesis;
emphasis on molecular, genetic, cellular analyses. Prerequisite:
2: I or 2: 128 or consent of instructor.

2:130 Fundamental Genetics Laboratory:
Molecular Genetics of Yeast

2:166 Seminar: Plant Cell Structure and Function

3 s.h.

yeast; fundamental concepts of
genetics, introductlon to tools of molecular biology; firsthand
research laboratory experience. Offered fall semesters. Consent
of instructor required. Prerequisite: 2: 128.

4 s.h.

2:131 Evolution

Nature, evidence, analysis, implications, molecular/genetlc
basis; historical record, phylogeny, speciation, adaptation,
investlgative methods. Prerequisites: grade of C or higher m
2: 128 and calculus or statistics. Recommended: a course in
biochemistry.

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:
22M:1S or 22M:25, and 2:10 and 2: 11.

3 s.h.

2:136 Field Mycology

Recognition, identification, ecology of local macroscopic fungi
through field trips, laboratory. Prerequisite: an introductory
biology course.

4 s.h.

2:137 Medical Mycology
Basic techniques m study of fungi that are pathogenic to
humans. Consent of instructor required. Same as 61: 169.

2:140 Systematics

2-3 s.h.

Nature of species, Isolating mechanisms, hybridizatlon; problems
of convergence, homology; plant mating systems; types of
information used in making taxonomlc decisions. Prerequisite:
2:1, or 2:10 and 2: I I, or equivalent.

2:143 Animal Behavior

4 s.h.

Physiological, adaptive bases, including sensory physiology,
neurobiology of brain, Iearning, circadian rhythms, foraging
strategies, aggression, sexual and parental behavior, km
selection, social behavior. Prerequisite: 2:10 and 2: I I, or
31: 129. Recommended: advanced standing.

2:150 Endocrinology

3 s.h.

2-3 s.h.

Native and cultivated ferns, conifers, flowering plants m Iowa;
identification, recognition, evolutionary relationships among
plant families; individual field collections. Recommended:
introductory botany or biology.

2:152 Endocrinology Laboratory

2 s.h.

Representative experiments and methods; effects of hormones
on structure, physiology, metabolism. Pre- or corequisite: 2:150
or equivalent.

2:153 Special Topics

arr.

Biology in relation to other fields of study. Consent of instructor
required.

2:1 55 Cell Physiology

4 s.h.

Mechanism, regulation of RNA, DNA, protein biosynthesis, with
emphasis on methods of genetic analysis; application of modem
recombinant DNA techniques to basic problems. Open only to
undergraduates and first-year graduate students. Prerequisite:
grade of C + or higher in 99:120 or 2: 128, or consent of
instructor. Recommended: course in fundamental genetics.

2:172 Topics in Molecular Genetics

1-2 s.h.

1-2 s.h.
repair, genetic
recombination. Prerequisite: grade of C or higher in 2: 128 or

2:174 Aspects of Molecular Genetics

DNA metabolism; may include replication, DNA

equivalent, or consent of instructor.

2:176 Topics in Eukaryotic Molecular Biology

1-2 s.h.

2:177 Insect Reproduction and Development

2 s.h.

Physiology of gametogenesis, embryogenesis, metamorphosis;
emphasis on neuro endocrine regulation. Consent of instructor
required. Prerequisite: 2:10 and 2: I I, or equivalent.

2:179 Topics in Molecular Evolution

1-2 s.h.

Current topics: 16S and 16S-like RNA and phylogeny,
comparative analysis of DNA sequences, clonal segments m
chromosomes. May be repeated. Prerequisites: grade of C or
higher m 2:131, and 99: 110 or 99:120; or consent of
instructor. Recommended: 2: 162.

3 s.h.

4 s.h.

Functions common to all cells: metabolism and its control,
cellular energetic, membranes and transport, excitation, signal
transduction, synthesis of proteins in cells and organelles,
expression of genetic information, cell cycle, movement,
architecture; lecture, laboratory, discus.won. Offered spring
semesters. Prerequisites: 2: 128, and 99: 110 or 99: 120, and
22M:16 or 22M:25, and 29: i I or 29:17; or consent of
instructor. Corequisite: 29:12 or 29: 128.

Neurons, sensory cells at molecular and cellular levels; neuronal
systems, development of nervous system. Offered fall semesters.
Prerequisites: 2:10 and 2:11. Recommended: 29:12 and
99:1 10, or equivalents. Same as 132: 180.

2:181 Neurophysiology

3 s.h.

Physiological properties of nerve cells, nervous systems; axonal
conduction, synaptic transmission, sensory transduction,
integrative processes, higher functions. offered spring semesters.
Prerequisites: 2:180, and 22M:25 or equivalent, and 29: 12; or
consent of instructor. Same as 132:181.

2:183 Seminar in Cell Biology

I-2 s.h.

Consent of instructor required.

2:184 Topics in Neurobiology

1-2 s.h.

Offered fall semesters of odd years. Consent of instructor
required.

2:185 Neurobiology of Learning and Memory

2 s.h.

Consent of instructor required. Offered fall semesters of odd
years.

2:190 Seminar: Cell Structure and Function

2 s.h.

Current literature; cytoplasmic matrix and detailed organization,
composition, functional diversity of biological membranes.
Prerequisite: 2: 112 or consent of instructor.

2:194 Topics in Developmental Biology
Prerequisite: 2:104 or consent of instructor.

2:199 Introduction to Research

1-3 s.h.

1-2 s.h.

I-2 s,h.
arr.

May be repeated. Consent of instructor required.

Primarily for Graduates
2:154 Lectures in Cell Physiology
Same as 2: 155 without laboratory, discussion.

3 s.h.

2:193 Topics in Cell Motility

1 s.h.

Graduate
standing and consent of instructor required. Prerequisites:
2:128, and 99: 110 or 99: 120, and 22M:16 or 22M:25, and
29: I I or 29: 17; or consent of instructor. Corequisite: 29:12 or
29: 18.

Molecular, behavioral aspects of cell motility in systems ranging
from bacteria to amoebae to neural growth cones. Open only to
graduate students.

2:200 Biology Colloquium

O s.h.

2:201 Seminar: Botany

O-1 s.h.

2:210 Topics in Nematode Development
Genetics

I-2 s.h.

Graduate standing or consent of instructor required. Offered fall
semesters. Prerequisites: 2: 104 and 2: 128.

2:215 Genetics Seminar

O-2 s.h.

May be repeated. Prerequisite: 2:128 or consent of instructor.

2:218 Electron Microscopy Techniques

General mechanisms for control of RNA, DNA, protein
synthesis. Prerequisite: 2: 171 or consent of instructor.

2:180 Fundamental Neuroscience

Glands of internal secretion; emphasis on vertebrate systems;
actions of hormones m regulating growth and metabolism, organ
to molecular Ievels. Prerequisites: 2:10 and 2: 11, or
equivalents. Recommended: organic chemistry.

2:151 Summer Flora

4 s.h.

Mechanisms by which genes control development; methodology
of scientific research applied to developmental genetics. Open
only to seniors and first year graduate students. Offered fall
semesters. Prerequisite: 2: 128.

2:171 Molecular Genetics I

4 s.h.

2:134 Ecology

1 s.h.

Biology of plant cells, organelles. May be repeated. Prerequisite:
2: I I 3 or consent of instructor.

2:168 Developmental Genetics

2:196 Honors Investigations

2:198 Honors Seminar in Biology
Open only to honors students. Maybe repeated.

Genetic structure, dynamics; evolution of macromolecules;
trees; theory, investigative
molecular clocks,
methods, findings. Prerequisites: grade of C or higher in 2: 128
and 2:13 1, or consent of instructor.

2:164 Topics in Plant Molecular Biology

2 s.h.

in multicellular and
unicellular systems through genetic analysis. Offered spring
semesters of even years. Graduate standing or consent of
instructor required. Prerequisite: 2: 128.

Experimental and theoretical research, readings in biological
sciences. Open only to honors students. May be repeated.
Consent of instructor required.

Current research; genome structure, regulation of gene
expression, molecular basis of development, plant microbial
interaction. Prerequisite: 2: 128 or 99: 110 or consent of
instructor.

2:162 Population Genetics and Molecular
Evolution

2:195 Pattern Formation in Development
Positioning of parts, development of pattern

3 s.h.

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. Consent of instructor required.
Prerequisite: a course in cell biology. Same as 60:218, 61 :218.

2:220 Advanced Electron Microscopy
Same as 60:220, 61 :220.
2:221 Computational Neurobiology

arr.
2 s.h.

Neuronal processing of information, neuronal networks. Offered
fall semesters. Consent of instructor requied.

2:225 Seminar: Endocrinology

2 s.h.

Basic physiology, biochemistry of hormone action. Prerequisite:
2: 150 or equivalent.

2:230 Fundamentals of Tropical Biology: An
Ecological Approach
2:232 Seminar: Molecular Genetics

8 s.h.
I-2 s.h.

Current research on structure, regulation, function of nucleic
acids, genes, chromosomes. Prerequisite: 2:128 or equivalent.

2:233 Seminar: Ecology
Consent of instructor required.
2:245 Developmental Neuroscience

2-3 s.h.
2 s.h.

Same as 60:245, 132:245.

2:255 Molecular Developmental Neurobiology

I-2 s.h.

Readings on a specific issue. Offered spring semesters. Graduate
standing or consent of instructor required.

2:265 Neuroscience Seminar

O-1 s.h.


2:271 Seminar in Cell Physiology

2 s.h.

Topics include biology of aging. Maybe repeated. Offered fall
semesters. Prerequisite: 2:155 or 2: 154 or consent of instructor.

2:301 Research: Biology

arr.

2:303 Independent Study in Biology

arr.


CHEMISTRY

Chair: Darrell P. Eyman
Professor emeritus: Robert E. Buckles
Associate professors: William E. Bennett, Darrell P. Eyman, Louis Messerle
Assistant professors: Vicki H. Grassian, Stephen E. Johnson, Johna Leddy, Nancy I. Totah, Mark A. Young
Undergraduate degrees: B.A., B.S. in Chemistry; minor in Chemistry
Graduate degrees: M.S., Ph.D. in Chemistry

Undergraduate Programs

Bachelor of Science

Present and projected demand for chemists with a B.S. degree 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. The major course requirements for the B.S. degree are as follows. Sixty-six semester hours are required for the B. S., 45 of which must be in chemistry courses.

4: 13-14 Principles of Chemistry I-11 6 s.h.
4: 16 Principles of Chemistry Lab I 2 s.h.
4: 17 Basic Measurements 2 s.h.
4: 11-112 Analytical Chemistry I-11 6 s.h.
4: 121-122 Organic Chemistry I-11 6 s.h.
4: 125 Inorganic Chemistry 2 s.h.
4: 131-132 Physical Chemistry I-11 6 s.h.
4: 141 Organic Chemistry Laboratory 3 s.h.
4: 143 Analytical Measurements 3 s.h.
4: 144 Physical Measurements 3 s.h.
4: 153 Inorganic Chemistry Laboratory 3 s.h.
4: 170 Advanced Inorganic Chemistry 3 s.h.

Integral calculus (22M:35-36 Engineering Calculus 1-11 or 22M:25-26 Calculus I-11 or 22M:45-46 Accelerated Calculus I-II) 8 s.h.
Introductory physics (29:17-18 Introductory Physics I-II recommended, 29: 11-12 College Physics accepted) 8 s.h.

Credit earned in advanced science elective courses and in 4:162 Undergraduate Research must total at least 5 semester hours. Advanced science electives may be chosen in the areas of chemistry, mathematics, computer science, astronomy, physics, engineering, radiation biology, biochemistry, microbiology, pharmacology, pharmacy, botany, biological sciences, geology, or physiology.

Bachelor of Arts

The B.A. curriculum in chemistry provides a general education with some concentration in fundamental chemistry, but with a wider choice of electives than the B.S. curriculum includes. Students who elect this program may qualify to be high school teachers, provided they meet teacher licensure requirements. By selecting appropriate electives, students can meet entrance requirements for medicine, dentistry, or other professional programs while satisfying the B.A. requirements in chemistry. The major course requirements for the B.A. are as follows.

4: 13-14 Principles of Chemistry I-11 6 s.h.
4: 16 Principles of Chemistry Lab I 2 s.h.
4: 17 Basic Measurements 2 s.h.
4: 111-112 Analytical Chemistry I-II 6 s.h.
4: 121-122 Organic Chemistry I-II 6 s.h.
4: 125 Inorganic Chemistry 2 s.h.
4: 131-132 Physical Chemistry I-II 6 s.h.
4: 141 Organic Chemistry Laboratory 3 s.h.
4: 143 Analytical Measurements 3 s.h. or
4: 144 Physical Measurements 3 s.h. or
4: 153 Inorganic Chemistry Laboratory 3 s.h.

Integral calculus (22M:35-36 Engineering Calculus I-II or 22M:25-26 Calculus I-11 or 22M:45-46 Accelerated Calculus I-II) 8 s.h.

Honors

To graduate with honors in chemistry, a student must be a member of the University Honors Program, take 4:162 Undergraduate Research, complete a research project acceptable to his or her research adviser, 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 semester hours, including 3 semester hours in introductory-level courses and 12 semester hours taken at The University of Iowa in advanced chemistry courses numbered 100 and above (4:13-14 Principles of Chemistry I-II and 4:16 Principles of Chemistry Lab are prerequisites for upper-level courses in chemistry).

Teacher 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 College of Liberal Arts section of the Catalog).

Graduate Programs

Master of Science

The department offers the M. S., with or without thesis, in analytical, inorganic, organic, and physical chemistry and in chemical physics. Candidates for the M.S. 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. At least 30 semester hours of graduate work are required for the M.S. A minimum grade-point average of 2.50 is required for admission to the master’s examination.

Doctor of Philosophy

A program of study for the Ph.D. in the areas listed for the M.S. includes the minimal proficiency examinations, core courses as may be necessary, a minimum of 11 semester hours of advanced course work, and research.

Students who have met the course requirements with a cumulative grade-point average of 3.00 are admitted to the comprehensive examination upon presentation and preliminary approval of their written research proposal; they must take the oral comprehensive examination no later than the end of their second year of enrollment.

Upon completing the Ph.D. research, students prepare the dissertation. The final examination consists of an oral defense of the thesis, at which time at least one manuscript of the publishable portion of the thesis is presented.

Interdisciplinary Programs

The Department of Chemistry cooperates on interdisciplinary programs in applied mathematical sciences and in chemical physics (see the Graduate College section of 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 with a recommended grade-point average above 3.00. Most admitted graduate students receive financial support; application forms are available from the Department of Chemistry.

Facilities

The department is housed in a five-story building containing two auditoriums, five lecture rooms, fifteen undergraduate laboratories, forty-three graduate research laboratories, a computer laboratory, and a number of special-purpose instruction rooms. 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.
Courses

Primarily for Undergraduates

Students planning to take more than one year of chemistry should take 4:13, 4:14, and 4:16.
Students who require only one year of chemistry may take 4:7, 4:8, and 4:16.

4000 Cooperative Education Internship 0 s.h.
4:4 Secondary Student Training Program 3-4 s.h.
Special projects. Open only to secondary school students. May be repeated.
4:5 Technology and Society 3-4 s.h.
Nonmechanical exploration of selected areas of technology: basic science background, current technological applications, implications for society; for nonscience majors. No credit for students with previous college-level course work in chemistry. GER natural sciences.
4:7 General Chemistry 1 3 s.h.
Atomic structure, chemical bonds, mole relations, stoichiometry, states of matter: acids and bases, atomic orbitals, chemical bonding, nuclear chemistry. GER natural sciences.
Prerequisite: elementary algebra.
4:8 General Chemistry II 3 s.h.
Organic chemistry and biochemistry. GER natural sciences. Prerequisite: 4:7 or high school chemistry.
4:13 Principles of Chemistry I 3 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 structure of molecules and ionic and covalent structure of silicon, its compounds and related ceramic materials. GER natural sciences. Prerequisite: 2:2M or ACT math subscore of 24 or a score of 6 on the AP Chemistry Exam. The University of Iowa Mathematics Placement Test Level 1.
4:14 Principles of Chemistry II 3 s.h.
Continuation of 4:13: collective properties of solutions, chemical thermodynamics, electrochemistry, chemical kinetics, chemical bonding, the top ten chemicals produced by the chemical industry, nuclear chemistry. GER natural sciences. Prerequisite: 4:13 or 4:7.
4:16 Principles of Chemistry Lab 2 s.h.
Laboratory techniques for students taking 4:14. GER natural sciences. Prerequisite: 4:13.
4:17 Basic Measurements 2 s.h.
Continuation of 4:16: techniques of data collection and processing, including statistical and instrumental techniques for data collection and computer data processing. Open only to chemistry majors. Prerequisite: 4:16.
4:101 Elementary Quantitative Analysis 4 s.h.
Principles of quantitative analytical chemistry; spectrophotometry; methods of analysis. Prerequisites: 4:14 and 4:16.
4:11 Analytical Chemistry I 3 s.h.
Modern theory and practice: emphasis on chemical equilibrium, acid-base chemistry, solubility, complexation, and electroanalytical chemistry. GER natural sciences. Prerequisite: 4:11 or 4:7.
4:12 Analytical Chemistry II 3 s.h.
Continuation of 4:11, which is prerequisite; emphasis on instrumental methods, including molecular spectroscopy, mass spectrometry, chemical separations. Prerequisite: 4:11.
4:121 Organic Chemistry I 3 s.h.
Carbon containing compounds; structure, stereochemistry, physical properties, reactivity, reaction mechanisms; synthesis emphasis on alkenes, alkenes, enol, enol ethers, alcohols, aldehydes, halides. GER natural sciences. Prerequisite: 4:14 or 4:8.
4:122 Organic Chemistry II 3 s.h.
Continuation of 4:12, which is prerequisite; topics include use of spectroscopic techniques to determine chemical structures; chemistry of carbonyl compounds, amides, ethers, amino acids, carbohydrates. GER natural sciences. Prerequisite: 4:121.
Prerequisite: 4:121.
4:125 Inorganic Chemistry 2 s.h.
Modern principles; emphasis on descriptive chemistry of the major group and transition elements, ionic and covalent bonding theories, symmetry, inorganic stereochemistry. Prerequisite: 4:14. Corequisite: 4:22.
4:131 Physical Chemistry I 3 s.h.
Chemical thermodynamics and its application to chemical equilibrium, phase equilibria, electrochemistry; ideal and real gases; kinetic theory, chemical kinetics. Prerequisites: 4:14; 29:12 or 29:18, and 22M:26 or 22M:36 or 22 M:46.
4:132 Physical Chemistry II 3 s.h.
Quantum mechanics and its application to atomic and molecular structure; determination of structure by various spectroscopic methods: solids and liquids; diffraction methods for determination of crystal structures; statistical chemodynamics; chemical kinetics. Prerequisites: 29:12 or 29:18, and 22M:26 or 22M:36 or 22 M:46.
4:135 Physical Chemistry Laboratory 2 s.h.
Experiments to illustrate modern principles. Open only to chemical engineering majors. Prerequisites: 4:13 1 and some knowledge of computer programming.
4:141 Organic Chemistry Laboratory 3 s.h.
4:143 Analytical Measurements 3 s.h.
Modern theory and practice of laboratory methods; emphasis on experimental techniques and data analysis in spectroscopy, chromatography, electrochemistry. Prerequisites: 4:17 and 4:111. Corequisite: 4:112.
4:144 Physical Measurements 3 s.h.
Laboratory experiments to illustrate modern principles. Open only to chemistry majors. Prerequisites: 4:17, 4:131, and computer programming. Corequisite: 4:132.
4:153 Inorganic Chemistry Laboratory 3 s.h.
Preparation and characterization of a variety of inorganic compounds. GER natural sciences. Prerequisites: 4:141 and 4:125.
4:162 Undergraduate Research 1-4 s.h.
May be repeated. Consent of adviser required.
4:170 Advanced Inorganic Chemistry 3 s.h.
Modern principles including crystal field splitting, field molecular orbital theory, inorganic reaction mechanisms, coordination chemistry, inorganic chemistry: main group and transition metal organic chemistry; electron metal inorganic chemistry. Prerequisites: 4:125, 4:132, and 4:153.
4:171 Advanced Analytical Chemistry 3 s.h.
Emphasis on fundamental aspects of electrochemistry, atomic and molecular spectroscopy, chemical separations. Prerequisites: 4:112 and 4:132.
4:172 Advanced Organic Chemistry 3 s.h.
Basic concepts from a perspective of structure, mechanism, synthesis, and stereochemistry. Prerequisite: 4:122.
4:173 Advanced Physical Chemistry 3 s.h.
4:180 Introduction to Lasers and Applications I-3 s.h.
Generation, propagation, detection of laser light; basics of laser spectroscopy, photoluminescence, heating, current research. Prerequisite: 4:173 or consent of instructor.
4:181 Fraud in the Chemical Sciences 1 s.h.
Topics include extent, nature of fraudulent activities, methods for characterization of inorganic, organic and coordination compounds of the main group and transition elements. Prerequisites: 4:125, 4:132, and 4:153.
4:181 Advanced Separations 1 s.h.
Application of the Fourier transform to analytical chemistry; emphasis on signal processing, spectroscopic and chemometric methods. Prerequisites: 4:111 and 4:12, or 4:171.
4:199 Electromagnetics 1 s.h.
Principles, applications of electrodynamics. GER natural sciences; for students who wish to take only one course in this area.
4:220 Fundamentals of Electrochemistry 1 s.h.
Potentials, thermodynamics, electron transfer theory, mass transport, double layers. Prerequisites: 4:11 and 4:112, or 4:171.
4:222 Electrochemical Measurements 1 s.h.
Voltammetry, amperometry, microelectrodes, bulk electrolysis, thin layer methods, sp-ectrometric and photometric methods; impedance methods. Prerequisites: 4:11 and 4:112 or 4:171.
4:229 Electrochemical Mechanisms/Modeling 1 s.h.
Reaction mechanisms, mathematical methods of modeling, computer simulations; electrochemical topics such as batteries, fuel cells, solar cells, plating corrosion, semiconductors. Prerequisites: 4:111 and 4:112, or 4:171.
4:210 Chemical Sensors 1 s.h.
Theory, practical limitations, analytical utility based on immobilized reagents with electrochemical, thermal, optical transduction mechanisms. Prerequisites: 4:111 and 4:112, or 4:171.
4:211 Biophysical Chemistry 1 s.h.
Modern biochemical methods used to analyze experimental data: emphasis on calibration, signal processing, numerical optimization, experimental design. Prerequisites: 4:111 and 4:112, or 4:171.
4:214 Molecular Spectroscopy 1 s.h.
Theory and practice of methods and instrumentation used in modern analytical mass spectrometry; emphasis on magnetic resonance, mass spectrometry, applications to analytical problems, with emphasis on modern instrumentation and methodology. Prerequisites: 4:111 and 4:112, or 4:171.
4:215 Atomic Spectroscopy 1 s.h.
4:216 Gas chromatography 1 s.h.
Partition, absorption, instrumentation, detection. Prerequisites: 4:111 and 4:112, or 4:171.
4:217 Liquid Chromatography 1 s.h.
Partition, absorption, instrumentation, detection. Prerequisites: 4:111 and 4:112, or 4:171.
4:218 Fourier Transform Techniques 1 s.h.
Principles of the Fourier transform to analytical chemistry; emphasis on signal processing, spectroscopic and chemometric methods. Prerequisites: 4:111 and 4:112, or 4:171.
4:219 Electronics 1 s.h.
Principles of digital and analog electrical circuits, the exploration of electronic techniques in chemical measurements. Prerequisites: 4:111 and 4:112, or 4:171.
4:220 Advanced Separations 1 s.h.
Principles, applications of supercritical fluid. GER natural sciences; for students who wish to take only one course in this area.
4:221 Introduction to Organic Research 34 s.h.
Methods and techniques of structure determination for organic compounds. Prerequisite: 4:132.
4:222 Interpretation of Spectra 3 s.h.
Interpretation of electronic, vibrational and magnetic resonance, and mass spectra of complex molecules. Prerequisites: 4:132 and 4:172.
4:223 Quantum Chemistry I 3 s.h.
Quantum mechanics of chemical systems; time-dependent and time-dependent perturbation theory; variational theory. GER natural sciences. Prerequisite: 4:132.
4:234 Quantum Chemistry 11 3 s.h.  
Continuation of 4:233, which is prerequisite; group theory; molecular orbi and valence bond theories and Roothaan procedure; electronic vibrational, rotational, spin resonance spectrosopes; quantum statistics; current topics.

4:235 Chemical Kinetics 3 s.h.  
Experimental and theoretical aspects of the dynamics of chemical reactions, from phenomenological to quantum mechanical. Prerequisite: 4:132.

4:236 Reaction Dynamics 3 s.h.  
Chemical and physical rate processes from the microscopic perspective: collision dynamics, potential energy surfaces, energy disposal, energy transport. Prerequisite: 4:231.

4:237 Calculating Thermochimical Quantities 1 s.h.  
Application of additivity rules, "empirical" relations, statistical thermodynamics to calculate energy, enthalpy, entropy, free energy for chemical compounds; calculations used in estimating equilibrium constants and kinetic parameters. Prerequisites: 4: 131 and 4: 132.

4:238 Data Processing 1 s.h.  
Inclusion of experimental error; sources of error and their probability distributions; least squares fitting and smoothing methodologies useful for interpolation and extrapolation. Prerequisites: 4: 111 and 4: 112.

4:239 Atmospheric Chemistry 1 s.h.  
Emphasis on monitoring techniques, laboratory simulations of the atmosphere, kinetic mechanisms of gas phase reactions, revolving hydrocarbons and compound containing nitrogen, oxygen, and sulfur. Prerequisite: 4: 131.

4:242 Physical Chemistry Topics 1-3 s.h.  
Theory and methods of diffraction of electrons, neutrons, X-rays by gases, liquids, solids, structure determination and computational methods. Consent of instructor required.

4:243 Diffraction Analysis 2-3 s.h.  
Basic processes, techniques of modeling chemical systems; workshop format in which students apply these methods to systems relevant to their own research. Prerequisite: 4: 111 or 4: 112 or 4: 171 or equivalent.

4:245 Biological Chemistry 2 s.h.  
Principles of chemistry of the living system, and biotechnology, microbial transformation. Prerequisite: 4: 243.

4:275 Perspectives in Biochemistry 1 s.h.  

4:276 Chemical Systems Modeling 2 s.h.  
Basic processes, techniques of modeling chemical systems; workshop format in which students apply these methods to systems relevant to their own research. Prerequisite: 4: 111 or 4: 112 or 4: 171 or equivalent.

4:281 Seminar: Analytical Chemistry 0-1 s.h.  
Consent of instructor required.

4:283 Seminar: Inorganic Chemistry 0-1 s.h.  
Consent of instructor required.

4:285 Seminar: Organic Chemistry 0-1 s.h.  
Consent of instructor required.

4:286 Seminar: Physical Chemistry 0-1 s.h.  
Consent of instructor required.

4:287 Research Frontiers in Chemical Materials 1 s.h.  
Consent of instructor required.

4:290 Research in Chemistry arr.  
Thesis work for advanced degrees; conference and laboratory work arranged. Consent of department head and advisor required.

4:291 Research Seminar 0-1 s.h.  
Presentation and discussion of thesis research for advanced degrees.

Classics is the study of ancient languages, literatures, and cultures of the Mediterranean basin from approximately 2000 B.C. to 600 A.D. 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 Program

A Bachelor of Arts in classics provides a solid foundation for graduate work in classics, law, history, art, philosophy, and religion. Graduates have become secondary school and university teacher, lawyers, doctors, librarians, museum curators, and bankers.

Major in Greek

Graduates with a major in Greek learn to read the ancient Greek language, become acquainted with the major works of Greek literature, and acquire knowledge of the history of ancient Greece and the Near East of the seventh through the fifth centuries B.C., when most of the modern Western notions of political, artistic, and social life began.

For a B.A. with a major in Greek, students must earn a minimum of 30 semester hours of credit in the major, of which at least 24 semester hours must be in Greek language courses. The following courses, or their equivalents, are required.

14:1-2 Elementary Greek 8 s.h.  
14:11-12 Second-Year Greek I-II 6 s.h.  
14:176 Greek Composition 3 s.h.  
Four additional Greek language courses numbered 121 or above 12 s.h.

Major in Latin

Graduates with a major in Latin learn to read Latin; they also acquire 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 transmitted the culture of Greece to the West.

Candidates for the B.A. with a major in Latin must earn a minimum of 30 semester hours of credit in the major, at least 24 of which must be in Latin language courses. The following courses, or their equivalents, are required.

20:1-2 Elementary Latin 8 s.h.  
or 20:15 Accelerated Latin 4 s.h.  
or 20:117 Accelerated Elementary Latin (summer session) 4 s.h.  
20:16-17 Second-Year Latin I-II 6 s.h.  
20:171 Elementary Latin Composition 3 s.h.  
Four additional Latin language courses; may include 20:81, 20:82, or any numbered above 121 12 s.h.

See the College of Education section of the Catalog for information on teacher licensure in Latin.

Major in Classics (Greek and Latin)

The B.A. with a major in classics requires a minimum of 36 semester hours of credit in the major, at least 30 of which must be in Greek and Latin language courses. The following courses, or their equivalents, are required.

14:12 Elementary Greek 8 s.h.  
14:11-12 Second-Year Greek I-II 6 s.h.  
20:1-2 Elementary Latin 8 s.h.  
20:16-17 Second-Year Latin I-II 6 s.h.

Two advanced Greek language courses numbered 121 or above (other than 14:171) 6 s.h.  
or Two advanced Latin language courses (other than 20:171); may include 20:81, 20:82, or any numbered above 121 6 s.h.

14:176 Greek Composition 3 s.h.  
or 20:171 Elementary Latin Composition 3 s.h.

Major in Ancient Civilization

This major is sponsored by the Schools of Art and Art History and Religion and the Departments of Classics and History. The major concentrates on the ancient civilization of the Mediterranean world and draws on courses offered by various departments of the University. It is not primarily a preparation for a graduate degree program in classics; nevertheless, it provides a sound basis for preparing teachers at the secondary school and junior college levels. It also provides a sound basis in liberal arts for preprofessional training in law, medicine, or the other professions. In addition to the normal college requirements for the B.A., the following are specific requirements of the major.

Ancient art 6 s.h.

Ancient history 6 s.h.

Ancient philosophy or religion 6 s.h.

Classics (either “classics in English” courses, or Latin or Greek language courses) 6 s.h.

Appropriate courses in art, history, philosophy, religion, or linguistics 3 s.h.

14:194 Seminar in Ancient Civilization 3 s.h.

Of the required 30 semester hours, at least 15 must be at the advanced level. These include courses in English at the 100 level or 14:11-12 or 20:1-12.

Honors

For exceptional seniors who attain a 3.50 grade-point average in their first three years of classics courses, two courses are offered in honors reading, one each semester of the senior year, for 3 semester hours of credit each. The readings and discussions are on an ancient author or a field in ancient history or literature.
examinations, see the Graduate College section of the Catalog.

Graduate students in classics may not include in their programs more than 6 semester hours of courses numbered 101-160 and 6 semester hours of courses numbered 161-199.

Master of Arts

The department offers the M.A. in Latin, Greek, or classics. Candidates must earn a minimum of 30 semester hours of credit by taking courses numbered 101 and above. Usually, students in the Latin program who have not had Greek are expected to include at least elementary Greek in their programs. Students must pass a sight examination in the language(s) studied and an examination on literature and history.

Doctor of Philosophy

Requirements for the Ph.D. include course work as listed below, comprehensive and comprehensive examinations, and a dissertation.

REQUIRED COURSES

Greek rapid readings, two semesters 6 s.h.
Latin rapid readings, two semesters 6 s.h.
Greek composition or equivalent 3 s.h.
Advanced Latin composition or equivalent 3 s.h.

Any two of these:

Comparative Greek and Latin 3 s.h.
Greek Palaeography 3 s.h.
Graduate-level art 3 s.h.
Other interdisciplinary courses (with approval of the graduate adviser) 3 s.h.

The minimum Graduate College requirement is 72 semester hours; the difference is to be made up from courses offered in and outside of the department.

PN.D. EXAMINATIONS

Precomprehensive exams must be taken in Latin sight reading and Greek sight reading. One sight reading exam must be attempted by the end of the first year of graduate study. Competence in reading both German and French must be shown either by course work or exam.

Students must file a request for the comprehensive exam at least three weeks before the date of the exam. Candidates must take the following exams, in any sequence.

Second-year exam on literature and history-4 hours, written
Greek and Latin literature based on reading list-4 hours, written
Special field or author (Greek)-4 hours, written
Special field or author (Latin)-4 hours, written

Facilities

Extensive collections of classical texts and periodicals in the Main Library and the Art and Art History Library facilitate research in the major areas of Greek and Roman civilization. The department has a varied collection of slides on classical subjects and a small library. The classical museum, located in the graduate student office, contains a valuable collection of coins, vases, and facsimiles in bronze from Mycenae, Pompeii, and Herculaneum.

The University is a supporting institution of the American School of Classics Studies at Athens, the American Academy in Rome, and the Vergilian Society, thereby making those facilities available to its faculty and students.

Courses

Greek—for Undergraduates

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>14:1</td>
<td>Elementary Greek</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>14:2</td>
<td>Elementary Greek</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>14:11</td>
<td>Second-Year Greek I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>14:12</td>
<td>Second-Year Greek II</td>
<td>3 s.h.</td>
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</tbody>
</table>

Latin

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>20:16-17</td>
<td>Second-Year Latin I-II</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

Classics

*14:1 1-12 Second-Year Greek I-II | 6 s.h.
20:16-17 Second-Year Latin I-II | 6 s.h.

An additional six semester hours of upper-level courses in Latin or Greek

* These courses or their equivalents are required for the minor in classics, so that students will have had both Greek and Latin.

Ancient Civilization

All courses in Greek numbered 14:11 or above
All courses in Latin numbered 20:11 or above

Appropriate courses from the Schools of Art and Art History and Religion and the Departments of History and Philosophy, as selected by the interdepartmental committee on the major in ancient civilization

Language for Nonmajors

Students who want to satisfy the College of Liberal Arts foreign language requirement for the B.A. by studying Greek should take 14:1-2 Elementary Greek and 14:1 1-12 Second-Year Greek I-II. Students who want to meet the requirement by studying Latin may elect 20:1-2 Elementary Latin or 20:15 Accelerated Latin, and 20:16-17 Second-Year Latin I-II.

Graduate Programs

For the general requirements of the Graduate College, including the comprehensive
Latin–for Undergraduates

20:00 Cooperative Education Internship 0 s.h.
20:1 Elementary Latin 4 s.h. Focus on reading Latin and on Roman culture. GER foreign language.
20:2 Elementary Latin 4 s.h. Continuation of 20:1, which is prerequisite. GER foreign language.
20:15 Accelerated Latin 4 s.h. One year of Latin in one semester. For students who have studied Latin previously. Offered spring semesters. GER foreign language.
20:16 Second-Year Latin 3 s.h. Focus on reading Latin prose authors, such as Caesar and Cicero. GER foreign language. Prerequisite: 20:2 or 20:15 or two years of high school Latin.
20:17 Second-Year Latin 3 s.h. Focus on reading and interpretation of Roman poetry such as Vergil and Catullus. GER foreign language. Prerequisite: 20:16 or equivalent.

Latin–for Undergraduates and Graduates

20:1 17 Accelerated Elementary Latin 4 s.h. One year of Latin in one semester. Offered summer sessions. GER foreign language.
20:171 Elementary Latin Composition 3 s.h. Review of Latin morphotactics, syntax, sentence structure; composition of sentences, short passages in Latin.
20:185 Medieval Latin 3 s.h.
20:187 Latin Literature of the Republic 3 s.h. Latin literature of the republic. May be repeated. Prerequisite: 20:17 or equivalent.
20:189 Latin Literature of the Empire 3 s.h. Latin literature of the empire. May be repeated. Prerequisite: 20:17 or equivalent.
20:190 Latin Literature of the Empire 3 s.h. Continuation of 20:189. Maybe repeated. Prerequisite: 20:17 or equivalent.
20:191 Honors Readings 3 s.h. Discussion, readings, research for a paper on Roman civilization. Open only to majors.
20:192 Honors Readings 3 s.h. Continuation of 20:191, culminating in honors thesis.
20:199 private Assignments 1-3 s.h. For advanced non-classics majors. May be repeated.

Latin–for Graduates

20:202 Advanced Reading 3 s.h. Open only to graduate students in classics.
20:203 Comparative Greek and Miss 3 s.h. Systematic comparison of classics. Greek and Latin phonology and morphology; comparative material from Semitic and non Indo-European languages, introduced as needed; electronic approach organized along lines of modern linguistics research.
20:204 Rapid Readings in Latin I 3 s.h.
20:205 Rapid Readings in Latin II 3 s.h.
20:227 Cicero’s Philosophical Works 3 s.h.
20:230 Topography of Rome 3 s.h.
20:232 Advanced Vergil I 3 s.h.
20:234 Ovid 3 s.h. Close literary examination of the 15 books of the Latin text of Ovid’s Metamorphoses emphasis on analysis of form, language, and metamorphosis tradition in ancient literature.
20:240 Sallust 3 s.h.
20:241 Caesar 3 s.h. Books from Caesar’s Civil and Gallic Wars read in Latin.
20:250 Latin Biography 3 s.h. Biographical works by Cornelius Nepos and Suetonius, and texts from Latin inscriptions, focus on veracity, historical context.
20:258 Tacitus 3 s.h. Historical works read to illuminate Roman imperial period.
20:265 Silver Latin 3 s.h.
20:272 Advanced Latin composition 3 s.h.
20:274 Plautus 3 s.h.
20:275 Catullus 3 s.h.
20:276 Latin Poetry 3 s.h.
20:283 Seneca 3 s.h.
20:291 Latin Thesis 3 s.h. For Ph.D. candidates writing the dissertation.

Classics in English

All readings for these courses are in English; no previous knowledge of Greek or Latin is necessary.

14:1 10 Early Greek Art 3 s.h. Architecture, sculpture, painting minor arts from Mycenaean to Hellenistic times. Same as IH:126.
14:1 11 Classical Greek Art 3 s.h. Continuation of 14:1 10. Same as IH:127.
14:1 12 Classical Mythology 3 s.h. Ancient Greek and Roman myths and their interpretation by Western civilization emphasis on sexuality of myth and its importance for art, literature anthropological psychological studies. GER humanities. Same as GE:119.
14:1 14 Greek Vase Painting 3 s.h. Geometric and figure vases from ancient Greece, Asia Minor, and Italy. Same as IH:128.
14:1 17 Hellenistic Art 3 s.h. Art, civilization and culture, Greeks, Romans, Egyptians 330 30 B.C.E. Same as 14:1 10.
14:1 12 Homer and Hesiod 3 s.h.
14:1 22 Herodotus 3 s.h.
14:1 61 Greece and Persia 3 s.h.
14:1 62 Fifth-Century Athens 3 s.h.
14:1 194 Seminar in Ancient Civilization 3 s.h. Open only to majors.
14:2 30 Roman Civilization 3 s.h. History, literature, politics, social structure from third century B.C. to the second century A.D. GER historical perspectives.
14:2 81 Age of Cicero 3 s.h.
14:2 82 Age of Augustus 3 s.h.
14:2 103 Greek and Latin for Vocabulary Building 3 s.h. Articulation and understanding of the words and meanings of the history and meaning of word parts. Same as BY:101.
14:2 103 Medical and Technical Terminology 2 s.h. Memorization of stems, practice on computer terminal; no formal classes.
14:2 109 Art and Culture in Ancient Pompeii 3 s.h. Art, architecture as document of ancient society and religion in cities destroyed by Vesuvius in A.D. 79. Same as IH:134.
14:2 1 1 Early Roman Art 3 s.h. Roman architecture, sculpture, painting, mosaics of republican, imperial, late antique periods. Same as IH:132.
14:2 11 Etruscan Art 3 s.h. Art and art from Bronze Age to Roman conquest of Etruria. Same as IH:130.
14:2 1 2 Later Roman Art 3 s.h. Art, architecture of imperial Rome and provinces, from the Antonines through Constantine. A.D. 136337. Prerequisite: IH:5 or IH:28. Same as IH:133.
14:2 1 3 Religion and Death in Antiquity 3 s.h. Place of cultic power in early religion of Greece and Rome; influences of magico-religious practices in other cultures on Greco Roman culture during pre Christian period; advent of Eastern mystery cults. GER humanities. Same as 32:164.
14:2 1 6 The Concept of the City: Rome 3 s.h. Physical and cultural development of Rome from early republic to emperor Constantine and rise of Christianity in fourth century A.D.; reading in English; no Latin or Greek required. GER historical perspectives.
14:2 1 8 The Concept of the City: Rome 11 3 s.h. Rome of the Middle Ages and Renaissance.
14:2 194 Roman Archaeology 3 s.h. Archaeology, ethnology of Roman Civilization from km Age to 5th century occupation of Tunisia to end of Roman empire in the West. A.D. 476. Same as 113:194.
14:2 201 Topics in Comparative Roman Linguistics 3 s.h. Same as 26:207, 103:262.
COMMUNICATION STUDIES

Chair: Steve Duck
Professors: Charles F. Altman, Dudley Andrew, Leslie Baxter, Steve Duck, Bruce E. Gronbeck, John R. Lynn, Michael Calvin McGee, Franklin Miller, Donovan J. Ochs, Douglas M. Trank
Professors emeriti: Samuel L. Becker, Robert Kemp, Bruce E. Gronbeck, Baxter, Steve Duck, Jennifer Hamnett, Joy Hayes, Dianne Rucinski, Michael Saenz
Associate professors: Randy Hirokawa, George Klingler, John Peters, Leighton Pierce, Lauren Rabinovitz, Eric W. Rothenbuhler
Assistant professors: Kathleen Farrell, Jennifer Ochs, Douglas M. Trank

The Department of Communication Studies is concerned with communication as a means of personal expression and development; as the means by which people adjust themselves to their society and their society to themselves; and as an essential process for the operation of any society, especially a highly technological society. The department is also concerned with communication as artistic and functional expression, and as meaning construction. These concerns are manifested in studies of personal, public, film, and other mass-mediated forms of communication.

The department offers specializations in communication (B.A.), communication education (B.A. and M.A.), communication research (M.A. and Ph.D.), media studies and film (B. A., M.A., Ph.D.), and rhetorical studies (M.A. and Ph.D.). Freshmen interested in the department should talk with advisers in the Undergraduate Academic Advising Center; sophomores, juniors and seniors are assigned departmental advisers. Anyone wishing to take courses other than those fulfilling General Education Requirements must have a 2.50 cumulative grade-point average.

Undergraduate Programs

Selective Admission

To be eligible for admission to the department’s B.A. programs, applicants must complete, by the end of the semester in which application is made, at least 30 semester hours of approved undergraduate credit; they also must have a 2.50 cumulative grade-point average.

Students who do not meet the minimum criteria may petition the undergraduate admissions committee in writing, presenting any additional evidence of their qualifications.

Curriculum

Revised requirements for the communication studies major, effective beginning January 1995, are listed below. Students who enter the major on or after the first day of class in January 1995 may choose to fulfill the old requirements (see the 1992-94 General Catalog). Students who choose the old requirements must complete the major by December 1999.

Students who seek the Bachelor of Arts in communication studies must earn a minimum of 30 semester hours as described under “Media Studies and Film” and “Communication,” below. Students who seek teacher licensure must earn 33 semester hours as described under “Communication Education,” below. In all three of these undergraduate programs, all majors must complete at least one course each from any two of the four core areas—film, interpersonal communication, media studies, and rhetoric—as follows.

Film

36F:1 Introduction to Film Analysis 3 s.h.
36F:2 Survey of Film 3 s.h.

Interpersonal Communication

36C:60 Communication Theory in Everyday Life 3 s.h.

Media Studies

36M:25 Mass Media and Mass Society 3 s.h.
36M:45 American Broadcasting 3 s.h.

Rhetoric

36C:70 Persuasion in Society or
36C:80 Communication and Contemporary Culture 3 s.h.

Honors

A degree with honors in communication studies requires maintenance of a 3.20 grade-point average, membership in the University Honors Program, and completion of an honors thesis in the senior year. The honors thesis, which may be taken for 3-6 semester hours of credit over two semesters, offers a unique opportunity for students to develop expertise and contribute to knowledge in a selected area. As prerequisites to registering for thesis credit, candidates first must choose a faculty member to supervise the project, then have a prospectus for the project approved by that faculty member and the departmental honors adviser. The completed thesis is defended before a committee consisting of the faculty adviser, the departmental honors adviser, and one other faculty member.

Students who enroll in the honors program are eligible to take courses labeled “honors only” in the Schedule of Courses and to add an honore designation to any other departmental course by completing an agreement with the course instructor for special work in that course. Forms providing instructions are available from the honors adviser.

Minor

A minor in communication studies requires 15 semester hours of credit in communication studies, with a minimum grade-point average of 2.00 earned in those courses. Of the 15 semester hours, at least 12 must be in University of Iowa courses numbered 36C:60, 36 D:60, 36F:60, or 36M:60 and above.

Students must maintain a 2.50 cumulative grade-point average for courses taken toward the minor.

Graduate Programs

Master of Arts

A student can earn a general M.A. in the department or a more specialized degree in one of the programs.

Departmental requirements for the Master of Arts degree are

- a minimum of 30 semester hours, including
  - 36:300 Introduction to Research and at least two courses numbered 200 or above (the requirements for some programs in the department are greater than this minimum);
  - a research thesis or, for the nonthesis degree, a graduate seminar paper involving significant original research;
  - successful completion of a six-hour written examination, the scope of which is determined by the candidate’s division and graduate committee; and
  - at least a 3.00 cumulative grade-point average for all courses in the plan of study.

Applicants for summer session or fall semester whose papers are received in the department by February 1 have the best chance for admission and financial aid. The minimum cumulative undergraduate grade-point average required for admission in good standing is 2.75.

Doctor of Philosophy

Departmental requirements for the Doctor of Philosophy are

- a minimum of 72 semester hours of graduate credit, not including dissertation and courses required for a research skill;
- a minimum of 10 semester hours of dissertation credit;
- 36:300 Introduction to Research;
- successful completion of a qualifying and a predoctoral examination in the student’s major research areas;
- a substantial scholarly dissertation; and
- a 3.00 minimum cumulative grade-point average for all courses in the plan of study.

Individual Ph.D. programs have additional requirements. Contact the department for additional information.

Applicants for summer session and fall semester whose papers are received in the department by February 1 have the best chance for admission and financial aid. Admission decisions are based on composite consideration of the applicant’s undergraduate achievement, letters of reference, Graduate Record Examination (GRE) General Test results, a statement of purpose, and samples of scholarly work.
Program Areas

Communication

Undergraduate Program

Within a liberal arts philosophy, students in the general communication program study oral, written, visual, and electronic messages and media and their environments, from theoretical, critical, historical, and social-scientific perspectives. Students also improve their analytical and practical communication skills through critiqued practice. Combined with related work in mass communication, social sciences, expository prose, journalism, and business (especially marketing and administration), this specialization prepares students for careers in business, not-for-profit organizations, the media industries, and government. Others use the specialization as professional preparation for advanced studies in teaching, law, business, and the ministry, and for graduate studies.

To graduate in the communication program, students must complete 30 semester hours of work in the department, including the following:

Two courses from different core areas of film, interpersonal communication, media studies, and rhetoric

At least four additional 36C courses, including at least three numbered above 36C:80

Any additional 12 semester hours of departmental course work approved by an adviser

The department sponsors an internship program that provides outside work experience and an active intercollegiate forensics program, the Iowa Forensics Union, located in the International Center. Internships provide opportunities to apply communication knowledge and skills in a variety of settings, such as advertising, public relations, organizational development, politics, personnel, research, and training. In the forensics program, students have an opportunity to work in on-campus debates, with developmental programs designed to improve speech activities in the state, and as members of competitive intercollegiate debate and individual events. Forensics scholarships are available.

Communication Education

Undergraduate Program

The communication teaching specialization requires a minimum of 33 semester hours of course work. Students must take two courses from among the four core areas: four state-required courses; one theatre arts course; and any other communication studies courses, with the approval of a communication education adviser.

To strengthen both their major and their employment opportunities, students are advised to complete a teaching minor in English, reading, or other related fields, and to accumulate a record of achievement in forensics, media studies and film, readers’ theater, and theater activities.

Teaching Minor Licensure in Communication Studies

Completion of 23 semester hours of course work in communication and theatre arts is required. These hours must be approved by an adviser.

Graduate Program

The M.A. in Communication Education is designed to prepare teachers and supervisors of speech communication for secondary and postsecondary positions. It requires a minimum of 30 semester hours of course work approved by the department.

Media Studies and Film

Undergraduate Program

This program is intended for students interested in film or electronic media as the focus of a general liberal arts education. It assumes that anyone pursuing a career in these areas should not only acquire technical expertise but also should ground that expertise in an understanding of mass media’s place in personal and cultural experience. Conversely, it assumes that no one can understand the history, theory, and criticism of the electronic or film media totally apart from experience and knowledge of production. As study areas, theories of aesthetics, culture, and communication all come together in this program, making it an excellent choice for those who want to study people and their mediated creations.

Students emphasizing production learn to write, plan, shoot, edit, and present film, audio, and television programs. In addition, students obtain a background in the history of the mass media so that they understand reasons for the industry’s present state and possible alternatives. A grounding in media theory and criticism teaches students to appreciate what goes into their mediated creations.

Students emphasizing production learn to write, plan, shoot, edit, and present film, audio, and television programs. In addition, students obtain a background in the history of the mass media so that they understand reasons for the industry’s present state and possible alternatives. A grounding in media theory and criticism teaches students to appreciate what goes into their mediated creations.

To graduate with an emphasis in media studies and film, students must complete 30 semester hours in the department, including the following:

Two courses from different course areas of film, interpersonal communication, media studies, and rhetoric

Graduate Programs

MEDIA STUDIES

The graduate program in media studies leads to the M.A. or Ph.D. degree. Its central focus is understanding the modern media—radio, television, and associated electronic media, along with other significant forms, such as advertising and popular music—within their historical, social, political, economic, and cultural contexts.

The program has a strong theoretical emphasis. Students are encouraged to develop expertise in critical, cultural, sociological, anthropological, or other social-scientific or philosophical theories.

Plans of study are tailored individually for students. They may cut across all other programs within the department—including rhetorical studies, film studies, communication research, and production studies—as well as other academic units of the University, such as School of Journalism and Mass Communication, the Departments of History, Sociology, English, and Comparative Literature, and the College of Law.

FILM STUDIES

The graduate program in film studies leads to an M.A. or Ph.D. Candidates concentrate on theoretical, critical, and historical aspects of the discipline.

M.F.A. IN FILM VIDEO PRODUCTION

Requirements for the Master of Fine Arts in Film and Video Production are as follows.

Students must earn a minimum of 54 hours of graduate credit, including

36:300 Introduction to Research
Two 200-level courses in either Media Theory or Film Theory
36:640 Colloquium in Film and Video Production (4 semesters)
Two 100 level courses outside the department
Three 100-level Production courses
36:201 Advanced Media Production Workshop

After successful completion of a written comprehensive examination and after passing a clearance review of creative work, students begin a final, year-long thesis project course, 36 D:325 Master of Fine Arts Thesis.

Rhetorical Studies

Graduate Programs

The program in rhetorical studies leads either to the M.A. or the Ph.D. It is built on foundation courses in the history of rhetorical practices, the criticism of rhetorical discourse, and theoretical relationships between rhetorical activities and other dimensions of society. Some foundation courses in history and criticism are offered on the 100 level and are listed under “Communication” in this section of the Catalog the others begin at the 200 level. Foundation courses in rhetorical theory, designed to survey bodies of academic writing about rhetoric, are offered at the 300 level. Advanced courses in special areas of rhetorical theory are offered at the 400 level. Proseminars (500 level) and seminars (600 level) allow
students to develop expertise in various historical, critical, and theoretical approaches to rhetoric and communication.

MASTER OF ARTS
The M.A. program in rhetorical studies stresses basic knowledge of rhetorical history, criticism, and theory. That goal usually is met by work in the division and in other parts of the department and University. The degree is intended to build a strong foundation for teaching in high schools and junior colleges or for proceeding to the doctorate. Efforts are made to tailor individual programs of study to students' needs and career goals.

Minimal requirements for the M.A. in rhetorical studies include
36:300 Introduction to Research;
   at least 15 semester hours of courses in rhetorical studies, including a seminar (any course numbered 500 or above);
   at least 6 semester hours of courses in other program areas of this or related departments; and
   a comprehensive examination across three areas of study determined by students and their committees.

DOCTOR OF PHILOSOPHY
The program leading to the Ph.D. in rhetorical studies is designed to give candidates a mature grasp of the various specialties and perspectives embraced in this division and to develop research competence essential to a life of productive scholarship.

Work in related departments-political science, history, sociology, English, comparative literature, anthropology, American studies, and journalism-complements rhetorical studies course offerings. Many doctoral students also do extensive work in media studies, film, or communication research to improve their range of teaching opportunities and their research skills.

Persons who want information on basic requirements should write to the department. Teaching and research assistantships are available; evaluation of these applications begins mid-February each year.

Communication Research
The program in communication research leads to the Ph.D., although candidates for the M.A. also may be admitted when faculty resources allow. Programs designed for individual students provide background for and experience in research on interpersonal communication or group communication from a social science perspective, with special emphasis on group decision making or relational communication.

Students are encouraged to develop skills in both qualitative and quantitative methods of studying communication between persons in face-to-face interaction. Students are expected to develop and practice their research skills during the entire course of study, and they are strongly supported in their efforts to develop an independent, or collaborative, line of research under faculty guidance. Special research labs are dedicated to the conduct of work in the social sciences and equipped for such a purpose.

In addition to general departmental requirements, students study related social sciences and select appropriate courses from within and outside the department, in consultation with an adviser and a committee.

Institute for Cinema and Culture
The Institute for Cinema and Culture serves as a bank of information concerning availability of films and film materials for faculty and students. It helps departments, faculty members, and student groups bring to campus films and speakers that attract an interdisciplinary audience.

Each semester the institute sponsors a symposium and related film series on topics that alternate between general aesthetic or theoretic interest and those focusing on a specific culture or moment. The Proseminar in Cinema and Culture (36F. 112, 41F. 112) gives undergraduates and graduate students an opportunity to prepare for the symposiums through weekly readings and screenings.

Facilities
The Samuel L. Becker Communication Studies Building is designed specifically to meet both research and technical needs. Included are two television studios, a complete video postproduction facility, a film sound stage, a scene shop, areas for animation and graphics production, a radio studio, and an advanced 24-track audio studio that serves the needs of courses throughout the program. A large pool of equipment is available to support student work in both studio and location settings. Students and scholars have access to a video and film library, individual viewing areas, a lab complex for experimental and survey research, and computers for research efforts. The Samuel L. Becker Communication Studies Building is one of the best facilities of its kind in higher education.

Courses
General
36:000 Cooperative Education Internship 0 s.h.
36:97 Senior Seminar 3 s.h.
36:98 Honors Colloquium 1 s.h.
36:99 Honors in Communication Studies 3 s.h.
36:149 Problems in Communication Studies arr.
36:178 Workshop in Teaching Communication and Forensics SFT
36:249 Independent Study
36:300 Introduction to Research 1 s.h.
36:329 Interpersonal Communication with an Ethnographic Eye 3 s.h.
36:330 Family Communication 3 s.h.
36:385 Master's Thesis arr.

Communication
A 2.50 cumulative grade-point average is required for enrollment in all courses except 36C:40 and 36 C:60. Additional prerequisites are listed in course descriptions.

36C:20 Communicating in Public 3 s.h.
36C:30 Communicating in Public 3 s.h.
36C:31 Communicating in Public 3 s.h.
36C:32 Communicating in Public 3 s.h.
36C:33 Communicating in Public 3 s.h.
36C:34 Communicating in Public 3 s.h.
36C:35 Communicating in Public 3 s.h.
36C:36 Communicating in Public 3 s.h.
36C:37 Communicating in Public 3 s.h.
36C:38 Communicating in Public 3 s.h.
36C:39 Communicating in Public 3 s.h.
36C:40 Communicating in Public 3 s.h.
36C:41 Communicating in Public 3 s.h.
36C:42 Communicating in Public 3 s.h.
36C:43 Communicating in Public 3 s.h.
36C:44 Communicating in Public 3 s.h.
36C:45 Communicating in Public 3 s.h.
36C:46 Communicating in Public 3 s.h.
36C:47 Communicating in Public 3 s.h.
36C:48 Communicating in Public 3 s.h.
36C:49 Communicating in Public 3 s.h.
36C:50 Communicating in Public 3 s.h.

Communication Research
36C:40 Theory and Practice of Argument 4 s.h.
36C:41 Theory and Practice of Argument 4 s.h.
36C:42 Theory and Practice of Argument 4 s.h.
36C:43 Theory and Practice of Argument 4 s.h.
36C:44 Theory and Practice of Argument 4 s.h.
36C:45 Theory and Practice of Argument 4 s.h.
36C:46 Theory and Practice of Argument 4 s.h.
36C:47 Theory and Practice of Argument 4 s.h.
36C:48 Theory and Practice of Argument 4 s.h.
36C:49 Theory and Practice of Argument 4 s.h.
36C:50 Theory and Practice of Argument 4 s.h.
36C:51 Theory and Practice of Argument 4 s.h.
36C:52 Theory and Practice of Argument 4 s.h.
36C:53 Theory and Practice of Argument 4 s.h.
36C:54 Theory and Practice of Argument 4 s.h.
36C:55 Theory and Practice of Argument 4 s.h.
36C:56 Theory and Practice of Argument 4 s.h.
36C:57 Theory and Practice of Argument 4 s.h.
36C:58 Theory and Practice of Argument 4 s.h.
36C:59 Theory and Practice of Argument 4 s.h.
36C:60 Communication Theory in Everyday Life 3 s.h.
Theory, research on basic skills, processes in everyday communication. GER social sciences.

36C:70 Persuasion in Society 3 s.h.
Theories of public persuasion, types of persuasive campaigns and movements in society; rhetorical analysis of advertising; political, social unrest.

36C:90 Communication and Contemporary Culture 3 s.h.
Sociocultural roles that govern contemporary communication practices; methods for analyzing settings of discourse, communicative habits in conversational games, print and electronic media, politics.

36(285 Communication and Conflict 3 s.h.
Implications of communication theories, conflict theories; applications to everyday life.

36C:87 Gender Roles and Communication 3 s.h.
Gender roles and communication processes; function of communication in gender role development. Same as 131:187.

36C:90 Rhetoric and Politics 3 s.h.
Rhetoric of campaigns at national, state, local levels; discussions with candidates, media representatives; individual investigations.

36C:91 Topics its Communication Topics vary. 3 s.h.
Topical, Conceptual, metaphor, dialogue.

36C:93 Intercultural Communication 3 s.h.
Relationships among culture based assumptions, values, thought patterns, communication behavior; theory and practice. Same as 42:93.

36C:96 Oratory 3 s.h.
Composition of formal speeches for public presentation.

36C:110 Theories of Human Communication 3 s.h.
Symbolic interaction as evidenced by theorists such as Plato, Aristotle, Augustine, Bacon, Freseley, Campbell, Richards, Burke, McLuhan, Koffman Wajnuk.

36C:2125 Theories of Persuasion 3 s.h.
Focus on persuasion processes.

36C:130 Introduction to Rhetorical Criticism 3 s.h.
Rhetorical discussions, situations.

36C:133 Rhetorics of Utopia 3 s.h.
Same as 10:133.

36C:134 Contemporary Public Communication 3 s.h.
American public communication since World War II.

36C:135 American Public Communication 3 s.h.
History of American public communication from various periods.

36C:136 Organizational Communication Processes 3 s.h.
Communication in organizations; information flow and processing communication networks, role relationships, decision making in formal organizations.

36C:138 The Rhetoric of Self-Judgment 2-3 s.h.
Strategies used by persons charged with personal and public shortcomings; case studies from Depression through contemporary American politics.

36C:139 Studies in Argument 3 s.h.

36C:140 Communication and Relationships 3 s.h.
Communication issues that come to play as relationships in established, developed, maintained, dissolved.

36C:141 Group Communication Processes 3 s.h.
Group problem solving techniques, leadership and group participation; projects in social decision and action.

36C:142 Interpersonal Communication Processes 3 s.h.
Informal, social, interaction; theory, research.

Communication Education
36C:107 Directing Forensic Activities 3 s.h.
Planning, organizing, evaluating forensic programs at secondary level; establishment of curricular forensic programs; preparation for teaching competitive activities, justification of curricular programs in secondary schools. Prerequisite: 2.50 cumulative grade-point average. Same as 76:102.

36C:160 Methods: Communication 3 s.h.
Patterns in teaching, curricular programs, objectives, instructional methods and materials, effects of oral and written criticism and evaluation, testing and grading, textbook and references, periodicals and sources of publications; contemporary communication education; theory, research.

36C:250 Colloquium: Teaching Rhetoric arr.
Examination of literature and problems related to teaching composition, public speaking, reading. Same as 8P-450. 10:350.

Communication Research
36C:321 Organizational Communication: Theory and Research 3 s.h.
Major concepts; integration of communication theories, perspectives with organizational theories, perspectives.

36C:322 Group Communication: Theory and Research 3 s.h.
Major concepts, in small group communication; nature, function of communication processes in small group settings; theorems, frameworks for synthesis, critical evaluation of group communication research.

36C:323 Research Methods in Communication 3 s.h.
Design, execution, qualitative, quantitative, experimental, other methods; completion of a small project.

36C:324 Communication Research 3 s.h.
Review, analysis, execution from social/scientific perspective.

36C:325 Interpersonal Communication: Theory and Research 3 s.h.
Major viewpoints, approaches to communication theory and research on interpersonal, small group topics, social science perspective.

36C:327 Persuasion Theory and Research 3 s.h.
Major historical and recent approaches to persuasion; emphasis on social scientific approaches; may include logical approaches.

36C:328 Relational Communication: Theory and Research 3 s.h.
Communication in situation, development, maintenance, breakdown, repair of social and personal relationships, open communication, self disclosure, communicative skills; process models of relationships.

36C:350 Research Practicum 3 s.h.
Independent projects.

36C:623 Seminar Ethnography and Diacritics in Interpersonal Communication 3 s.h.

36C:630 Seminar: Relational Communication 3 s.h.

36C:631 Seminar: Topics in Communication Research Topics vary. 3 s.h.

36C:632 Seminar: Group Communication 3 s.h.

36C:633 Seminar: Rhetorical Communication Theory Construction 3 s.h.

36C:634 Seminar: Interpersonal Communication Theory Construction 3 s.h.
Recent theoretical advances, research.

36C:635 Seminar: Organizational Communication Theory 3 s.h.
Recent theoretical advances, research. Same as 19:340.

36C:636 Seminar: Persuasion 3 s.h.
Recent theoretical advances, research.

36C:637 Seminar: Constructions, Communication and Identity 3 s.h.

36C:638 Seminar: Transformation and Change in Communication 3 s.h.

36C:639 Seminar: Conflict and Communication 3 s.h.

36C:640 Seminar: Advanced Topics in Persuasion 3 s.h.

36C:641 Seminar: Culture and Communication 3 s.h.

Media Studies
A 2.50 cumulative grade-point average is required for enrollment in all courses listed below, except 36M:25, 36F:2, 36F:21, and 36F:105. Additional prerequisites are listed in course descriptions.

36M:25 Mass Media and Mass Society 3 s.h.
Processes, effects of mass communication; how communication media operate in the United States; how mass communication scholars develop knowledge. GER social sciences.

36M:35 History of Broadcasting 3 s.h.
Structure, economics, programming of broadcasting media, broadcasting as a cultural and economic system.

36M:45 American Broadcasting 3 s.h.
Technology, finance, organization, regulation, programming of broadcasting and electronic media in the U.S.

36M:46 Broadcast Programming 3 s.h.
Programming practices, strategies, operating procedures of radio, television stations; audience research; program acquisition, scheduling, formats, Syndication, promotion. Prerequisite: 36M:45.

36M:47 Mass Communication Advertising 3 s.h.
Uses of mass media for advertising campaigns, print and consumer research, marketing strategies, media buying, copying, production, media comparisons. Prerequisite: 36M:45.

36M:48 Broadcast Management 3 s.h.
Budgeting, staff, audience research, programming, promotion, sales, labor relations, government regulation, community responsibility. Prerequisite: 36M:45.

36M:49 Strong for Television and Radio Basic writing skills for broadcast media. 3 s.h.

36M:50 Women and Media Representations of women; pay of women in media organizations.

36M:59 Practicum Its Broadcasting and Film Internships in professional mass communication organizations. Major status and consent of instructor required.

36M:76TV and Radio Documentary Topic varies; focuses on history, theory, or criticism.

36M:80 Mass Communication and American Democracy 3 s.h.
Philosophical foundations of American democracy; focus on contemporary issues of news, media and politics, technology, freedom of speech. Prerequisite: 36M:25 or 36M:45.

36M:81 Television Criticism 3 s.h.
Theory and practice; may focus on programs, genres, periods, structures, other issues. Prerequisite: 36M:25 or 36M:45.

36M:83 Media and Politics 3 s.h.
Media content; relationships between media industries, other institutions; media content; impact of contemporary politics, media content on audiences, other institutions. Prerequisite: 36M:25 or 36M:45.

36M:85 Culture Approaches to Mass Communication 3 s.h.
Theories, methods of analyzing mass mediated artifacts, placing them in social context. Prerequisite: 36M:25 or 36M:45.

36M:86 The Production of Culture Organizations, economics, technologies, work routines of the media, their influence on the culture they produce and distribute. Prerequisite: 36M:25 or 36M:45.

36M:90 Topics in Mass Media 3 s.h.
Issues, problems, theories. Prerequisite: 36M:25 or 36M:45.

36M:95 Mass Communication: Processes and Effects 3 s.h.
Social scientific theories, research on processes, functions, impact of mass communication for individuals, societies. Prerequisite: 36M:25.

36M:130 Topics in History of Media 3 s.h.
Focus varies; history of electronic media, related communication systems. Prerequisite: 36M:35.

36M:132 Cultural History of U.S. Advertising 3 s.h.
Evolution of consumer culture in the United States since the mid-nineteenth century. Prerequisite: 36M:35.

36M:134 Topics: Cultural History of Advertising 3 s.h.
Focus varies; history of advertising as cultural, economic, or communication system. Prerequisite: 36M:35.

36M:136 Cultural History of Radio 3 s.h.
Evolution of radio as socio-cultural system. Prerequisite: 36M:35.

36M:138 Cultural History of American Television 3 s.h.
Changing structure, content of U.S. television since World War II. Prerequisite: 36M:35.
36M:180 Communication Technologies and social change 3 s.h.
Theory of how history of social changes brought about by invention, innovations in printing, telephony, broadcasting and other media. Prerequisite: 36M:25 or 36M:35 or 36 M:45.

36M:181 Communication Technologies and History 3 s.h.
How technologies have shaped societies, cultures, politics, art, people's lives. Prerequisite: 36M:25 or 36M:35 or 36M:45.

36M:317 Criticism of Broadcasting 3 s.h.
Theory, practice of media criticism; critical approaches; critical analysis of structure and content of radio, television. Prerequisite: 36M:25 or 36M:30 or 36M:45.

36M:318 Media Industries and Organizations 3 s.h.
Social-scientific theories and research on organization, economics of media work; impact on media content, performance. Prerequisite: 36M:45.

36M:186 Information Technology and the Organization 3 s.h.
Communication processes, management, job performance and satisfaction; organizations that depend on information technology, those that rely on information technology.

36M:187 Radio, Records, and Popular Music 3 s.h.
Representative topics from history, institutions, technologies, aesthetics, audiences, uses, effects of radio, records, and popular music. Prerequisite: 36M:35 or 36M:45.

36M:319 Philosophy of Media 3 s.h.
Twentieth-century philosophical and sociological background, research on media and society; may include media and democracy, the arts, children, society, consumer culture. Prerequisite: 36M:25 or 36M:30 or 36M:45.

36M:310 Mass Communication and Politics 3 s.h.
Methods; emphasis on classic narrative works from American, European traditions; shot by shot breakdown, narrative segmentation, genre. Same as 48:60.

36F:2 Survey of Film 3 s.h.
Film history, theory; criticism; emphasis on technique, technical function; screenings of narrative, documentary, experimental films. GER humanities.

36F:10 Contemporary Cinema 3 s.h.
Current American, foreign cinema; types, styles, directors; relationships between movies and film industries; cultural contexts; the moviegoing experience.

36F:11 Films and Screenplays 3 s.h.
Introduction to the structure of films in a variety of formats, from qonticalica films examined with the aid of their scripts to promising screenplays that never reached the screen or did so in altered form. Same as 8:1.1.

36F:12 Film and Society 3 s.h.
Social relationships between motion pictures and American culture, both historical and contemporary; censorship, treatment of social issues; representation of minorities in cinema, role of minority groups in filmmaking.

36F:20 US Film 3 s.h.
Examination of characteristic films across several decades as way of understanding the film industry and its social and artistic effects.

36F:21 European Film History 3 s.h.
Survey of German Expressionism, Soviet constructionism, Italian Neorealism, the new German film, history of cinematic art in cultural, social, and political contexts. GER humanities.

36F:22 World Film 3 s.h.
Introduction to filmmaking and film culture in several countries or regions outside the United States and Europe; films from Africa, Asia, and Latin America in qonticalica context. Same as 48:22.

36F:23 Documentary Film 3 s.h.
Historical survey of nonfiction film from flaherty to cinema verite; impact of television on film.

36F:50 Introduction to Film Theory 3 s.h.
Language, art form, social expression; emphasis on major historical positions in classical film theory. Recent developments.

36F:51 Film Criticism 3 s.h.
Purposes, presuppositions, styles of film criticism, from journalistic to scholarly; theoretical positions related to concerns of film critics.

36F:52 Gender and Film 3 s.h.
Primarily surveys American films from 1920s to 1980s, centering on images of sexes and how images relate to society; theory of cinema and sexual differences. Same as 131:52.

36F:70 Styles and Genres 3 s.h.
Film types (gangster, science fiction, Italian comedy, etc.); validity of treating films in such groups.

36F:90 Seminar in Film Studies 3 s.h.
One or more important topics in film history, theory, or practice through group discussion and individual research.

36F:99 Honors Project in Film 3 s.h.
Intensive directed research or writing of an approved thesis.

36F:301 Topics in U.S. Silent Film 3 s.h.
Specific issues or periods in U.S. silent film. May be repeated.

36F:302 Topics in U.S. Sound Film 3 s.h.
Specific issues or periods in U.S. sound film. May be repeated.

36F:303 Topics in contemporary Film 3 s.h.
Specific issues or periods in contemporary film. Maybe repeated.

36F:104 Topics in European Film History 3 s.h.
Specific issues or periods in European film. Maybe repeated.

36F:105 French Cinema 3 s.h.
History of film; French culture, film analysis, relationship of filmmakers to politics, religion, and so forth. GER foreign civilization and culture. Same as 9:147.

36F:106 Topia in Asian Cinema 3 s.h.

36F:107 Latin American Cinema 3 s.h.
Political, aesthetic aspects; films, filmmakers of key countries, cultural situations from which their films arise. Recommended: knowledge of Spanish. Same as 35:145.

36F:111 Cinema and Culture 3 s.h.
Impact of cinema with other aspects of cultural periods or movements, (e.g., those of Weimar, Germany, France between the wars, Depression America); emphasis on living role of cinema in history. Same as 48:11.

36F:112 Proseminar in Cinema and Culture 1-2 s.h.
Institute for Cinema and Culture symposia topic. Same as 48:12.

36F:113 Ethnographic Approaches to Film 3 s.h.
Relation of film to process of understanding groups of peoples and foreign societies; anthropological films; place of cinema in the social sciences.

36F:120 Issues in Film Theory 3 s.h.
A theorist, approach, or problem in film. Recommended: knowledge of classical film theory.

36F:121 Representation and Social Divisions 3 s.h.
Importance of motion pictures in relation to groups identified by gender, race, class, or ethnicity.

36F:122 Film Aesthetics 3 s.h.
Specific aspects.

36F:126 Technology of Film/TV Production 3 s.h.
Specialized vocabulary, scientific principles applied to technical aspects of film, TV production.

36F:131 Film and Art Movements 3 s.h.
Relationship between cinema, various art movements.

36F:160 Film Styles and Genres 3 s.h.
Film types (gangster, science fiction, Italian comedy, etc.); validity of treating films in such groups.

36F:161 Film Authors 3 s.h.
Work and vision of a single filmmaker or comparison of two or more filmmakers; film history, critical and analytic thinking and writing about film. May be repeated.

36F:172 Narrative and The Cinema 3 s.h.
Narrative theory, application to specific body of films, related works in another medium: novel, theater, a plastic art, a performing art. Same as 8:172, 48:172.

36F:219 Studies in Film Production 2 s.h.

36F:250 Writing About Cinema 3 s.h.
Analysis, criticism of films, film literature.

36F:263 Advanced Film Theory 3 s.h.
Topic in recent film theory, such as point of view, sound semiotics, feminism.

36F:276 Narrative Modes 3 s.h.
Same as 8:276, 48:276.

36F:277 Cinema and Historiography 3 s.h.
Prerogies, problems of writing cinema history.

36F:300 American Film and American Culture 3 s.h.
Relationships between American film culture through a particular approach, period, subject Same as 45:300.

36F:303 Topics in Latin American Film 3 s.h.
Same as 36:30.
36F:305 Studies in Sound and Image 3 s.h.
Technology, style, theory of cinema sound and image.

36F:311 Influences on Film Production 2-3 s.h.
Organization of industry, growing technology, patterns of distribution.

36F:605 Seminar: National Cinema 1-4 s.h.
Emphasis varies; France, Great Britain, Italy, Sweden, Russia, Japan.

36F:610 Seminar: Film Aesthetics and Criticism 14 s.h.
Problem or theoretical position in film studies, such as French cinema criticism between the wars, Frankfurt School and popular culture, Russian formalism, Mcluhan, Ponty and semiotics.

36F:615 Seminar: Film Theory 1-4 s.h.
Problem in film theory; such as semiotic cinema, psychoanalysis and cinema, feminist film theory, politics of location/race difference.

36F:616 Seminar: Film History 1-4 s.h.
A period or topic; historiographical, theoretical problems.

Production Studies

36D:35 Introduction to Media Production 3 s.h.
Screenwriting and directing; the basics of audio, video, light, sound design, camera placement, set design. Prerequisite: 36 D:35.

36D:97 Film Production I 4 s.h.
Sixteen, millimeter, camera operation, sound recording, editing; production of short non-sound film. Prerequisite: 36 D:35.

36D:98 Electronic Field Production 3 s.h.
Single camera shooting on location, emphasis on videotape editing. Prerequisite: 36 D:35.

36D:99 ScreenWriting 1-3 s.h.
Visualization, sequencing, dialogue, preparation of treatment, screenplay for theatrical or television fiction film; script problems. Prerequisite: 36 D:35.

36D:101 Radio Production II 3 s.h.
Focus on a particular mode of radio production; students produce several short radio projects in areas such as radio drama, comedy, documentary. Prerequisite: 36 D:95.

36D:111 Television Production: Selected Topics 3 s.h.
Emphasis on recent film production; computer assisted post production; representative topics include experimental and music driven forms. Prerequisite: 36 D:95.

36D:112 Television Production: Commercials 3 s.h.
Design strategies, audio and visual production; on-air and off-air editing with computer assisted on-air assembly; students create three short commercials in the studio. Prerequisite: 36D:96.

36D:13 Television Production: Drama 3 s.h.
Students work in small teams to do writing, set constraction, casting, rehearsing, directing, editing of a large scale studio drama. Prerequisite: 36 D:95.

36D:118 Television Production 11 3 s.h.
Directing large scale, multiple camera studio productions; developing competent production teams for production management, design problems; blocking and shooting; post production work. Prerequisite: 36 D:96.

36D:121 Film Production: Selected Topics 4 s.h.
Focus on particular aspect of or topic of filmmaking; short film projects in areas such as editing, experimental film, documentary. Prerequisite: 36 D:97.

36D:122 Film Production: Animation 4 s.h.
Projects in cell and experimental 16mm film animation or computer/video animation. Prerequisite: 36 D:35.

36D:123 Film Production: Cinematography 4 s.h.
Focus on image design in 16mm film production; short film projects involving lighting, filmmaking, camera placement, set design. Prerequisite: 36 D:97.

36D:124 Film Production 11 4 s.h.
Sixteen, millimeter sync sound camera, single sound or recording studio, student crew exercises in lighting, sync sound photography, editing, sound track building, re-recording techniques; production of short film with mixed sound track. Prerequisite: 36 D:97.

36D:131 Sound Design for Media Production 4 s.h.
Sound design for film, video; projects in a multitrack recording studio resolving sound/image relationships. Prerequisite: 36 D:97 or 36 D:98.

36D:132 Electronic Field Production II 3 s.h.
Single camera video production; student teams produce medium length video programming shot on location; forms may include fiction, documentary. Prerequisite: 36 D:98.

36D:141 Theory and Practice of 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) applications of theoretical issues, individual productions. May be repeated. Consent of instructor required.

36D:142 Issues in Film/Video Production 1-4 s.h.
Topi varies.

36D:150 Production Workshop 1-4 s.h.
Individual film or television project; common problems, screenings of work in progress. Prerequisite: 36 D:124 or 36 D: 118 or 36 D:98.

36D:201 Advanced Media Production Workshop 1-4 s.h.
Focus on a type of film (documentary, animation, experimental or an issue in film theory (sound, narrative structure, point of view) applications of theoretical issues, individual productions. May be repeated. Consent of instructor required.

Rhetorical Studies

36R:230 Rhetorical Criticism 3 s.h.
Approaches to rhetorical analysis of contemporary films, articles, events; rhetorical critical essay writing.

36R:231 Greek and Roman Public Address 3-4 s.h.
Public oral and written communication from 5th century B.C. to 3rd century A.D.; Sophists, Artic ornament, Cicero, early church fathers.

36R:233 British Public Address 3-4 s.h.
Producer of Marxism from Engels (1) to accession of Elizabeth H, 1599/1952.

36R:255 American Public Address: Colonial America Through Reconstruction 2-4 s.h.
Discourse in the law courts, public gatherings, pamphlets, newspapers.

36R:256 American Public Address: Gilded Ages Through Vietnam 2-4 s.h.
See 36 R:255.

36R:301 Classical/Rhetoric 0-1 s.h.
Discourse in the ancient world. Same as 26 D:96.

36R:302 Modern Rhetoric 0-1 s.h.
Theory from 1765 to 1965. Same as 26 D:26.

36R:303 Rhetoric and Philosophy 0-1 s.h.
Contemporary philosophical approaches to study of rhetoric.

36R:304 Rhetoric and Social Theory 0-1 s.h.
Discourse theories on social consequences of signification, representation, symbolic action; emphasis on rhetoric, paleontology, ideology.

36R:305 Rhetoric and Argument Theory 0-1 s.h.
Approaches to study of argument, key issues in dispute in contemporary conceptualizations of argument.

36R:306 Philosophies and Methods of Historical Research 0-4 s.h.
Problems, methods of researching original materials; work in archives, textual analysis, document, source.

36R:403 Studies in Language Theory 0-4 s.h.
Semiotics, speech acts, philosophy of language; emphasis on her relationship to rhetoric. Same as 36 D:96.

36R:404 Ideology and Hegemony 0-4 s.h.
Marxist, post Marxist theories of relationship between communication and social control.

36R:405 Communication and Dramaturgy 0-1 s.h.
Theories in their own account for patterns of human communication.

36R:406 Studies in Political Communication 2-4 s.h.
Political communication theories; utilization in explaining events of political discourse.

36R:501 Proseminar: Rhetoric/Culture in Antiquity 2-4 s.h.
Rhetorics, relationships to ancient society, culture.

36R:505 Proseminar: Rhetoric in Islam 2-4 s.h.
Academic discourse in special fields; function of rhetoric in establishing condition and criteria of truth.

36R:506 Proseminar: Contemporary Rhetorical Studies 2-4 s.h.
Problems in contemporary rhetorical studies; may include works of Kenneth Burke, Wayne Booth, deconstructionists, feminism, theories and crises of communication technologies.

36R:600 Seminar: Rhetoric 1-4 s.h.
Same as 10:604.

36R:601 Seminar: Public Address 1-4 s.h.
Rhetorical criticism of discourse addressed to the public, periods, approaches.

36R:602 Seminar: History of Rhetorics Theory 1-4 s.h.
Rhetorical speculation; periods, approaches.

36R:603 Seminar: Argument 1-4 s.h.
Philosophy of argument, ethics, logic, rhetoric, epistemologies.

36R:604 Seminar: Contemporary Rhetorical Theory 2-4 s.h.
Perspectives theoretical and/or theories dominating conceptual thought. Same as 10:604.

36R:605 Seminar: Communication, Culture, and the Popular Arts 2-4 s.h.
Theories, forms, genres of popular arts texts.

36R:607 Seminar: Rhetoric and Culture 1-4 s.h.
Cultural theories, use utility in accounting for communication practices.
**Undergraduate Program**

The undergraduate major in comparative literature provides an individualized program of literary and interdisciplinary study designed to promote cultural awareness, to increase speaking and writing skills, and to develop capacities for systematic reasoning. Students who major in comparative literature must acquire substantial training in foreign language, gain an international perspective on literature, and become acquainted with interdisciplinary approaches to cultural study. 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. It also offers excellent preparation for graduate work in the humanities.

The successful pursuit of comparative literature requires that students study one foreign language and literature in historical context. Familiarity with the literatures and cultures of other nations is afforded by theoretical inquiry into the nature of literature itself and by course work that investigates relations among various national literatures and between literature and other arts, such as film, painting, or translation. Course work in comparative literature also emphasizes interdisciplinary relations between literature and other areas of study, such as history, philosophy, linguistics, anthropology, and psychology.

Majors in comparative literature do not proceed through a specified prescribed common curriculum toward the B.A. degree. Working closely with faculty advisers, students develop coherent, individualized programs of study that reflect their own interests and developing skills. In addition to completing General Education Requirements for the B.A. degree, majors complete a minimum of 36 semester hours in courses distributed across three areas as follows.

**COMPARATIVE LITERATURE**

Students should take the following courses, for a total of 21 semester hours.

- 48:40-41 Major Texts in World Literature I-II 6 s.h.
- 48:50 Non-Western Literary Traditions 3 s.h.
- 48:95 Undergraduate Seminar 3 s.h.
- 48:100 Introduction to Criticism and Theory 3 s.h.
- Elective comparative literature course work at the 100 level 6 s.h.

**FOREIGN LITERATURE**

Students should take 9 semester hours of courses in one foreign literature, read in the original language, in addition to courses that satisfy the General Education Requirement in foreign language. One course in composition and conversation may count toward the major.

**RELATED AREAS**

Students should take 6 semester hours of courses in a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or courses in a second foreign literature.

**Honors**

To graduate with honors in Comparative Literature, students must meet eligibility standards listed in “Guide to Honors,” published by the University Honors Program. 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 adviser. Information is available from the Program in Comparative Literature office.

**Minor**

Students majoring in other disciplines may earn a minor by completing 15 semester hours of work in comparative literature, with a minimum grade-point average of 2.00. Of these 15 semester hours, at least 12 must be in University of Iowa courses numbered 48:95 and above.

**Graduate Programs**

**Master of Arts**

The Master of Arts degree in comparative literature requires 37 semester hours of 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 advisers, students combine courses in comparative literature and in the individual allied departments to design a coherent program of study. Formal degree requirements may be satisfied by a written examination on reading lists agreed upon by students and their advisers, or by 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 Translation**

The M.F.A. in translation promotes creative performance and study of languages, literatures, criticism, and cultural history. The aim of the program is to encourage the practice of literary translation and to bring about greater awareness of its tradition, its contributions, and its possibilities. The Iowa Translation Workshop is the central course in the program.

Admission to the program is granted on the basis of a submitted portfolio, including translations into and original writing in English, as well as supporting evidence of competence. Degree requirements include 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. A total of 48 semester hours of graduate study is required, 24 of which must be taken at The University of Iowa. Besides workshop hours, course work includes study of the foreign literature(s), creative writing (stylistic, etc.), and criticism. Thus, 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.

**Doctor of Philosophy**

Students seeking a doctorate in comparative literature 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 candidates 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.

Some typical critical and comparative areas are European Renaissance, romanticism, structuralism and poststructuralism, narrative theory in literature and film, symbolist poetics and modern literature, oral literature in antiquity and today, and satire, rhetoric, and the theory of social interaction.

The Ph.D. dissertation should demonstrate the candidate’s ability to write a substantial piece of scholarship or criticism. A translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may serve as an acceptable dissertation. The final oral examination centers on the dissertation and its background.

**Admission**

The study of literature across linguistic boundaries requires special 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 doctoral study.

Further information is available in the procedural guide for graduate students in comparative literature, available from the program office.

**Courses**

- **48:000** Cooperative Education Internship 0 s.h.
- **48:22** World Film 3 s.h.
- **48:41 Major Texts in World Literature III 3 s.h.**
- **48:48 Major Texts in World Literature IV 3 s.h.**
- **48:51 Major Texts of World Literature III 11 s.h.**
- **48:52** Non-Western Literary Traditions 3 s.h.
- **48:55 Issues in Comparative Literature 3 s.h.**

Special topics in the context of two or more national literatures or allied fields of inquiry.
48:60 Introduction to Film Analysis 3 s.h. Methods of analyzing various kinds of films, with emphasis on ‘classic’ narrative works from the American and European traditions; shot by shot breakdown, narrative segmentation, Kuleshov, genre. Same as 36F: 1.

48:80 Introduction to Translation Studies 3 s.h. Problems in translating prose, poetry, and drama; emphasis on literary translation. Same as BW 40.

48:81 Film and Literature Same as 8:81, 36:81.

48:95 Undergraduate Seminar 3 s.h. Senior seminar; focus on a significant text or critical problem; content reflects interests of faculty; individual research projects. Same as 8:95.

48:98 Honors Tutorial arr.

48:99 Individual Study arr.

48:100 Introduction to Criticism and Theory 3 s.h. Junior/Methods course; critical approaches to the phenomena of literature. Same as 8:100.

48:106 European Literature of the Nineteenth Century 3 s.h. Interdisciplinarity and national perspectives on literary movements, works, and authors before 1900. Same as 8:105.

48:10 Comparative Arts 3 s.h. Cultural and aesthetic issues arising from the side-by-side investigation of several arf forms, including literature, cinema, painting, music, opera, and architecture; periods, schools, styles, and their theories.

48:11 Literature and Culture 3 s.h. Films of one or more countries and periods; emphasis on interrelations among the arts, prevailing social conditions, industries and technologies reflected in films. Same as 36F: 111.

48:12 Proseminar in Cinema and Culture 2-3 s.h. Research and discussion of the institute for Cinema and Culture symposium topic. Same as 36F: 112.

48:13 Literary Genres in European Literature I 3 s.h. How generic definitions contribute to the understanding of related literary works; may deal with one or more genres (epic, romance, comedy, historical novel). Same as 8: 102.

48:15 Literary Genres in European Literature II 3 s.h. Continuation of 48:113. Same as 8: 104.

48:17 Contemporary Scene in Poetry Same as 8: 105.

48:18 Philosophy of Literature Same as 8: 106.

48:140 Contemporary Scene in Fiction Same as 8: 107.

48:141 Chinese Literature: Poetry Same as 8: 108.


48:150 Literature and Society Same as 8: 109.

48:151 Literature and Anthropology Same as 8: 110, 113.

48:152 Comparative Literature Seminar 3 s.h. Comparative aspects of literature among the nations of the world. Same as 39: 113.


48:158 East-West Literary Relations Same as 8: 110.

48:159 Comparative Culture in Caribbean Literature Same as 8: 115.


48:167 Literature and Psychology 3 s.h. Literary texts, themes, theory; emphasis on the interrelations of literary criticism, linguistics, psychology. Same as 8: 175.

48:172 Narrative and the Cinema Same as 8:172, 36F: 172.

48:173 Literature and Art Same as 8: 177.

48:182 American-Literature 3 s.h. Immigration history, ethnic identities, contemporary American culture as represented in literary texts and films by Asian Americans. Same as 39: 182.

48:190 Augustinian to Boccaccio 3 s.h. Same as 8: 185.

48:199 International Literature Today Same as 8: 191.

48:193 Comparative Cultural Criticism 3 s.h. Same as 8:189, 39: 193.

48:194 Introduction to Feminist Criticism 3 s.h. Same as 8:194, 131: 194.

48:196 The Daring Ones: Cuban-American Literature 3 s.h. Experiences of Cuban styles in U.S.; emergence of a vital literature based on sense of dispossession, marginality, and memory of an island past. Prerequisite: Eligible: 1 or equivalent. Same as 35: 143.

48:199 Individual Study arr.

48:200 Comparative Approaches I 3 s.h. Theory and method of comparative literary studies; translation theory, comparative aesthetics, various theories of literature.

48:201 Comparative Stylistics Same as 8: 202.

48:217 Introduction to Contemporary Literary Theory 3 s.h. Major currents in contemporary literary theory and how these theories construct the literary text: structuralism, semiotics, psychoanalytic, Marxist, reader response, and Derridean criticism. Same as 8: 207, 35: 281.


48:223 Romantic Literature 3 s.h. Same as 8: 222.


48:251 Criticism: Theory and the Non-West 3 s.h. Relationship between critical theory and non-West; usefulness, relevance of critical theory for study of non-West; theory of modernity; imperialism, colonialism. Same as 8: 251.

48:252 Renaissance Lyric Same as 8: 257.

48:260 Translation Workshop Prerequisites: at least one classical or modern foreign language and consent of instructor. Same as BW 260.

48:261 History of Criticism: Plato to 1700 3 s.h. Theory of literature, emphasis on philosophical implications of the literary theory from classical antiquity through the Renaissance. Same as 8: 261, 14: 261, 45: 261.

48:262 History of Criticism: 1700-Present 3 s.h. Theory of art from neoclassicism to contemporary critical movements. Same as 8: 262, 49: 262.

48:263 Issues in Contemporary Literary Criticism 3 s.h. Same as 8: 263.

48:264 Literature and Psychoanalytic Theory 3 s.h. Major psychoanalytic theories and their critical application to literary works; readings include literary works, literary analyses by psychoanalysts, psychoanalytic analyses by literary critics. Same as 8: 264.

48:265 Feminist Criticism 3 s.h. Same as 8: 265, 31: 265.

48:266 Fourteenth-Century Literature 3 s.h. Same as 8: 214.

48:276 Narrative Modes Same as 8: 262, 36: 276.

48:284 Types of Modern Criticism 3 s.h. Selected topics in recent European and American criticism. Same as 8: 284, 35: 284.

48:285 Vernacular Narrative 13-17th Centuries 3 s.h. Reading in fourteenth through seventeenth-century vernacular texts from the traditions of Europe and Asia; emphasis on literary, socioeconomic, and political contexts within which vernacular narrative was produced. Same as 39:285.

48:314 Postmodern Studies 3 s.h. Same as 8: 134.

48:382 Literary Genres and Modes Same as 8: 382.


48:408 Special Projects For doctoral candidates.


48:417 Marxism, science, and Chaos Theory 1 s.h. A Marxist understanding of science developed through group reading and discussion; usefulness of chaos theory for Marxist theory construction and abuses of science. Consent of instructor required. Prerequisite: one graduate level course in Aristotelian theory, post-Aristotelian theory, or analytic Marxism.

48:455 Seminar Post-Colonial Studies Same as 8: 455.

48:460 Seminar: Problems in Aesthetics and Literary Theory Same as 8: 460.


48:470 Brazilian and Spanish American Literature 3 s.h. Same as 35: 313, 38: 300.

48:471 Seminar: Literature and Other Arts arr.
Undergraduate Academic Advising Center. The handbook details department policies, suggests possible elective areas, and discusses the Cooperative Education Program and student groups such as the University’s chapter of the Association for Computing Machinery. Students may declare the B.A. in computer science at any time on or after admission to the University. All students begin with the following four courses.

22C 16 Introduction to Programming with Pascal
22C 17 Programming Techniques and Data Structures
22C 18 Computer Organization and Assembly Language Programming
22M:25 Calculus I
or
22M:35 Engineering Calculus I
4 s.h.

Students may apply for admission to the B.S. program after completing the four courses if they have achieved:
- a grade-point average of at least 2.46 in the four required courses, and a grade no lower than C- in each; and
- an overall grade-point average of at least 2.00.

Transfer students who have taken a course approved as equivalent to one of the computer science courses are exempt from that course, provided the transfer grade is at least a B-. Such transfer grades are used in computing the computer science grade-point average.

Application to the B.S. program is made at the department office.

After admission to the major, students need to maintain a grade-point average of 2.00 or higher in the courses required for the B.A. or B.S. in computer science (see “Bachelor of Arts” and “Bachelor of Science”) in order to remain in the major and to receive the B.A. or B.S. in computer science. Computer science students are advised by the Undergraduate Academic Advising Center until they have completed 22C 17 and 30 semester hours of course work (including transfer credit), at which time they are assigned a computer science faculty member as adviser. Students who are being advised at the advising center may avail themselves of walk-in/call in hours offered by computer science faculty.

Advanced Placement
The Computer Science Advanced Placement test can be used to gain credit for 22C 16 and or 22C 17. See the Computer Science Undergraduate Handbook for more details.

Bachelor of Arts

The General Education Requirements for this degree are stated in the College of Liberal Arts section of the Catalog. Courses that satisfy General Education Requirements, if chosen carefully, may also satisfy the departmental natural science sequence requirement as described below.

Students complete all department requirements for the B.A. In addition, they meet the following three requirements:

1. Completion of a natural science sequence requirement as described below.
2. Students complete all department requirements for the B.A.
3. They meet the following three requirements:
   - Completion of one of these: 22M:72 Elementary Numerical Analysis, 22S:120 Probability and Statistics, 22S:39 Probability and Statistics for the Engineering and Physical Sciences, or another probability and statistics course with a calculus prerequisite, as approved by the computer science advisor (if 22M:72 is used to fulfill this requirement, its cross-listing 22C:55 may not be used as an advanced course)
   - Completion of two advanced courses selected from the following list.

ADvanced Courses

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>22C 51 Computer Graphics</td>
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<tr>
<td>22C 96 Topics in Computer Science</td>
<td>arr.</td>
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<td>22C 99 Honors in Computer Science</td>
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<tr>
<td>22C 116 Advanced Operating Systems</td>
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For the B.A., the following computer science core courses are required.

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<td>22M:45 Accelerated Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>22M:26 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>22M:36 Engineering Calculus I</td>
<td>4</td>
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22M:27 Introduction to Linear Algebra with Pascal
22C 16 Introduction to Programming
22C 17 Programming Techniques and Data Structures
22C 18 Computer Organization and Assembly Language Programming
22C:19 Discrete Structures I
22C:21 Algorithms and Data Structures
22C:23 Programming Language Concepts
22C:31 Digital Systems and Computers
22C:32 Introduction to Systems Software

Total: 38 s.h.

Bachelors of Science

The General Education Requirements for this degree are stated in the College of Liberal Arts section of the Catalog. Courses that satisfy General Education Requirements, if chosen carefully, may also satisfy the departmental natural science sequence requirement as described below.

Students complete all department requirements for the B.A. In addition, they meet the following three requirements:

1. Completion of a natural science sequence requirement as described below.
2. Students complete all department requirements for the B.A.
3. They meet the following three requirements:
   - Completion of one of these: 22M:72 Elementary Numerical Analysis, 22S:120 Probability and Statistics, 22S:39 Probability and Statistics for the Engineering and Physical Sciences, or another probability and statistics course with a calculus prerequisite, as approved by the computer science advisor (if 22M:72 is used to fulfill this requirement, its cross-listing 22C:55 may not be used as an advanced course)
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22C 18 Computer Organization and Assembly Language Programming
22C:19 Discrete Structures I
22C:21 Algorithms and Data Structures
22C:23 Programming Language Concepts
22C:31 Digital Systems and Computers
22C:32 Introduction to Systems Software

Total: 38 s.h.

Courses cannot be taken pass/nonpass. Students with certain special elective programs may petition for additional courses to be accepted for this requirement.

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. The first course must be a prerequisite or corequisite to the second. 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 8 semester hours except for the biology/chemistry sequence listed below. Students often choose courses that also will satisfy the natural sciences General Education Requirement. Some possible choices are listed below; the computer science adviser 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**
- 29:61 General Astronomy GER lab (4 s.h.)
- 29:62 General Astronomy GER lab (4 s.h.)

**Biology/Chemistry**
- 4:13 Principles of Chemistry I GER (3 s.h.)
- 2:10 Principles of Biology I GER lab (4 s.h.)

**Botany**
- 2:1 Introduction to Botany GER lab (4 s.h.)
- 2: 100 Land Plants: An Evolutionary Survey (not a natural sciences GER) (4 s.h.)

**Chemistry**
- 4:13 Principles of Chemistry I GER (3 s.h.)
- 4:14 Principles of Chemistry II GER (3 s.h.)
- 4:16 Principles of Chemistry Lab I GER lab (2 s.h.)

**Physics**
- 29:17 Introductory Physics I GER lab (4 s.h.)
- 29:18 Introductory Physics II GER lab (4 s.h.)

**Honors**

Any University of Iowa student with a cumulative grade-point average of 3.20 or higher may join the University Honors Program; interested students should contact the honors program office in the Shambaugh House Honors Center.

To graduate with honors in computer science, students must complete 4-6 semester hours of 22C:99 Honors in Computer Science and submit an acceptable honors thesis. (The course 22C:99 can count as one but not both of the two advanced courses for the B.S.) To take 22 C:99, students obtain the consent of a computer science faculty member. The faculty member must know the nature of the intended project for the honors thesis and a plan or timetable for the work. Students are responsible for finding a faculty member willing to supervise their honors project. See the Computer Science Undergraduate Handbook for details.

**Minor**

The minor in computer science requires a minimum of 15 semester hours of computer science courses, at least 12 of which must be taken in advanced University of Iowa course work. For the purpose of the minor only, the following courses are considered advanced: 22C:9, 22C 10, 22C 12, and 22 C-prefix courses numbered higher than 22C 16, excluding 22C 100-22C: 112.

Typical course sequences for the minor are as follows.

22C:9, 22 C:10, 22C 12, 22C 16, and 22C 17
22C 16, 22C 17, 22 C:18, 22 C:19, and 22C:21
22 C:10, 22 C:12, 22 C:16, 22 C:17, 22C:18
22:10, 22 C:16, 22C 17, 22C 18, and 22 C 19

**Graduate Programs**

**Master of Science**

Applicants for admission to the M.S. program in computer science usually are required to have a background equivalent to a B.A. or B.S. in computer science. In special cases, students lacking adequate undergraduate preparation may be admitted conditionally to the graduate program. In such cases, the student is required to complete specific courses before enrolling in graduate courses. All candidates for the M.S. in computer science must complete the following core courses with grades of B- or higher.

- 22C 116 Advanced Operating Systems (3 s.h.)
- 22C:122 Advanced Computer Organization and Architecture (3 s.h.)
- 22C:123 Programming Language Foundations (3 s.h.)
- 22C 135 Introduction to Computation Theory (3 s.h.)
- A 200-level 22C course (3 s.h.)
- Three additional graduate-level 22C courses (except software engineering subtrack students) (9 s.h.)
- Approved elective courses (except software engineering subtrack students) (6 s.h.)

Total 30 s.h.

Elective courses are selected to support the student’s career objectives and must be approved by the adviser.

Computer science courses should be selected according to students’ special area interests, but they also should provide a broad range of experience and competence in computer science. In particular, some experience with projects involving extensive programming should be included.

M.S. candidates may elect to write a thesis, and with their adviser’s consent may apply up to 9 semester hours of thesis credit toward the minimum total of 30 semester hours of credit required for the M.S.

The M.S. final examination consists of either an oral defense of the thesis or a written report in the style of a professional paper, plus public presentation of an independently performed study. The topic, chosen by the student as an extension of his or her program, is approved by the department’s graduate committee. Consult the Computer Science Graduate Handbook for more information.

**Software Engineering Subtrack**

M.S. candidates may elect the software engineering subtrack, offered jointly with the Department of Electrical and Computer Engineering. Subtrack students must satisfy the following requirements.

- 22C:180 Fundamentals of Software Engineering (3 s.h.)
- 22C:181 Formal Methods in Software Engineering (3 s.h.)
- 22C:182 Software Engineering Project I (3 s.h.)
- 22C:183 Software Engineering Project (3 s.h.)

Four computer science courses listed under “Master of Science” (22C:116, 122, 123, and 135) 12 s.h.
- A 200-level 22C course (3 s.h.)
- One approved elective (3 s.h.)

Total 30 s.h.

Students who elect the software engineering subtrack follow the nonthesis option.

**Doctor of Philosophy**

Doctoral students are required to complete at least 72 semester hours of graduate work, including a thesis. Students need not have a master’s degree to begin the Ph.D. program, and they need not acquire one in order to be eligible for the Ph.D. Course requirements or equivalent proficiency for the doctorate include the following.

- 22C 116 Advanced Operating Systems (3 s.h.)
- 22C:122 Advanced Computer Organization and Architecture (3 s.h.)
- 22C:123 Programming Language Foundations (3 s.h.)
- 22C 135 Introduction to Computation Theory (3 s.h.)
- 22C:153 Design and Analysis of Algorithms I (3 s.h.)

Students also must complete at least 18 semester hours of 200-level computer science course work in addition to 22 C:299 Research for Dissertation.

In addition to the course work in computer science, students must complete at least three courses, with grades of B- or higher, in one of these outside areas: algebra, analysis, logic and set theory, operations research, statistics and probability, and numerical analysis.

At least one course in the outside area must be at the 200 (advanced) level, except in statistics and probability, where the advanced course may be at the 100 level.

**PH.D. QUALIFYING EXAM**

Upon admission, each Ph.D. candidate is assigned a student committee of three to five faculty members. The committee administers the qualifying and the comprehensive examinations.

The qualifying examination has the same format as the M.S. non-thesis final examination: the student prepares a written report in the style of a professional paper, using a topic of his or her own interest, and makes an oral public presentation. The topic need not be the eventual research area, but the student should demonstrate technical competence, ability for independent work, and potential for research, by both written and oral portions of the examination.

The qualifying examination can substitute for the M.S. non-thesis final examination, but the latter can not substitute for the former.

**COMPREHENSIVE EXAM**

After completing the qualifying examination, the student identifies a specialty area and conducts research in the area. The student committee decides the form of the comprehensive examination (which may have both written and
oral parts). Consult the Computer Science Graduate Handbook for more information.

**Dissertation**

Students write a proposed research and present an oral defense to the research committee. They must demonstrate expertise in the area of proposed research and justify the proposal in terms of originality and significance.

Students make a final oral defense of their completed dissertation.

**Graduate Service Courses**

Competence and experience in the use of a computer in problem solving is useful for and often prerequisite to advanced study and research in many disciplines. For most students, the two-semester sequence, 22 C:106 Introduction to Programming with Pascal and 22 C:107 Programming Techniques and Data Structures, is recommended. Students in fields in which other programming languages are used heavily may find 22C: 106 Introduction to Computing with FORTRAN, 22 C:109 Programming with COBOL, or 22C: 110 Programming with C more appropriate.

**Courses**

**Primarily for Undergraduates**

22C:000 Cooperative Education Training Assignment 0 s.h.

Or off campus work experience. Consent of department required. Prerequisite: completion of pre-computer science requirements.

22C:1 Survey of Computing 3 s.h.

Nature, uses, operations of computers and computing seen through a broad sample of computing techniques, including batch and interactive computing, packaged programs, nonnumeric programming, retrieval techniques, impact of computing technology on society; personal workstations used for projects involving word processing, spreadsheet, databases, graphics. Not open to students who have taken a higher numbered 22C course or 6970.

22C:5 Problem Solving and Computing 3 s.h.

Problem solving as intellectual exercise; study of strategies, tactics for problem decomposition; problem solving, programming as transformation from problem to solution to implementation; representation of information objects, operations, processes; representation of solutions in different forms on the computer. Prerequisite: satisfaction of General Education Requirement in quantitative or formal reasoning.

22C:7 Introduction to Computing with FORTRAN 3 s.h.

Basic concepts of computer structure, programming techniques, algorithms, subprograms, file processing, abstract and machine data representations; emphasis on programming with FORTRAN.

22C:9 Programming with COBOL 3 s.h.

Business applications; records, files, mass storage device, programming techniques for table handling, sorting, generation of reports from files, maintenance of sequential and random-access files. Prerequisite: 22C: 16 or consent of instructor.

22C:10 Programming with C 3 S.h.

Major portions of C language; variables, expressions, statements; program execution through functions, macros, blocks; control structures; representation of numerical, textual data using scalar, structured data types; operating system interfaces to files, other services; programming methodology topics such as use of program design and development tools, management of multiple programs. Prerequisite: 22C: 16 or consent of instructor.

22C:12 Programming in C++ 3 s.h.

Basic constructs in C++ class specificity; inheritance; operator overloading; virtual functions and templates; maps concepts of data abstraction and object oriented programming in C ++. Prerequisite: grade of C or higher in 22C:10 or consent of instructor.

22C:16 Introduction to programming with Pascal 4 s.h.

Programming, program design techniques using major portions of Pascal language: simple data types; variables, expressions; program modularity; error handling; procedures, functions; block structure; control statements for repetition, selection, data representation; structured data types, including arrays, strings, files, records, sets, memory systems, including searching and sorting algorithms. GER: quantitative or formal reasoning.

22C:17 Programming Techniques and Data Structures 3 s.h.

Continuation of 22 C:16; complex and dynamically allocated data structures such as lists, queues, stacks, trees; file application of software engineering principles to design, implementation of programs; recursion; comparison of data structure implementations; sorting, searching algorithms. Analysis of program efficiency, verification. Prerequisite: grade of C or higher in 22 C:16.

22C:18 Computer Organization and Assembly Language Programming 4 s.h.

Hardware organization; memory addressing and structure; CPU memory/IO relationships; machine language versus assembly language; assembly, loading, execution; data, data structure representations, limitations, conversions; arithmetic, character processing; condition tests, branches; control structures; subroutines and external linkage, parameter passage; macros. 1/0. Prerequisite: grade of C or higher in 22 C:17.

22C:19 Discrete Structures I 3 s.h.

Propositional and predicate logic, proof techniques with emphasis on induction; sets, functions, relations, graph theory, trees; combinatorics, analysis of algorithms; program correctness. Prerequisite: grade of C or higher in 22C: 17 and 22M:25 or 22M:35 or 22 M:45.

22C:21 Algorithms and Data Structures 3 s.h.

Algorithms and relation to implementing data structures; sorting and searching, including AVL trees, binary trees, hashing; graph algorithms including depth first and breadth first search, shortest path; string, array, matrix representations; dynamic storage management techniques, garbage collection. Prerequisite: grade of C or higher in 22 C:17, 22 C:18, and 22 C:19.

22C:23 Programming Language Concepts 3 s.h.

Syntax specification, informal semantics models; control structures including recursion, coroutines, backtracking, concurrency; data abstraction, structuring methods; introduction to functional, logical, and object oriented programming; use of several languages—Pascal, Ada, Modula2, Prolog, Lisp, SNOBOL. Prerequisite: grade of C or higher in 22 C:17 and 22 C:18, and 22 C:19.

22C:31 Digital Systems and Computers 3 s.h.

Basic hardware components, gate, flop/flop deciders, multiplexers, registers; register operation; arithmetic/logical units and algorithms; memory systems; secondary device addressing and instruction types; control units; 1/0 organizations; direct memory access, 1/0 interrupt, 1/0 architectures; case studies of data and microcomputer. Prerequisite: grade of C or higher in 22 C:18.

22C:32 Introduction to Systems Software 3 s.h.

System programming; structure of language processors using examples from assemblers, macro processors, linkers, loaders; 1/0 control languages, sequential and random-access device management, file systems, storage allocation, concurrent programming, scheduling, resource sharing, protection. Prerequisite: grade of C or higher in 22 C:17, 22 C:18, and 22 C:31.

22C:51 Computer Graphics 3 s.h.

Introduction to graphics hardware; Design of human/graphic interface; coordinate systems; windrouting; clipping; viewport scalings; translation; rotation; three-dimensional representations; protections from three to two dimensions; hidden lines, surfaces; vector/raster conversions; reflection, shading; color, animation. Prerequisite: grade of C or higher in 22 C:17 and 22 M:27.

22C:55 Elementary Numerical Analysis 3 s.h.

Numerical approximation of polynomials, general algebraic equations; numerical solution of ordinary linear equations, linear matrix operations; least squares curve fitting techniques, interpolation polynomials; numerical solution of ordinary differential equations; detailed error analysis of several numerical programming projects. Prerequisite: grade of C or higher in 22M:26 or 22M:36 or 22 M:46, and programming experience. Same as 22 M:72.

22C:96 Topics in Computer Science 3 s.h.

Complements material in 22M:1 courses. May be repeated. Consent of instructor required.

22C:99 Honors in Computer Science 3 s.h.

Individual projects. Open only to computer science majors in honors program. May be repeated. Consent of instructor required.

**Graduate Service Courses**

Not open to undergraduates; no degree credit for computer science students.

22C:100 Introduction to Computing with FORTRAN See 22C:7.

22C: 102 Computer Literacy 3 s.h.

Nontechnical approach to computers and their use, misuse, teleconference. Consent of instructor required.

22C:106 Introduction to programming with Pascal 3 s.h.

See 22 C:16.

22C:107 Programming Techniques and Data Structures 2 s.h.

Continuation of 22 C:106. See 22 C: 17. Prerequisite: grade of C or higher in 22 C:106.

22C:108 Computer Organization and Assembly Language Programming 3 s.h.

See 22 C:18. Prerequisite: grade of C or higher in 22 C:107.

22C:109 Programming with COBOL 2 s.h.

See 22 C:9. Prerequisite: 22 C:106 or consent of instructor.

22C:110 Programming with C 2 s.h.

See 22 C:109.

22C:112 programming in C++ 2 s.h.

See 22 C: 12. Open only to non computer science graduate students. Prerequisite: grade of C or higher in 22C: 110 or consent of instructor.

22C:151 Computer Graphics 3 s.h.

See 22C:51. Open only to non computer science graduate students. Prerequisite: grade of C or higher in 22C: 107 and 22 M:27.

22C:152 Computer Graphics Laboratory 1 s.h.

Use of high level graphics languages such as CL, PHSGS, Stellarbase, 2D buffer, image buffer, KE trees, other ray tracing speed-up techniques, advanced shading, texture mapping. Corequisite: 22C:51 or 22C:51.

**Primarily for Computer Science Majors**

22C:116 Advanced Operating Systems 3 s.h.

Operating system support for sequential, concurrent, distributed programming, interprocess communication, synchronization constructs; semaphores, user traps, monitors, remote procedure calls; management, protection of memory, communication resources. Prerequisite: grade of C or higher in 22 C:19, 22 C:21, 22 C:22, and 22 C:32; or consent of instructor.

22C:122 Advanced Computer Organization and Architecture 3 s.h.

Processor architectures: Von Neumann machine, evolutions in instruction set design, RISC and CISC, implementation of instruction set, microprogramming, storage systems – cache, main and secondary memory, virtual memory; 1/0 organizations; CPU design— instruction, arithmetic pipelines; high performance computers; array and vector processors, shared memory and distributed memory multiprocessors; case studies of historic, current architectures. Prerequisite: grade of C or higher in 22 C:31 and 22 C:32.

22C:123 Programming Language Foundations 3 s.h.

Formal specification of semantics of conventional programming languages using a variety of models, including attribute grammars, operational, axiomatic, Sensational algebraic techniques; proofs of program correctness, termination, semantic models, logic programming. Prerequisite: grade of C or higher in 22 C:19, 22 C:21, 22 C:22, and 22 C:32.
22C:125 Data: Abstractions, Types, and Structures 3 s.h.

Abstract data types and program specification, including graph theoretic and algebraic models, emphasis on algorithms and techniques: specific languages; testing; verification of specifications; type systems; reference; data abstraction facilities in modern programming languages; principal associated algorithms. Prerequisite: grade of C or higher in 22C: 19, 22 C:21, and 22 C:23.

22C:127 Introduction to Compiler Construction 3 s.h.

Concept, design, implementation; simple one pass compiler; lexical analysis, syntax analysis and recognition; automatic scanner generation; syntax analysis-context free grammars, top down, bottomup, and operator precedence parsing; LL and LR parsers; ambiguous grammars; error recovery; intermediate code generation—postfix notation, three address code, syntax trees, code optimization—local, global, loop, large programming project. Prerequisite: grade of C or higher in 22 C:19, 22 C:21, 22 C:23, and 22 C:32.

22C:132 Parallel Programming 3 s.h.

Parallel computations: concepts, design, implementation; performance evaluation; concept of process, parallel algorithms, language and architecture supports; development, running of parallel programs on available parallel machines. Prerequisite: grade of C or higher in 22C:32 or consent of instructor.

22C:135 Introduction to Computation Theory 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: 10, 22C:21, and 22C:32.

22C:144 Database Management Systems 3 s.h.

Architecture and models, external, extended, internal model, storage representations, access methods, relational calculus and algebra, integrity constraints, decomposition to normal forms; projects using DBMS and access methods from query optimization, concurrency, recovery, security, distributed systems. Prerequisite: grade of C or higher in 22C: 10, 22C:21, and 22C:32.

22C:145 Artificial Intelligence I 3 s.h.

Basic concepts; problem solving methods, state space representations, heuristic search, probability, reduction techniques, machine reference, game playing, knowledge representations; implementation of expert systems and machine perception. Prerequisite: grade of C or higher in 22C: 19, 22C:21, and 22C:23.

22C:153 Design and Analysis of Algorithms I 3 s.h.

Correctness of iterative and recursive algorithms; design techniques such as divide and conquer, dynamic programming; analysis of techniques such as recurrence equations, amortized complexity; advanced data structures, NP complete problems. Prerequisite: grade of C or higher in 22C: 19 and 22C:21.

22C:160 Geometric and Physical Modeling I 3 s.h.

Introduction to mathematics, data structures, algorithms for 2D, 3D objects; boundary, spatial occupancy representations; conversion of data from tesselations to boolean operations, transformations, relational operations; interpolation, approximation; robustness of geometric computations; rendering. Prerequisites: grade of C or higher in 22C: 19, 22C:21, and 22 M:27, or consent of instructor.

22C:161 Robotics I 3 s.h.

Computational perspective; spatial representation, kinematics, inverse kinematics, dynamics, control, trajectory determination, robot programming languages, path planning, simulation, motion control, manipulation, error avoidance and recovery, task planning, robot locomotion. Prerequisites: grade of C or higher in 22C: 19, 22C:21, and 22 M:27, or consent of instructor.

22C:162 Computer Vision I 3 s.h.

Edge detection, texture analysis, color constancy, shape from shading, motion analysis, stereo matching, shape representation, object recognition, supporting mathematical algorithms: basic experimental techniques through laboratory projects. Prerequisites: grade of C or higher in 22 C:19, 22 C:21, and 22 M:27, or consent of instructor.

22C:167 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 22 C:19. Same as M:152.

22C:178 Computer Communications Networks 3 s.h.

Networks, TCP model, network topology, physical networks, data link control, errors, control point, point to point networks, broadcast networks, local networks; protocols; transmission, multiplexing, security; protocols. Senior standing in electrical and computer engineering or computer science required. Prerequisites: 22S:39 or 22S:120. Same as 55: 134.

22C:180 Fundamentals of Software Engineering 3 s.h.

Problem analysis, requirements definition/motivation, design, implementation, testing, maintenance, integration, project management; human factors; management, technical communication, methodologies; software validation, verification; group project experience. Senior standing in computer sciences or electrical and computer engineering required. Same as M:390.

22C:181 Formal Methods in Software Engineering 3 s.h.

Models and methods, their application in all phases of software engineering process; operational, algebraic, model based, property/based specification methods; verification of consistency, completeness of specifications; verification of software properties; treating in specification construction, verification using method based tools. Prerequisite: grade of C or higher in 22C: 180. Same as 55: 181.

22C:182 Software Engineering Project I 3 s.h.

Team project work for real software product; observation, risk analysis, scheduling, tracking and control, software metrics; CASE tools and project management techniques. Followed by 22C:183. Prerequisites: grade of C or higher in 22C:180 and 22C:181. Same as 55: 182.

22C:183 Software Engineering Project II 3 s.h.

Continuation of 22C: 182, which is prerequisite. Same as 55: 183.

22C:189 Software Engineering Project Management 1-2 s.h.

Resource requirements estimation, planning, management; risk analysis; scheduling, tracking, cost control; personnel supervision, training, evaluation, process determination and management, including change control, configuration management, technical project leadership, assessment; two consecutive semesters assisting in supervision of teams in 22C: 182. Prerequisites: grade of C or higher in 22 C:182, 22C:183, and consent of instructor.

22C:191 Research for Thesis 1 s.h.

For M.S. candidates in computer science. Consent of adviser required.

22C:193 Topics in Programming Languages 3 s.h.

May focus on functional programming, logic programming, object oriented programming or another paradigm; emphasis on program design, implementation issues, or semantics; theoretical, practical aspects of the paradigm. May be repeated. Consent of instructor required. Prerequisites: grade of C or higher in 22C:21 and 22C:23.

22C:194 Topics in Systems and Networks 3 s.h.

May include discrete event simulation, real time systems, distributed systems theory, network protocols, Petri nets and performance evaluation, operating systems, laboratory. Consent of instructor required. Prerequisites: 22C: 116 or 22C: 178.

22C:195 Topics in Software Engineering 3 s.h.

Formal treatment of issues such as requirements analysis/modeling, specification, design, software reusability, implementation tools and techniques, programming support environments, testing, theory, management. Consent of instructor required.

22C:196 Topics in Computer Science 3 s.h.

Complements material in other courses. May be repeated. Consent of instructor required.

22C:197 Readings in Computer Science 3 s.h.

Material not covered in other courses; individual study. Maybe repeated. Consent of instructor required.

22C:198 Individual Programming Projects 3 s.h.

May be repeated.

22C:202 Topics in Database Management Systems 3 s.h.

May include semantics and modeling, object oriented databases, functional and multivalued dependencies, language interfaces, query optimization, recovery, security, concurrency, distributed systems, database machines, performance evaluation. Prerequisite: 22C: 144.

22C:279 Artificial Intelligence II 3 s.h.

May include theorem proving, concept formation, AI programming languages and concepts, machine understanding, robot models, philosophies of machine intelligence. Prerequisite: 22C: 145.

22C:281 Robotics II 3 s.h.

Continuation of 22C: 161; current literature in robotics; surveys of papers proposed; algorithms; projects to prepare students for independent research. Prerequisite: 22C: 162 or consent of instructor. Recommended: relevant mathematics (numerical analysis, differential equations, vector calculus, statistics) and 22 C:160.

22C:290 Readings for Research 3 s.h.

Open only to Ph.D. candidates in computer science. Consent of instructor required.

22C:291 Seminar on Realtime Systems 3 s.h.

Consent of instructor required.

22C:292 Seminar on Database Systems 3 s.h.

Consent of instructor required.

22C:293 seminar on Software Engineering arr.

Consent of instructor required.

22C:294 Seminar on Systems and Networks 3 s.h.

Consent of instructor required.

22C:295 Seminar on Artificial Intelligence 3 s.h.

Consent of instructor required.

22C:296 Seminar on Computer Science 3 s.h.

Consent of instructor required.

22C:297 Seminar on Computer Vision and Robotics 3 s.h.

Consent of instructor required.

22C:298 Seminar on Programming Languages 3 s.h.

Consent of instructor required.

22C:299 Research for Dissertation 1 s.h.

For Ph.D. candidates in computer science. Consent of adviser required.

22C:300 Research Seminar: Formal Methods for Software Development 3 s.h.

Consent of instructor required.

22C:301 Research Seminar: Realtime Systems 3 s.h.

Consent of instructor required.

22C:302 Research seminar: Database Systems 3 s.h.

Consent of instructor required.

22C:304 Research Seminar: Distributed Systems Theory 3 s.h.

Consent of instructor required.

22C:309 Research Seminar Artificial Intelligence 3 s.h.

Consent of instructor required.

22C:317 Topics in Programming Language Design and Implementation 3 s.h.

May include comparison, evaluation of programming language design; formal semantics, specification techniques, compiler specification; programming runtime environments; type computations; code generation, optimization. Prerequisites: 22C: 123 and 22C: 127.

22C:321 Advanced Theory of Computation 3 s.h.

Partial recursive, recursive, primitive recursive functions; recursive, recursively enumerable sets; universal machines; noncomputable results, recursion theorem, complexity measures, speed up, limited halting problem. Prerequisite: 22 C:130.
DANCE

Chair: Aresa Brown
Associate professors: David Berkey, Alicia Brown, Helen Chadima, Françoise Martinet
Assistant professors: Linda Cinit, Armando Duarte, Alan Sener
Technical director: Gary N. Holquist

Undergraduate programs

The undergraduate major in dance provides a liberal arts education and thorough preparation for careers in professional dancing, choreography, and education as well as for graduate studies. The program offers many opportunities for performance and choreography as well as an abundance of master classes with guest teachers and touring companies. Since 1986, the dance department’s touring company, Dancers In Company, has given the best qualified students an opportunity to perform in Iowa and surrounding states.

Bachelor of Arts

The B.A. program in dance is designed for students who want a strong liberal arts background and solid undergraduate dance preparation. It stresses performance, choreography, and teaching, as well as theory courses such as Labanotation, dance history, dance theory, and dance production. To graduate, students in the program must complete 50 semester hours of credit in dance courses, including two semesters of 137:113 Major Ballet II or 137:114 Major Modern Dance 11 with a minimum grade of B- or higher. A maximum of 50 semester hours in dance department courses is accepted toward the 124 semester hours required for graduation.

Required Courses

DANCE THEORY

137:40 Introduction to Dance 1 s.h.
137:50 Dance Production 3 s.h.
137:60 Rhythmic Analysis of Dance or 25:10 Fundamentals of Music 2 s.h.
137:150 Beginning Labanotation 3 s.h.
137:180 Dance History: From Primitive Through the Nineteenth Century 3 s.h.
137:181 Twentieth-Century Dance 3 s.h.

STUDIO (NONTECHNICAL)

137:60 Honors Project in Dance 2 s.h.
137:413 Beginning Modern Dance 2 s.h.
137:113 Beginning Jazz 2 s.h.
137:12 Beginning Ballet 2 s.h.
137:14 Beginning Tap 2 s.h.
137:15 Beginning Labanotation 3 s.h.
137:17 Independent Choreography arr.
137:19 Independent Study arr.
137:190 Independent Study 3 s.h.
137:191 Readings in Dance arr.

STUDIO TECHNIQUE

Twenty semester hours from the following:

137:1 Beginning Tap 2 s.h.
137:2 Beginning Jazz 2 s.h.
137:3 Beginning Ballet 2 s.h.
137:4 Beginning Modern Dance 2 s.h.
137:11 Continuing Tap 2 s.h.
137:12 Continuing Jazz 2 s.h.
137:13 Continuing Ballet 2 s.h.
137:14 Continuing Modern Dance 2 s.h.
137:21 Low Intermediate Tap 2 s.h.
137:22 Low Intermediate Ballet 2 s.h.
137:23 Low Intermediate Modern Dance 2 s.h.
137:24 Low Intermediate Modern Dance 3 s.h.
137:33 Intensive Training for the Male Dancer 2 s.h.
137:43 Continuing Intensive Training for the Male Dancer 2 s.h.
137:103 Major Ballet I 1-2 s.h.
137:104 Major Modern Dance 1 1-2 s.h.
137:113 Major Ballet II 1-3 s.h.
137:114 Major Modern Dance 11 1-3 s.h.
137:123 Major Ballet 111 1-3 s.h.
137:124 Major Modern Dance 111 1-3 s.h.

NOND EPARTMENTAL

25:165 Opera Dance Theatre Production (section 2) 4 s.h.
25:75 Human Anatomy 3 s.h.
27:81 Kinesiology (see adviser) 3 s.h.

Bachelor of Fine Arts

In contrast to the B.A. in dance, the B.F.A. requires 12 more semester hours in studio courses and emphasizes performance and choreography at the undergraduate level. Students may be admitted to the B.F.A. program after they have completed a minimum of 30 semester hours at The University of Iowa. Only those students who have achieved the equivalent of “Major II” technique level and who show academic and professional promise are admitted. B.F.A. candidates must complete three to four semesters in 137:123 Major Ballet 111 or 137:124 Major Modern Dance 111 with a grade of B- or higher.

The B.F.A. requires that the 124 semester hours needed to graduate include 62 semester hours in courses taken outside the dance department and 62 semester hours in dance department courses.

B.F.A. students may waive 3 semester hours of the General Education Requirement in natural sciences (nonlab) and 4 semester hours of the General Education Requirement in physical education.

Required Courses

DANCE THEORY

137:40 Introduction to Dance 1 s.h.
137:50 Dance Production 3 s.h.
137:60 Rhythmic Analysis of Dance or 25:10 Fundamentals of Music 2 s.h.
137:150 Beginning Labanotation 3 s.h.
137:17 Independent Choreography arr.
137:19 Independent Study arr.
137:190 Independent Study 3 s.h.
137:191 Readings in Dance arr.

STUDIO (NONTECHNICAL)

137:60 Honors Project in Dance 2 s.h.
137:413 Beginning Modern Dance 2 s.h.
137:113 Beginning Jazz 2 s.h.
137:12 Beginning Ballet 2 s.h.
137:14 Beginning Tap 2 s.h.
137:15 Beginning Labanotation 3 s.h.
137:17 Independent Choreography arr.
137:19 Independent Study arr.
137:190 Independent Study 3 s.h.
137:191 Readings in Dance arr.

STUDIO TECHNIQUE

Twenty semester hours from the following:

137:1 Beginning Tap 2 s.h.
137:2 Beginning Jazz 2 s.h.
137:3 Beginning Ballet 2 s.h.
137:4 Beginning Modern Dance 2 s.h.
137:11 Continuing Tap 2 s.h.
137:12 Continuing Jazz 2 s.h.
137:13 Continuing Ballet 2 s.h.
137:14 Continuing Modern Dance 2 s.h.
137:21 Low Intermediate Tap 2 s.h.
137:22 Low Intermediate Ballet 2 s.h.
137:23 Low Intermediate Modern Dance 2 s.h.
137:24 Low Intermediate Modern Dance 3 s.h.
137:33 Intensive Training for the Male Dancer 2 s.h.
137:43 Continuing Intensive Training for the Male Dancer 2 s.h.
137:103 Major Ballet I 1-2 s.h.
137:104 Major Modern Dance 1 1-2 s.h.
137:113 Major Ballet II 1-3 s.h.
137:114 Major Modern Dance 11 1-3 s.h.
137:123 Major Ballet 111 1-3 s.h.
137:124 Major Modern Dance 111 1-3 s.h.

NOND EPARTMENTAL

25:165 Opera Dance Theatre Production (section 2) 4 s.h.
25:75 Human Anatomy 3 s.h.
27:81 Kinesiology (see adviser) 3 s.h.

Honors Program

The 8- to IO-semester-hour honors program is designed to serve and recognize outstanding students in the areas of performance and special projects. Honors students must maintain a 3.20 grade-point average during their junior and senior years. All honors projects must be approved by the dance department faculty. Students must be members of the University Honors Program to graduate with honors in dance.

Minor

A minor in dance requires 15 semester hours of credit in dance department courses with a minimum grade-point average of 2.00, at least 12 of which must be in University of Iowa courses numbered 137:100 and above.
Graduate Program

Master of Fine Arts
Students who demonstrate exceptional ability in dance technique and choreography may apply for admission to the M.F.A. program. Admission is based on an interview, a teaching and technique audition, review of videotaped choreographic and performance work, and letters of recommendation. The M.F.A. program is designed to be completed in six semesters in residence, but students who have completed some of the prerequisites before entering the program may complete it in five semesters.

Students select the choreography or performance track. A total of 60 semester hours is required.

Prerequisites
Advanced technique (ballet and modern). Demonstrated accomplishment in choreography, music for dance, or equivalent.

Required Courses

DANCE CORE
137:143 Elementary Ballet Pedagogy 3 s.h.
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 Dance Theory 3 s.h.
137:234 Graduate Improvisation 1-2 s.h.
137:277 Thesis 8 s.h.

DANCE TECHNIQUE
For performance track, 18 semester hours from the following; for choreography track, 15 semester hours; courses may be repeated.
137:213 Graduate Majors Ballet II 3 s.h.
137:214 Graduate Majors Modern II 3 s.h.
137:223 Graduate Majors Ballet III 3 s.h.
137:224 Graduate Majors Modern III 3 s.h.

Ballet students must take a minimum of 4 semester hours of modern dance; students in modern dance must take a minimum of 4 semester hours of ballet.

EMPHASIS COURSES-Choreography Track
137:206 Graduate Dance Performance 2 s.h.

A total of two semesters chosen from the following choreography courses:
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.
137:274 Graduate Independent Choreography (one semester hour for each project) 4 s.h.
137:275 Advanced Choreographic Design 4 s.h.

EMPHASIS COURSES-Performance Track
137:107 Repertory Dance Company 8 s.h.
137:206 Graduate Dance Performance (one semester hour for each performance) 4 s.h.

137:274 Graduate Independent Choreography (one semester hour for each project) 2 s.h.

or
A course from the choreography sequence (137:20 through 137:273) 2 s.h.

ELECTIVES
M.F.A. candidates in performance must earn a total of 9 semester hours in elective courses numbered 100 or higher. A minimum of 6 semester hours must be earned in nondepartmental courses; the remaining 3 may be earned in dance or nondepartmental courses.
M.F.A. candidates in choreography must earn a total of 12 semester hours in elective courses numbered 100 or higher. A minimum of 6 semester hours must be earned in nondepartmental courses; 3 semester hours must be earned in a course or courses that provide research material for the thesis; the remaining 3 may be earned in dance or nondepartmental courses.

Facilities
The dance department has some of the finest facilities in the country: six technique studios, two classrooms, video viewing and Labanotation computer rooms, and its own performance theater space for informal concerts. Hanlecker Auditorium, the University’s premier performance hall, is available for formal concerts.

Courses

Primarily for Undergraduates

137:000 Cooperative Education Internship 0 s.h.

137:1 Beginning Tap 1-2 s.h.
May be repeated. GER: humanities.

137:2 Beginning Jazz 1-2 s.h.
May be repeated. GER: humanities.

137:3 Beginning Ballet 1-2 s.h.
May be repeated. GER: humanities.

137:4 Beginning Modern Dance 1-2 s.h.
May be repeated. GER: humanities.

137:1 Continuing Tap Continuation of 137:1. May be repeated. GER: humanities. 1-2 s.h.

137:12 Continuing Jazz Continuation of 137:2. May be repeated. GER: humanities. 1-2 s.h.


137:14 Continuing Modern Dance Continuation of 137:4. May be repeated. GER: humanities. 1-2 s.h.

137:21 Low Intermediate Tap 2 s.h.
May be repeated. GER: humanities.

137:22 Low Intermediate Jazz 1-2 s.h.
May be repeated. GER: humanities.

137:23 Low Intermediate Ballet 1-2 s.h.
May be repeated. GER: humanities.

137:24 Low Intermediate Modern Dance 1-2 s.h.
May be repeated. GER: humanities.

137:27 Basic Movement and Body Awareness 3 s.h.
Structure and systems of the body; how personal body design, weight, moves with gravity, stands upright, etc. Same as 13:27 49:27.

137:33 Intensive Training for the Male Dancer 2 s.h.
Beginning classical ballet or beginning modern dance (choice of either class section). Open only to males. May be repeated. GER: humanities.

137:40 Introduction to Dance 1 s.h.
Dance careers; current dance issues; related dance areas; introduction to the arts at The University of Iowa.

137:45 Continuing Intensive Training for the Male Dancer 2 s.h.
Continuation of 137:33; emphasis on advanced ballet vocabulary, enchainments. May be repeated.

137:58 Dance Production 3 s.h.
Scenic design, costuming, lighting, audio, video, publicity.

137:60 Rhythmic Analysis of Dance 2 s.h.
Rhythmic form, relationship to dance.

137:70 Choreography I 2 s.h.
Elementary level used to explore choreographic process and form short dance works.

137:71 Choreography II 2 s.h.
Continuation of 137:70.

137:80 Dance and Society 3 s.h.
Dance styles, their relationship to societal developments; dance as an expression of human culture; special relationships of dance to other arts; historical, aesthetic, and cultural perspective; form and content. GER: humanities.

137:103 Major Ballet I 1-2 s.h.
Intermediate May be repeated. GER: humanities.

137:104 Major Modern Dance I 1-2 s.h.
Intermediate May be repeated. GER: humanities.

137:105 Workshop: Artist-in-Residence 1-4 s.h.

137:106 Dance Performance 1-4 s.h.
Rehearsals and performances; program auditions conducted throughout the academic year. May be repeated. GER: humanities.

137:107 Repertory Dance Company 1-4 s.h.
Open only to members of University’s touring dance company. May be repeated.

137:108 Dance Rehearsal Lab arr.
Provides academic credit for students attending rehearsals of complete choreographic pieces not included in full concert productions.

137:113 Major Ballet II 3 s.h.
High Intermediate. May be repeated. GER: humanities.

137:124 Major Modern Dance II 1-3 s.h.
High Intermediate. May be repeated. GER: humanities.

137:125 Advanced Ballet Pedagogy 3 s.h.

137:123 Major Ballet III 1-3 s.h.
Advanced preparation for professional dance work. May be repeated. GER: humanities.

137:124 Major Modern Dance III 1-3 s.h.
Advanced preparation for professional dance work. May be repeated. GER: humanities.

137:133 Ballet Pointe 1 s.h.
Based on student needs. May be repeated.

137:134 Improvisation 1-2 s.h.

137:140 Honors Project in Dance arr.

137:143 Elementary Ballet Pedagogy Methods, materials. 3 s.h.

137:144 Teaching of Modern Dance Methods, materials. 3 s.h.

137:145 Methods and Materials in Teaching Children’s Dance same as EC 125. 2-3 s.h.

137:149 Honors Studies in Dance arr.
May be repeated.

137:150 Beginning Labanotation Theory, practice of Laban’s principles of movement notation. 3 s.h.

137:151 Intermediate Labanotation Continuation of 137: 150. 3 s.h.

137:160 Introduction to Ballet Accompaniment 1 s.h.
Progression of exercises in the ballet class, selecting and organizing repertoire; determining appropriate music for each exercise. Advanced proficiency in piano performance required.
137:170 Choreography I 111 2 s.h.
Motion, shape, space, time.

137:171 Choreography IV 2 s.h.
Continuation of 137: 170.

137: 172 Independent Choreography 2 s.h.

137:173 Topics in Dance 1 s.h.
Representative topics include effort shape, acting for the dancer, injury prevention, technique analysis, repertory history, studio dance forms.

137:180 Dance History: From Primitive Through the Nineteenth Century 3 s.h.
Evolution of dance from primitive ritual to end of nineteenth century; emphasis on development of dance as a drama art; period dances.

137:181 Twentieth-Century Dance 3 s.h.
Brief history of American dance; changing styles in ballet and modern dance, with emphasis on American influences.

137:190 Independent Study 1-3 s.h.
Not open to freshmen. Consent of instructor required.

137:202 Dance Theory 3 s.h.
Aesthetics, critique and philosophies.

Primarily for Graduates

137:200 Graduate Seminar in Dance Problems, opportunity in dance world.

137:201 Graduate Production Practicum 1 s.h.
Scenery and costume design lighting audio/video; publicity

137:206 Graduate Dance Performance 0-1 s.h.
Choreographic works by faculty and guest artists. Auditions conducted throughout academic year. May be repeated.

137:208 Dance Rehearsal Lab 1-3 s.h.
Provides academic credit for consistently attended rehearsals of complete choreographic pages not included in full concert productions.

137:213 Graduate Majors Ballet 11 1-3 s.h.
High intermediate studio. May be repeated.

137:214 Graduate Majors Modern 11 1-3 s.h.
High intermediate studio. May be repeated.

137:223 Graduate Majors Ballet 111 Advanced 1-3 s.h.
Recommended. May be repeated.

137:224 Graduate Majors Modern II Advanced 1-3 s.h.
Recommended. May be repeated.

137:234 Graduate Improvisation 1-2 s.h.

137:270 Graduate Choreography I 2 s.h.

137:271 Graduate Choreography II 2 s.h.

137:272 Graduate Choreography II 1 2 s.h.

137:273 Graduate Choreography IV 2 s.h.

137:274 Graduate Independent Choreography Consent of faculty project adviser required.

137:275 Advanced Choreographic Design 0-4 s.h.
Focus on one of the following areas: dance and the related arts, video dance, choreography from a technical base.

137:277 Thesis 1-3 s.h.

137:290 Graduate Independent Study Research. Consent of faculty project adviser required.

Economics
Chair: Robert Forsythe
Professor emeritus: Anthony Costantino

Adjunct professor: J. Richard Zecher
Associate professors: Michael Balch, Narayana Kocherlakota, John Solow
Assistant professors: Andreas Blume, Dean Corbae, Beth Ingram, Young-Gwan Kim, Barbara McCutcheon, Robert Tamura

Undergraduate degrees: B.A., B.S., B.B.A. in Economics
Graduate degrees: M.A., Ph.D. in 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, war on drug abuse, free trade versus protectionism, U.S. competitiveness on international markets, and the quality of American education.

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

Bachelor of Arts

Requirements for the B.A. with a major in economics are as follows.

22M:17 Quantitative Methods I (students who have taken 22M:25 Calculus I or 22M:35 Engineering Calculus I may use that class) 4 s.h.

22S:8 Quantitative Methods II 4 s.h.

or

6E:50 Introduction to Economic and Social Statistics 3 s.h.

6K:71 Statistical Analysis 3 s.h.

Twenty-one semester hours of credit in 100-level economics courses, including the following.

6E: 104 Macroeconomic Theory 3 s.h.
6E: 105 Macroeconomics 3 s.h.

Two field courses chosen from 6E: 170 through 6E: 189 6 s.h.

Credit is not allowed for both 6E: 104 and 6E: 105, and 6E: 106 does not count toward the 21 semester hours of 100-level course credit required for the B.A. without permission of the undergraduate director.

PREREQUISITES

Most 100-level courses in economics have as prerequisites both 6E: 1 and 6E:2, or senior standing; 6E: 104 and/or 6E: 105 are prerequisite to most courses numbered above 6E: 170; grades of C or higher in 6E: 1 and 6E:2 or consent of the undergraduate director are required for 6E: 104 and 6E: 105; 22M: 17 is prerequisite to 6E: 104; and 22S: 8 or 6E: 50 is prerequisite to 6K: 71.

Bachelor of Science

The B.S. requires the following.

22M:25-26 Calculus I-H 8 s.h.

22S:120 Probability and Statistics 4 s.h.

or

22 S:130-131 Introduction to Mathematical Statistics 1-11 6 s.h.

Twenty-one semester hours of credit in 100-level economics courses, including the following.

6E: 104 Macroeconomic Theory 3 s.h.
6E: 105 Macroeconomics 3 s.h.

6E: 184 Introduction to Econometrics 3 s.h.

Two other field courses numbered from 6E: 170 through 6E: 189 6 s.h.

For students planning to pursue a graduate degree in economics, 22S: 130 and 22S: 131 are recommended in lieu of 22S: 120.

PREREQUISITES

Some of the prerequisites listed under “Bachelor of Arts” apply; also 22M:26 is prerequisite to 22S: 120 and 22S: 130, and 22S: 120 or 22S: 131 is prerequisite to 6E: 184.

Bachelor of Business Administration

The B.B.A. program is described in the College of Business Administration section of the Catalog.
Honors

Students working toward a B.A. or B.S. with an economics major are encouraged to take part in the honors program in economics, which gives high-achieving students the opportunity to pursue special research interests.

To enter the honors program, students must have completed 6E: 104 Macroeconomic Theory and 6E: 105 Macroeconomics before the senior year, and must have an overall grade-point average of at least 3.20. Honors students typically register for 6E: 197 Honors Seminar in the spring of the junior year and by the end of the junior year have defined a research project under the guidance of the undergraduate honors adviser. They then complete the project under the guidance of a supervising faculty member, earning up to 6 semester hours of credit in 6E: 198 Senior Thesis in Economics. The thesis then is presented orally to a committee of three faculty members, typically the undergraduate honors adviser, the student’s research supervisor, and a third faculty member of the student’s choice.

Interested students should consult the honors adviser before the second semester of their junior year.

Minor

The minor in economics requires at least 15 semester hours of credit in economics with a minimum grade-point average of 2.00. Twelve of these semester hours must be taken at The University of Iowa in courses numbered 6E: 100 and above. Students cannot receive credit for both 6E: 100 and 6E: 104.

Course Work for Nonmajors

Courses 6E:1 Principles of Macroeconomics and 6E:2 Principles of Macroeconomics satisfy the College of Liberal Arts General Education Requirement in social sciences and introduce the broad field of economics and the specialized topics of upper-division courses. The intermediate theory courses in macroeconomics (6E:100 and 6E:104) and macroeconomics (6E: 105) 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 6E: 178 American Economic History; political science majors could elect 6E: 119 Economics of the Government Sector and 6E: 125 International Economics; global studies majors, 6E: 163 Comparative Economics and 6E: 133 Environmental and Natural Resource Economics; pre-law majors, 6E: 171 Antitrust: Legal and Economic Analysis and 6E: 172 Law and Economics; mathematics and engineering majors, 6E: 104 Macroeconomic Theory and 6E: 187 Introduction to Mathematical Economics; and statistics majors, 6E: 184 Introduction to Econometrics. The Handbook for Economics Majors lists economics courses that complement study in other majors.

A number of students combine related interests by pursuing double majors in economics and in fields such as computer science, geography, global studies, history, mathematics, political science, sociology, or statistics.

Economics Forum

Students are invited to join the Economics Forum, the undergraduate economics organization. The forum sponsors social events, special lectures, and round table discussions. It is an excellent way for students to meet other economics majors and department faculty members.

Graduate Program

The department offers the Masters of Arts (M.A.) and the Doctor of Philosophy (Ph.D.). The doctoral program has a theory and quantitative core enhanced by a set of field courses and is designed to provide students with rigorous training in macroeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition to taking the core area, students select a major area for intensive study and specialization. The usual time required to complete the Ph.D. program is four years.

The Master of Arts is offered only to students working toward a Ph.D. degree or to those who earn, through the College of Business Administration, a joint M.A.-J.D. with law.

See the College of Business Administration section of the Catalog for details on Ph.D. and joint M.A. program requirements.

Special Seminar

Each year the department offers a seminar program that brings eminent economists from other universities and from government to The University of Iowa campus. Presentations by faculty and student members of the department also are featured.

Courses

Primarily for Undergraduates

Note: 6E: 1 and 6E:2 may be taken in either order or they may be taken simultaneously; they satisfy the College of Liberal Arts General Education Requirement in social sciences.

6E: 000 Cooperative Education Internship 0 s.h.

6E: 1 Principles of Macroeconomics 3-4 s.h.
Organizational, working of modern economic systems; role of markets, prices, competition in efficient resource allocation; alternative systems; international trade; GIER: Social sciences (except B.B.A. students).

6E: 2 Principles of Macroeconomics 3-4 s.h.
National income and output, employment and inflation; money, credit; government finance; monetary policy; fiscal policy; economic growth, development; international finance; GIER: Social sciences (except B.B.A. students).

6E: 7 Contemporary Economic Problems and Policy 3 s.h.
Economic concepts developed and applied to analysis of current social problems. Students policies represent representative topics include jobs versus environment, free trade versus protected; trends in the war on drugs, American competitiveness, health care delivery, costs and choices.

6E: 50 Introduction to Economic and Social Statistics 3 s.h.
Statistical methods applied to problems in economics; regression analysis, contingency tables and goodness of fit tests, simple time series modeling, presentation of economic statistics index number construction, survey and census methods. Same as 44:85.

6E: 99 Internship 3 s.h.
Open only to students participating in the Washington Center for Learning Alternatives, other advanced internship programs. Consent of undergraduate director required.

6E: 100 Economics for Business Decision Making 3 s.h.
Economic theories of consumer demand, producer behavior and market equilibrium, with emphasis on applications to business decision making; organization and structure of market imperfections and government policy input markets. Prerequisites: 6E: 1, 6E: 2, and upper standing; or consent of undergraduate director.

6E: 104 Macroeconomic 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; strategy behavior; governments. grade of C or higher in 6E: 1 and 6E: 2, or consent of undergraduate director.

6E: 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: grade of C or higher in 6E: 1, 6E: 2, consent of undergraduate director.

6E: 111 Labor Economics 3 s.h.
Microeconomic analysis of labor markets, related institutions; supply and demand, by workers, labor demand decisions made by firms, market equilibrium, economic analysis of unions; returns to education; family decisions. Prerequisite: 6E: 1 consent of instructor.

6E: 113 Health Economics 3 s.h.
Structure of America’s health care industry, economic analysis applies to its problems of production, pricing, distribution, cost effectiveness, financing of medical costs, and role of government. Prerequisite: 6E: 1, and 6E: 2, or senior standing.

6E: 117 Money, Banking, and Financial Markets 3 s.h.
Role of money, interest rates; determination of income, employment, prices in domestic and world economy. Prerequisite: 6E: 1 and 6E: 2, or senior standing.

6E: 119 Economics of the Government Sector 3 s.h.
Economic functions of government in modern economies. Economic planning, budgetary processes; effects of government expenditures, taxation on allocation of resources; distribution of income, economic growth, stability. Prerequisite: 6E: 1 and 6E: 2, consent of instructor.

6E: 125 International Economics 3 s.h.
Foreign exchange, balance of payments; international monetary arrangements, policy theory of international trade; role of tariffs, restrictions in international trade. Prerequisite: 6E: 1 and 6E: 2, or senior standing.

6E: 129 Economic Growth and Development 3 s.h.
Determinants of rising living standards; accumulation of physical human capital; predictions of economic growth models compared to changes in tfog standards. Prerequisite: 6E: 1 or consent of instructor.

6E: 133 Environmental and Natural Resource Economics 3 s.h.
Environmental resource use problems: efficient mechanisms and other policies for environmental protection, management of common property resources. Prerequisite: 6E: 1 and 6E: 2, or senior standing or consent of instructor.

6E: 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. Prerequisite: 6E: 1 and 6E: 2, or senior standing.

6E: 141 Economics of American Industries 3 s.h.
Structure, evolution, imperfect competition, resource allocation, development of public policy on monopoly selected industries. Prerequisite: 6E: 1 and 6E: 2, or senior standing.
6E:145 Introduction to the Economics of Transportation 3 s.h.
Same as 102:133, 44.133.

6E: 150 Introduction to Economic History 3 s.h.
Western economic development from antiquity to present; evolution of population, technology, business organization, seduction, trade, dynamics of economic systems; methodology. Prerequisite: 6E: 1 or equivalent.

6E:163 Comparative Economics 3 s.h.
Comparative study of operation, organization, performance of major economies around the world: private versus collective ownership, stimulation and coordination versus market coordination; centralization versus decentralized decision making; privatization of industries growing globalization of markets, apparent strength of capitalism. Prerequisites: 6E: 1 and 6E:2.

6E:164 Economics in Transition 3 s.h.
Theory, experience of central economic planning; causes of collapse of communism in Eastern Europe; former Soviet Union; major episodes of economic reform, current problems of transition to market system. Prerequisites: 6E: 1 and 6E:2.

6E:171 Antitrust: Legal and Economic Analysis 3 s.h.
Federal policy: merger policy, monopolization, predatory pricing, exclusionary vertical restrictions, resale price maintenance, enforcement; case law; economics legislation. Prerequisites: 91:208 or 91:100 or 91:104 or consent of instructor. Same as 91:295.

6E:172 Law and Economics 3 s.h.
Law explained through analytical tools of macroeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic well being. Prerequisite: 6E: 100 or 6E: 104 or consent of instructor Same as 91:295.

6E:173 Advanced International Economics 3 s.h.
Neoclassical model of international trade, theory of comparative advantage, role of trade barriers, balance of payments. Prerequisites: 6E: 100 or 6E: 104, and 6E: 105, or graduate standing.

6E:174 Monetary Economics 3 s.h.
Demand for money, money’s role in economy; empirica studies of money’s impact; problems with monetary control. Prerequisite: 6E: 105 or consent of instructor.

6E:175 Economic Analysis of Labor Markets 3 s.h.
Labor supply, demand; investments in human capital, compensating wage differentials, discrimination, long term contracts, occupational choice, hiring decisions, immigration. Prerequisites: 6E: 100 or 6E: 104, and elementary calculus and statistics.

6E:176 Public Sector Economics 3 s.h.
Economic functions of government: budgetary processes; effects of government expenditures, axiomatic theories, income distribution, economic growth and stability. Prerequisites: 6E: 104 and 6E: 105; or consent of instructor.

6E:177 Industrial Organization 3 s.h.
Market structure, effects of business practices, international problems on market structure; appraisal of antitrust policies, government regulation of business. Prerequisite: 6E: 100 or 6E: 104.

6E:178 American Economic History 3 s.h.
Emphasis on role of population, technology, price level, market structure; causes of major economic, political, and social events. Prerequisite: 6E: 101 or 6E: 184.1 for non-economics majors. Same as 16A:144.

6E:179 History of Economic Thought 2-3 s.h.
Evolution, development of economics as a social science; ideas of Smith, Ricardo, Walras, Walras, Marshall, Keynes, and their followers. Prerequisite: 6E: 100 or 6E: 104, or 6E:105.

6E:184 Introduction to Econometrics 3 s.h.
Single equation linear statistical models, estimation and hypothesis testing; serial correlation, heterogeneous variability, generalized least squares estimation, specification analysis; errors in variables; emphasis on interpretation, application of econometric models, methods, use of computers. Prerequisite: 228:1 or equivalent.

6E: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; dynamics systems and control theory; game theory. May be repeated. Prerequisite: 6E: 100 or 6E: 104; or consent of instructor.

6E:189 Topics in Economics Consent of instructor required.

For Advanced Undergraduates

6E:197 Honors Seminar Consent of instructor required.

6E:198 Senior Thesis in Economics Consent of instructor required.

6E:199 Readings and Independent Study in Economics Consent of instructor required.

Primarily for Graduates

With consent of the department chair, qualified undergraduate students may enroll in courses listed for graduate students.

6E:200 Mathematics for Economists I 3 s.h.
Constrained optimization, difference equations, differential equations. dynamic optimization.

6E:201 Statistical Methods 3 s.h.
Probability theory, statistical inference, linear regression model, econometric methods. Prerequisite: one year of calculus and matrix algebra.

6E:203 Microeconomics I 3 s.h.
Price theory, emphasis on problem formulation and solving, economic intuition, producer and consumer behavior, competitive and noncompetitive models, welfare economics. Offered fall semesters. Consent of instructor required.

6E:204 Macroeconomics I 3 s.h.
Economic growth, business cycles, money and inflation. Offered fall semesters. Consent of instructor required.

6E:205 Macroeconomics II 3 s.h.
Prerequisite: 6E: 203 or one year of calculus.

6E:206 Microeconomics II 3 s.h.
Dynamic microeconomic models, stochastic macroeconomics, time consistency equilibrium business cycle theory. Offered spring semesters. Prerequisite: 6E: 204 or consent of instructor.

6E: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. Prerequisites: 6E:205 and 6E:201.

6E:212 Mathematical Economics II 3 s.h.
Theoretical framework of n person games, noncooperative or cooperative; applications to general economic equilibrium analysis. Prerequisite: 6E:211.

6E:217 The Economics of Uncertainty 2-6 s.h.
Prerequisite: 6E: 211 or equivalent.

6E:218 Econometrics 3 s.h.
Statistical inference in single, multiple equation stochastic models, models with independent or nonindependently distributed error structure; dynamic models; LLS, GLS, IV, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests. Prerequisite: 225: 154 or equivalent.

6E: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: 6E:211.

6E:223 Econometric Theory I 3 s.h.
Statistical theory underlying economic inference; emphasis on estimation, hypothesis testing in linear models. Prerequisite: 6E:221.

6E:226 Travel Demand Modeling 3 s.h.
Mathematical, statistical background; choice theories random utility models; econometric methods for household models, related models; random utility models applied to travel demand forecasting, demand-performance evaluation. Prerequisite: 6E:184 or 6E:221. Same as 44.236.

6E:231 Economic Development and Policy Alternatives 3 s.h.
Emphasis on theories of development, policy alternatives. Consent of instructor required.

6E:234 International Business -M.B.A. 3 s.h.
Problems in international business; how to export; how to deal with major competition international start up ventures; country study. Consent of instructor required.

6E:235 International Trade Theory 3 s.h.
Tarriff policy theory. Consent of instructor required.

6E:236 International Monetary Economics 3 s.h.
Balance of payments adjustment; exchange controls, international investment macroeconomics in an open economy. Consent of instructor required.

6E:241 Macroeconomics III 2-6 s.h.
Current research in macroeconomics; development of research topics with emphasis on theoretical, empirical analysis. Prerequisites: 6E:205 and 6E:221.

6E:245 Monetary Theory 2-3 s.h.
Optimum quantity of money; models of monetary growth; overlapping generation models with applications to monetary economies; determinants of interest rates; effects of anticipated and unanticipated money supply changes; empirical estimates of money’s impact. Consent of instructor required.

6E:250 Labor Economics 3 s.h.
Problems, models, including intertemporal models of labor markets; uncertainty and labor market theory; retirement decisions; economic theories of fertility; economic and demographic job search models; economic models of unions; bargaining and strikes, public sector labor markets; determinants of income distribution. Consent of instructor required. Prerequisites: 6E: 225 and 6E:221 or 6E: 184.

6E:251 Labor Economics 3 s.h.
Current research, with emphasis on prospects for original research; may include life cycle models of labor supply, dynamic labor demand models, compensating wage differentials labor turnover, cyclical employment fluctuations, aspects of collective bargaining. Prerequisites: 6E: 205 and 6E:221 or 6E: 184.

6E:263 Economic History 3 s.h.
Western economic history: emphasis on population (demography) and labor force, growth, evolution of capital markets, patterns of capital accumulation, resultant rates of growth; analyses of technological progress, growth of open economies. Consent of instructor required.

6E:268 History of Economic Thought 3 s.h.
Prerequisite: 6E:217.

6E:271 Industrial Organization 2-4 s.h.
The firm, monopolistic competition, oligopoly and workable competition; industrial organization, nature of equilibrium under uncertainty. Prerequisites: 6E: 205 and 6E:211.

6E:272 Economics of Organization 2-4 s.h.
Design of industrial organization, incentive mechanisms in achieving efficient allocations; not for profit activities, their welfare implications. Prerequisite: 6E: 205.

6E:281 Economics of the Welfare State: Taxation 3 s.h.
Role, effects of tax policies on allocation of resources, distribution of income, economic growth and stability. Debt finance as an alternative to tax finance.

6E:299 Contemporary Topics in Economics 3 s.h.
Topics not offered in other courses. Consent of instructor required.

6E:300 Readings in Economics Consent of instructor required.

6E:301 Thesis in Economics Consent of instructor required.

6E:302 Dissertation Seminar Approval of prospectus required.

6E:305 Econometrics Seminar 1-3 s.h.

6E:323 Workshop in Applied Econometrics and statistics Consent of instructor required.

Advanced Graduate Seminars

6E:310 Seminar in Economic Theory Consent of instructor required.

6E:321 Workshop in Microeconomics Consent of instructor required.
### Undergraduate Programs

The major in English gives students a solid core of interpretive, analytical, and writing skills rather than a uniform view of any particular literary history or theory. The department’s goal is to offer an undergraduate program designed to challenge students, to help them develop essential reasoning and communication skills, and to introduce them to the many pleasures and rewards of the study of artful language.

#### Bachelor of Arts

A Bachelor of Arts with a major in English requires a minimum of 33 semester hours of credit in courses offered by the Department of English, of which at least 9 must be taken in courses dealing principally with literature written before 1800 and of which at least 18 must be taken in residence at The University of Iowa.

In fulfilling the above requirements, English majors must complete at least:

- 3 semester hours in readings courses;
- 3 semester hours in authors courses, in which no more than two authors are studied;
- 3-4 semester hours in literature and culture courses;
- 3 semester hours in cultural study courses; and
- 9 semester hours in literature written before 1800.

These requirements apply to all students who have declared an English major after the close of the spring 1989 semester. The Schedule of Courses for each semester specifies which English department courses fit the above categories. The requirement of at least 9 semester hours focusing on literature written before 1800 may be satisfied by courses that also satisfy other requirements for the major. Only 9 semester hours of creative writing courses may be applied toward the 33 semester-hour total for the major.

Students interested in an English major should consult the director of undergraduate studies in the English department office. The Handbook for the Iowa English Major offers a more detailed view of the requirements, programs, and procedures for the English major. It is available from the director of undergraduate studies.

### 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 four honors seminars covering a wide range of historical areas and topics. Students who wish to earn a degree with honors have two options. They may take:

- three semesters during the junior and senior years, and then revise the three essays written as seminar papers and, with an introduction, present them as the honors project; or
- two of the seminars, preferably in the junior year; then in the senior year, write an honors thesis under the supervision of a faculty member.

A creative thesis is possible under the second option, but rarely and only with permission of the Writers’ Workshop.

Students interested in more information should contact the chair or any member of the honors committee. The names of the committee members and their office hours are available in the English department office. A handout, Guidelines and Deadlines, which describes both options for the final project in greater detail and specifies deadlines for turning in the prospectus and the final honors project, is also available in the English office.

#### Minor

Students seeking a minor in English must first complete 8C: 1 The Interpretation of Literature.

The minor in English requires 15 semester hours of course work in Department of English courses, with a grade-point average of 2.00. At least 12 of the 15 semester hours must be taken on campus, in advanced courses (8:34 and above, all 8W courses except 8W: 1, 8L courses, and 8P courses). Courses designated 8G do not count toward the minor in English. Neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work.

No course in the minor may be taken pass/nonpass. The minor is first officially acknowledged and recorded only after the student has completed the application for graduation.

### Creative Writing

Many undergraduates come to The University of Iowa because of the excellence of its creative
writing program. With the consent of his or her advisor, any student may elect the undergraduate courses in this program. These are 8W: 23 Creative Writing, 8W: 151 Fiction Writing, 8W: 152 Poetry Writing, and 8W: 1, the newly instituted General Education humanities Creative Writing Studio Workshop.

Admission to the undergraduate workshops in fiction and poetry (8W: 163 Undergraduate Writers’ Workshop: Fiction and 8W: 166 Undergraduate Writers’ Workshop: Poetry) requires consent of instructor. Students who wish to participate in these workshops must submit samples of their poetry or fiction to the Writers’ Workshop no earlier than a week before registration and no later than the last day of registration.

English and Education

The department offers an undergraduate program for students planning to teach English in secondary schools.

COURSE REQUIREMENTS

By the end of the program, students must have taken the following courses.

In English, as Part of the Undergraduate Major
8P: 182 Language and Learning 2-3 s.h.
8P: 198 Teaching Literature to Adolescents 3 s.h.
8W: 141 Approaches to Teaching Writing 3 s.h.
A course in Shakespeare
Three courses in American literature, one of which focuses on cultural studies
A course in nineteenth or twentieth century British literature
A course in writing (in addition to 8W: 141)
A course in oral communication

Graduate Programs

Master of Arts (Literary Studies)

The M.A. in Literary Studies is a program for students who want to understand what it means to study literature professionally. Those who seek an M.A. in Literary Studies may include students who would like some exposure to graduate study before deciding whether to continue toward a doctorate; teachers in secondary schools who want to gain extra credit and background; or independent readers and writers seeking intellectual growth unrelated to a specific career objective.

All M.A. students are full participants in the community of the department and may enroll in any of its graduate courses or seminars.

The requirements for the degree are designed to give students a general knowledge of the periods, movements, and major works of English and American literary history, to develop students’ sensitivity to artful language and expression, and to introduce some critical methods of literary study. Each of the requirements allows a wide choice of courses within the specified areas.

Elective courses, which constitute about one-half of the course work toward the degree, may be chosen from graduate courses both inside and outside the English department. The program’s flexibility enables students, consulting closely with their advisers, to tailor their plan of study to their interests. Depending on whether the student takes an examination or writes a thesis, the program requires either 30 or 33 semester hours of graduate-level credit, 24 of which must be earned in residence with a grade-point average no lower than 3.00.

COURSE REQUIREMENTS

Students must take one course in each of the following areas: British literature to 1700, British literature 1700-1914, American literature to 1914, twentieth-century literatures in English, and criticism and theory. Three of these courses must be numbered 200 or above.

Thesis or Comprehensive Examination

There are two ways to complete the program.

● The usual conclusion is a four-and-one-half-hour written comprehensive examination given once every spring term. The examination is based on reading lists drawn from the various periods of literatures in English. Students may obtain copies of current reading lists from the graduate secretary.

● Students with strong academic records, solid writing skills, and a desire to explore a defined topic at length may petition the Director of M.A. Programs for permission to write an M.A. thesis in literary studies. The thesis is a critical or scholarly work of about 10,000 words (approximately 40 pages), written under the supervision of a thesis director and requiring registration for 3 to 6 semester hours of credit beyond the 30 hours of required course work. Students who receive permission to proceed must assemble a thesis committee, gain the committee’s approval of the thesis prospectus, and pass an oral defense of the completed thesis.

Master of Arts (Nonfiction)

This program is designed for persons wishing to become essayists, freelance writers, editors, or writing teachers.

To qualify for the M.A. with emphasis in nonfiction writing, students must complete 30 semester hours of graduate work with a grade-point average no lower than 3.00. At least 24 semester hours must be earned in residence at The University of Iowa, including 9 semester hours of work in nonfiction writing with a grade of A or B. In addition to the 30 semester hours of course work, students are required to complete at least 3 and no more than 6 semester hours of credit for the thesis.

In consultation with an adviser, each student designs a program of courses suited to his or her professional interests. Thus, each student’s plan of study is highly individualized and may include courses from widely different areas and departments of the University.

Finally, each student must produce a thesis, which may be an extended essay, a collection of essays, or a project involving some other form of nonfiction writing. The student must take an oral examination covering the project, and must gain final approval for the finished thesis from his or her thesis committee.

Students interested in this program should consult the director of the M.A. with emphasis in nonfiction writing.
Master of Fine Arts

The purpose of the M.F.A. program 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 semester hours 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 doctorate requires 72 semester hours of graduate credit, at least 30 of which must be earned in residence at The University of Iowa.

Concentrations are offered in areas such as literary history, literary theory, cultural studies, genre criticism, rhetorical theory, stylistic, and writing theory and pedagogy.

Requirements for the Ph.D. include:
- formal admission to candidacy by a vote of the full faculty of the department, usually during the third semester of doctoral study;
- demonstration of competence in two foreign languages or mastery of a single foreign language and its literature;
- three seminars taken at The University of Iowa;
- a comprehensive examination that consists of the following: written responses to set questions in a period of English and/or American literary history and in a special area, presentation of an "issues paper," and a subsequent oral examination;
- a dissertation; and
- a final examination in defense of the dissertation.

All doctoral candidates are encouraged to gain teaching experience, preferably in the College of Liberal Arts programs in rhetoric and in the literature General Education Requirement.

Application forms and a complete description of the program are available from the graduate secretary of the department.

Financial Aid

Aid is available to graduate students in the form of scholarships, fellowships, and teaching and research assistantships. It is awarded on a competitive basis. Since sources are limited, many, but not all, doctoral students receive support.

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 February 15 for the following academic year. Forms are available from the English department and the University's Office of Admissions.

Admission

Admission requirements are stated in Graduate Studies in English, which is available from the English department graduate office. Applications for admission are due January 15.

Writing Programs

In the past 50 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 numbers scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teacher-authors. It also brings numerous prominent authors to campus each year for lectures and readings.

The International Writing Program, founded in 1966, brings prominent foreign writers to campus each year.

The University of Iowa also is a leader in the area of nonfiction writing and rhetorical theory; it is one of the few academic institutions in the nation that offer a full range of graduate course work in this area.

Facilities

The University's library collection is strong in all areas of English and American literature. Partly because of the influence of the Writers' Workshop, the library has particular strengths in twentieth-century fiction and poetry, including manuscript collections of twentieth-century authors.

The Zimansky Reading Room (the departmental library) has a small but select collection of books and journals for use by faculty and students.

Several periodicals are published under the department's aegis: The Iowa Review, The Walt Whitman Quarterly Review, and Philological Quarterly. These journals offer opportunities for especially qualified graduate students to work as research assistants or editorial associates. The Iowa Journal of Literary Studies edited by English department graduate students, features creative and scholarly work by students in English and related areas.

The Windover 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, the Writers' Workshop, and the International Writing Program 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. Detailed course descriptions for all undergraduate courses in a specific semester are published in the Liberal Arts Guide to Courses. Detailed course descriptions for each semester's graduate courses are available in the English department office well in advance of the semester.

Literature- General Education

Students can satisfy the General Education Requirement in the humanities by taking 8G: 1 The Interpretation of Literature and two other approved humanities courses. English majors need not take 8G: 1, but may satisfy the requirement by taking 9 semester hours of approved humanities courses.

8G: 1 (or its equivalent by examination or transfer) is a prerequisite for the other courses (8G:2 through 8G: 15) and must be taken first. The pass/nonpass option is available only for students in the Colleges of Nursing and Engineering with the consent of the student’s adviser and the instructor. Students must successfully complete the rhetoric requirement before they may take 8G courses.

8C:1 The Interpretation of Literature 3 s.h.
Poetry, short fiction, drama, the novel. GER: humanities.

8G:2 Biblical and Classical Literature 3 S.h.
Linguistics of ancient cultures-Jewish and Christian, Greek and Roman that have deeply affected later civilizations. GER: humanities. Prerequisite: 8G: 1.

8C:3 Medieval and Renaissance Literature 3 s.h.
English and European poetry, prose; drama; 000100 in dialogue with contemporary concerns. GER: humanities. Prerequisite: 8G: 1.

8G:4 Epic and Tragic Literature 3 s.h.
Heroes and heros, and as the products of imagination; literary representations of heroes and heroines in differing social and historical situations; how their representation shapes our understanding of "heroes." GER: humanities. Prerequisite: 8G: 1.
Not open to students who have taken 8G: 12.

8G:5 Comedy and Society 3 s.h.
Examination of the comic as an interaction among individuals, communiques, and cultures; encourages students to investigate the comic imagination in a variety of media as it confronts, revises, or supports social conventions. GER: humanities. Prerequisite: 8G: 1. Not open to students who have taken 8G: 12.

8C6 Narrative Literature 3 s.h.
Selected masterpieces and recent developments in the art of storytelling in poetry and prose. GER: humanities. Prerequisite: 8G:1.

8C:7 Lyric Poetry 3 s.h.
Poetry from major periods of development as well as contemporary verse; emphasis on distinctive language, major formal patterns of poetry. GER: humanities. Prerequisite: 8G:1.

8G:8 Literature of the Theater 3 s.h.
Plays from a wide range of periods; relationship of text to performance. GER: humanities. Prerequisite: 8G: 1.

8G:9 American Lives 3 s.h.
Major works of American autobiography. GER: humanities. Prerequisite: 8G: 1.

8G:11 Literature and Sexuality 3 s.h.
Works from various genres, time periods, cultures that reflect and construct a wide range of sexual identities. GER: humanities. Prerequisite: 8G: 1.
8G:12 Comic and Tragic Literature 3 s.h. Interrelations of comic and tragic literature and their connection with human experience; comic and tragic forms and their uses in different social and historical situations. GER: Humanities. Prerequisite: 8G:4 or BG:3.

8(3)13 Literatures of the Latin/Peoples 3 s.h. Works primarily in English by authors of Latin American descent from U. S., Mexico, Central America, South America, the Caribbean. GER: Humanities. Prerequisite: BG:1.

8C:14 Literatures of the African Peoples 3 s.h. Works in English by authors of African descent from America, continental Africa, the Caribbean. GER: foreigners. GPR: III. Same as 129:8, 141:14.

8G:15 Women and Literature 3 s.h. Works from various genres and time periods focusing on a wide range of women’s experiences. GER: Humanities. Prerequisite 8G:1.

Literature— Primarily for Undergraduates

English department courses are open to all undergraduates who have satisfied the enrollment requirement. Undergraduates should complete one or more departmental courses below the 100-level before attempting 100-level courses. English majors are required to take at least one course from the first four categories.

Readings

These specialized discussion courses are intended for English majors; other students should consult the instructor before registering.

8:34 Reading Novels 3 s.h.
8:35 Reading Poems 3 s.h.
8:36 Reading Short Stories 3 s.h.
8:37 Reading Plays 3 s.h.
8:38 Reading Essays 3 s.h.
8:39 Reading Criticism 3 s.h.

Authors

8:71 Chaucer 3 s.h.
8:72 Shakespeare 3 s.h. Same as 49:72.
8:73 Milton 3 s.h.
8:74 selected American Authors 3 s.h.
8:76 selected Modern Authors 3 s.h.
8:77 selected Authors 2-3 s.h.
8:10 selected Authors 3 s.h.
8:120 Chaucer 2-3 s.h.
8:122 Shakespeare 3 s.h. Same as 49:182.
8:137 selected American Authors 3 s.h.
8:165 Shakespeare selected Plays Same as 49:183.
8:178 Old English Beowulf 3 s.h.
8:192 Dante and Romance Poetry 3 s.h.

Literature and Culture

8:101 Literature and Culture of the Middle Ages 3-4 s.h.
8:102 Literature and the Culture of the Renaissance 3-4 s.h.
8:103 Literature and the Culture of 16th-Century England 3-4 s.h.
8:104 Literature and the Culture of 19th-Century England 3-4 s.h.
8:105 Literature and Culture of 19th-Century America 3-4 s.h.
8:106 Literature and the Culture of 20th Century America 3-4 s.h.
8:107 Literature and Culture of 19th-Century Scotland 3-4 s.h.
8:129 Irish Literature and Culture 1 34 s.h.
8:131 Literature and Culture of 17th-Century England 3-4 s.h.
8:141 Literature and Culture of America Before 1800 Same as 45:110.
8:164 Literature and the Culture of the 20th Century 3-4 s.h.
8:180 Irish Literature and Culture 11 3-4 s.h.

Cultural study

8:81 Film and Literature Same as 36 F:81. 48:81.
8:11 American Folk Literature 3 s.h.
8:12 American Ethnic Literature 3 s.h.
8:13 American Indian Literature 3 s.h.
8:14 American Regional Literatures 3 s.h.
8:16 Afro-American Literature I Same as 129:116.
8:17 Afro-American Literature II Same as 129:117.
8:18 Black Women Writers Same as 129:127, 131:127.
8:130 images of Black Women in Modern American Fiction Same as 129:120.
8:142 Popular Literatures 3 s.h.
8:151 Literature and Anthropology Same as 48:151, 113:109.
8:154 Afro-American Drama Same as 49:192, 129:180.
8:159 Regional Women Writers Same as 131:159.
8:161 Women in Literature Same as 131:161.
8:166 Themes and Modes in Literature by Women Same as 131:166.
8:168 Literature and Music Same as 25:164.
8:172 Narrative and the Cinema Same as 36F:172, 48:172.
8:175 Literature and Psychology Same as 48:167.
8:176 Literature and Philosophy: Thou@ Same as 32:148.
8:177 Literature and Art Same as 48:177.
8:179 Literature and Society Same as 48:150.
8:182 Science Fiction 3 s.h.
8:188 prose by Women Writers Same as 131:188.

Period and Genre

8:50 American Fiction 3 s.h.
8:51 Classic and Biblical Literature 3 s.h.
8:52 Films and Screenplays 3 s.h. Same as 36F:11.
8:53 The Classical Views GER: foreign civilization and culture, humanities. Same as 14:12.
8:54 Major Texts in World Literature I GER: humanities. Same as 40:40.
8:56 American African Poetry 3 s.h.
8:56 American Literary Classics 3 s.h.
8:57 American Novel I 3 s.h.
8:58 American Novel 11 3 s.h.
8:59 American Short Story 3 s.h.
8:60 Selected Writings of the Middle Ages 3 s.h.
8:62 Selected Works of the 18th Century 3 s.h.
8:64 Selected American Works Before 1900 3 s.h.
8:66 Selected Works of the 20th Century 3 s.h.
8:67 Masterpieces of the Renaissance 3 s.h.
8:68 Masterpieces of the Renaissance 11 3 s.h.
8:69 Selected Romantic Works 3 s.h.
8:70 Selected Victorian Works 3 s.h.
8:96 Topical in American Literature 3 s.h.
8:109 European Literature of the 19th Century Same as 48:108.
8:11 Classical Mythology GER: humanities. Same as 14:12.
8:121 British Poetry 3 s.h.
8:124 American Poetry 2-3 s.h.
8:125 Modern British and American Poetry 3 s.h.
8:126 Literary Genres in European Literature 11 Same as 48:115.
8:127 Contemporary Scene in Poetry Same as 48:127.
8:132 English Novel Defoe to Austen 3 s.h.
8:133 English Novel Scott to Butler 3 s.h.
8:135 American Novel 1900-1945 2-3 s.h.
8:136 American Short Story 2-3 s.h.
8:138 Post-Colonial Studies 3 s.h.
8:140 Contemporary Scene in Fiction Same as 48:140.
8:144 Medieval Drama Same as 49:181.
8:145 English Renaissance Drama Same as 49:184.
8:146 Restoration Drama Same as 49:185.
8:148 Modern Drama Ibsen to Shaw Same as 49:186.
8:149 Modern Drama Brecht to Steppard Same as 49:187.
8:150 American Drama to 1945 Same as 49:187.
8:155 Contemporary British Drama Same as 49:188.
8:160 Selected Themes in Literary Works 3 s.h.
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8:163 17th-Century Lyric Poetry 3 s.h.
8:167 Studies in Drama Same as 48:193.
8:170 Literary Genres and Modes 3 s.h.
8:183 Literary Genres in European Literature I Same as 48:113.
8:184 Contemporary Theatre and Drama 3 s.h.
8:186 American Autobiography II Same as 48:190.
8:190 Augustine to Boccaccio Same as 48:191.
8:191 International Literature Today Same as 48:191.
8:193 Celtic and Norse in Translation 3 s.h.
8:196 American Novel Since 1945 3 s.h.
8:197 American Drama Since 1945 Same as 48:197.

Special Topics
8:000 Cooperative Education Internship 0 s.h.
8:53 Lyric Structures 3 s.h.
8:99 Undergraduate seminar Same as 48:109.
8:100 Introduction to Criticism and Theory Same as 48:100.
8:147 Literary Publishing Same as 108:147.
8:171 Great Books Does not count for credit toward the English major.
8:189 Comparative Culture Criticism Same as 38:151, 48:152.
8:194 Introduction to Feminist Criticism Same as 48:194, 131:194.
8:195 Computer Applications in the Humanities 3 s.h.
8:199 Special Project for Undergraduates arr.

Honors
Open only to students admitted to the English department honors program; instructor’s consent may be required; 8:98 may be repeated.
8:98 Honors Proseminar 4 s.h.
8:198 Undergraduate Honors Project 4 s.h.

Literature—For Graduates

Introduction
8:247 American Literary Magazines 1-3 s.h.

Literary Periods
8:214 Fourteenth-Century Literature Same as 45:226.
8:215 Middle English Language and Literature 4 s.h.
8:221 Restoration and Early Eighteenth-Century Literature: 1660-1740 3 s.h.
8:222 Later Eighteenth-Century Literature: 1740-1800 3 s.h.
8:223 Romantic Literature Same as 48:223.
8:224 Early Victorian Literature 3 s.h.
8:226 Late Victorian and Edwardian Literature 3 s.h.
8:231 Early American literature 3 s.h.
8:232 American Romantic Literature 3 s.h.
8:233 American Realistic Literature 3 s.h.
8:234 Early Twentieth-Century American Literature 3 s.h.
8:235 American Poetry 3 s.h.
8:236 American Fiction 3 s.h.
8:237 American Drama Same as 49:264.
8:246 Modernist Crosscurrents 3 s.h.
8:254 Renaissance Tragedy 3 s.h.
8:257 Renaissance Lyric Same as 48:257.
8:258 Renaissance Comedy 3 s.h.

Authors
8:227 Three African Writers Same as 129:227, 141:227.
8:251 Chaucer 3 s.h.
8:253 Shakespeare Same as 49:213.
8:255 Milton 3 s.h.
8:256 Selected Authors 3 s.h.

Literary Criticism
8:263 Issues in Contemporary literary Criticism Same as 48:263.
8:264 Literature and Psychoanalytic Theory Same as 48:264.
8:265 Feminist Criticism Same as 48:265, 131:265.
8:267 Classical Rhetoric Same as 36 R:301.
8:268 Modern Rhetoric Same as 36 R:302.
8:284 Types of Modern Criticism Same as 25:284, 48:284.
8:306 Studies in Language Theory Same as 36 R:403.
8:330 Modes of Critical Analysis 3 s.h.
8:382 Literary Genres and Modes Same as 48:382.

Special Topics
8:228 Studies in African-American Literature Same as 129:228.
8:238 American Ethnic Literature 3 s.h.
8:259 Law and lawyers in Literature Same as 48:259.
8:270 Introduction to Cultural Studies 3 s.h.
8:313 Modern Studies 3 s.h.
8:314 Postmodern Studies Same as 48:314.
8:316 Studies in Poetry 3 s.h.
8:318 Topics in Eighteenth-Century Literature 3 s.h.
8:319 Issues in Sixteenth-Century Literature 3 s.h.
8:320 Issues in Seventeenth-Century Literature 3 s.h.
8:321 Topics in Eighteenth-Century Literature 3 s.h.
8:322 Topics in Postcolonial Studies 3 s.h.
8:323 Topics in Nineteenth-Century Literature 3 s.h.
8:325 Feminist Studies 3 s.h.
8:340 Studies in American Literature 3 s.h.
8:360 Issues in Sixteenth- and seventeenth-Century Literature 3 s.h.

Seminars
Advanced work in literary history, criticism, and theory; concentration varies from semester to semester. Consent of instructor required.
8:407 Seminar Renaissance Literature Same as 48:407.
8:411 Seminar: Shakespeare arr.
8:414 seminar: 17th-Century literature arr.
8:431 Seminar: English Romanticism arr.
8:432 Seminar: Victorian Literature arr.
8:434 seminar: Twentieth-century British Literature arr.
8:435 Seminar: Twentieth-Century British and American Literature arr.
8:446 Seminar: Nineteenth-century American Literature arr.
8:452 Seminar: short Fiction arr.
8:455 Seminar: Post-Colonial Studies Same as 48:455.
8:458 Seminar: American Writers of the Twentieth Century arr.
8:460 Seminar: problems in Aesthetics and Literary Theory Same as 48:460.
8:465 Seminar: Cultural Studies arr.
8:466 Seminar: History, Literature, and American Culture arr.

Independent Study
8:500 Advanced Studies in an Author arr.
8:505 Advanced Studies in a Literary Period arr.
8:510 Advanced Studies in a Literary Form arr.
8:515 Advanced Studies in a Literary Genre am.
8:520 Advanced Studies in a Literary Mode arr.
Nonfiction Writing

The following courses may be repeated:
8W:100, 8W:130, 8W:150, 8W:250, 8W:350, and 8W:355. Others may be repeated with consent of both the instructor and either the director of undergraduate studies or the director of graduate studies.

Practice in Writing

Intensive attention to composition and exposition, and to formal and thematic problems both in the meditative essay and in extended works of nonfiction.

Creative Writing

General Education

All may be repeated except 8W:1 and 8W:219.
8W:1 Creative Writing Studio Workshop 3 s.h.
8W:15 Writing for Practice: Purposes 2-3 s.h.
8W:100 Nonfiction Writing 3 s.h.
8W:101 Greek and Latin for Vocabulary Building 3 s.h.
8W:102 Prose Style 3 s.h.
8W:104 Personal Writing 3 s.h.
8W:112 Writing for the Sciences 3 s.h.
8W:113 Writing for Business and Industry 3 s.h.
8W:15 Writing for the Arts 3 s.h.
8W:130 Forms of Nonfiction 3 s.h.
8W:150 Undergraduate Essay Workshop 3 s.h.
8W:218 Writing Workshop for Teachers 2 s.h.
8W:250 Forms of Nonfiction 3 s.h.
8W:350 Essay Writing Workshop 3 s.h.
8W:355 Nonfiction Writing Workshop 3 s.h.

Theory and Practice of Writing

Theory and analysis of nonfiction writing combined with practical experimentation in writing, for people who intend to practice, criticize, and/or teach nonfiction writing.
8W:135 Forms of the Essay 3 s.h.
8W:141 Approaches to Teaching Writing 3 s.h.
8W:237 Style and Voice 3 s.h.
8W:239 Rhetorical Theory: Analysis and Application 3 s.h.
8W:243 Colloquium in the Teaching of Writing 2 s.h.
8W:244 Colloquium: Free-lance Writing and Publishing 2 s.h.
8W:255 Forms of the Essay 3 s.h.
8W:336 Theories of Style 3 s.h.
8W:340 Theories of Writing 2-3 s.h.
8W:345 Research on Writing 3 s.h.
8W:375 Teaching in a Writing Lab 3 s.h.
8W:472 Seminar: Theories of Writing 3 s.h.

Independent Study

8W:199 Undergraduate Project in Nonfiction Writing 3 s.h.
8W:550 Special Project in Nonfiction Writing 3 s.h.
8W:560 Special Project in Teaching of Writing 3 s.h.
8W:580 M.A. Thesis in Nonfiction Writing 3 s.h.

Creative Writing

General Education

All may be repeated except 8W:1 and 8W:219.
8W:23 Creative Writing 3 s.h.
Undergraduate Program

Bachelor of Science in Exercise Science

The Bachelor of Science degree program provides preparation for continuing education at the graduate level in exercise science; the health professions, including medicine and physical therapy; and athletic training. It also prepares students for careers in athletic training or exercise science.

Requirements for the major in exercise science changed in 1994. Students who declared the exercise science major before August 22, 1994, may choose to complete either the old requirements (see 1992-94 General Catalog) or the new requirements. Students admitted beginning August 22, 1994, must complete the new requirements. (Students who completed 2:3 Principles of Animal Biology before August 22, 1994, may use that class instead of 2:10-11 sequence if they graduate August 1999 or earlier.)

Candidates for the B.S. degree in exercise science are expected to satisfy the College of Liberal Arts General Education Requirement in natural sciences by taking 4:13-14 Chemistry and 2:10 Principles of Biology. Part of the General Education Requirement in social sciences should be satisfied by taking 31:3 General Psychology.

The exercise science major includes study in anatomy, biomechanics, exercise physiology, motor control, and athletic training. The first four areas of study are designed primarily for students who intend to pursue advanced degrees in an exercise science specialization or to seek admittance to a professional program in the health sciences (e.g., medicine, dentistry, physical therapy, or physician assistant).

Physical training is a separate degree track in exercise science; it incorporates an extensive clinical component.

Qualifications for admission to exercise science include completion, with a grade-point average of 3.00 or higher, of the following courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:10 Principles of Biology 1</td>
<td>4</td>
</tr>
<tr>
<td>4:13 Principles of Chemistry 1</td>
<td>3</td>
</tr>
<tr>
<td>22M: 16 Calculus for the Biological Sciences</td>
<td>4</td>
</tr>
<tr>
<td>or 22M:25 Calculus 1</td>
<td>4</td>
</tr>
<tr>
<td>or 22M:35 Engineering Calculus 1</td>
<td>4</td>
</tr>
<tr>
<td>103-2 Rhetoric I-II</td>
<td>8</td>
</tr>
<tr>
<td>or 103 Accelerated Rhetoric</td>
<td>4</td>
</tr>
</tbody>
</table>

Students also must have maintained a grade-point average of 2.75 or higher in all course work taken at The University of Iowa.

Criteria for admission to the athletic training program are described under that heading. Students denied admission to either program may reapply in a subsequent semester.

EXERCISE SCIENCE REQUIREMENTS

Students must earn at least 20 semester hours.

All of these:

27: 150 Gross Anatomy for Exercise Science 2 s.h.
27:151 Gross Anatomy Lab for Exercise Science 2 s.h.
27:141 Exercise Physiology 3 s.h.
27: 142 Exercise Physiology Laboratory 1 s.h.
27:197 Biomechanics of Human Motion 4 s.h.
27: 160 Motor Control I: Neurophysiological Basis 3 s.h.

At least two electives chosen from:

27: 96 Special Projects arr.
27: 107 Introduction to Biomechanics 3 s.h.
27: 117 Human Growth and Motor Development 2 s.h.
27:153 Connective, Muscle, Nerve Tissue Anatomy 2 s.h.
27:155 Skeletal Muscle Biology 3 s.h.
27: 157 The Qualitative Analysis of Human Motion 3 s.h.
27:196 Exercise Science Senior Seminar 3 s.h.
27: 200 Problems arr.

REQUIREMENTS IN OTHER SUBJECTS ("Cognates")

Biology, chemistry and mathematics listings include courses that are prerequisites.

Biology

At least 12 semester hours

2:10-2:11 Principles of Biology I-II 8 s.h.

At least 4 semester hours chosen from:

2: 112 Cell, Tissue, and Organ Biology 5 s.h.
2:114 Cell Biology 3 s.h.
2:108 Vertebrate Zoology 4 s.h.
2:124 Animal Physiology 3 s.h.
2:143 Animal Behavior 4 s.h.
2:150 Endocrinology 3 s.h.
2:152 Endocrinology Laboratory 2 s.h.
2:155 Cell Physiology 4 s.h.
2:180 Fundamental Neuroscience 3 s.h.
2:181 Neurophysiology 3 s.h.

Chemistry

At least 8 semester hours

4:13 Principles of Chemistry I 3 s.h.
4:14 Principles of Chemistry II 3 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.

The following additional courses are highly recommended.

4:121 Organic Chemistry I 3 s.h.
4:122 Organic Chemistry II 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.

Computer Science

At least 3 semester hours chosen from:

6K:70 Computer Analysis 3 s.h.
22C:7 Introduction to Computing with FORTRAN 3 s.h.
22C:10 Programming with C 3 s.h.
22C:16 Introduction to Programming with PASCAL 4 s.h.
57:17 Computers in Engineering 3 s.h.

Mathematics

At least 4 semester hours chosen from:

22M: 16 Calculus for the Biological Sciences 4 s.h.
22M:25 Calculus I 4 s.h.
22M:35 Engineering Calculus I 4 s.h.

Statistics

At least 3 semester hours chosen from:

7P: 143 Introduction to Statistical Methods 3 s.h.
22 S:101 Biostatistics 3 s.h.
22S: 102 Introduction to Statistical Methods 3 s.h.

Physics

Total of 8 semester hours

29: 11-12 College Physics I-II 8 s.h.
or 29: 17-18 Introduction to Physics I-II 8 s.h.

At least 27 semester hours chosen from:

2:180 Fundamental Neuroscience 3 s.h.
or 72:130 Systemic Physiology 3 s.h.
or 72:150 Intermediate Physiology 4 s.h.

RECOMMENDED ELECTIVES

It is recommended that students select from the following electives in order to complete the 124 semester hours required for a B.S. degree in the College of Liberal Arts. Courses in biology and chemistry are also listed above, under "Requirements in Other Subjects ('Cognates')."

Biology

2:112 Cell Tissue Organ Biology 5 s.h.
2:114 Cell Biology 3 s.h.
2:108 Vertebrate Zoology 4 s.h.
2:124 Animal Physiology 3 s.h.
2:143 Animal Behavior 4 s.h.
2:150 Endocrinology 3 s.h.
2:152 Endocrinology Laboratory 2 s.h.
2:155 Cell Physiology 4 s.h.
2:180 Fundamental Neuroscience 3 s.h.
2:181 Neurophysiology 3 s.h.

Chemistry

3:116 Basic Neuroscience for Speech and Hearing 3 s.h.

Mathematics

4:101 Elementary Quantitative Analysis 4 s.h.
4:121 Organic Chemistry I 3 s.h.
4:122 Organic Chemistry II 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.

Computer Science

At least 3 semester hours chosen from:

6K:70 Computer Analysis 3 s.h.
22C:7 Introduction to Computing with FORTRAN 3 s.h.
22C:10 Programming with C 3 s.h.
22C:16 Introduction to Programming with PASCAL 4 s.h.
57:17 Computers in Engineering 3 s.h.

Speech Pathology and Audiology

3:40 Manual Communication I 1 s.h.
3:41 Manual Communication II 1 s.h.

Chemistry

4:101 Elementary Quantitative Analysis 4 s.h.
4:121 Organic Chemistry I 3 s.h.
4:122 Organic Chemistry II 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.

Education

7C: 185 Introduction to Substance Abuse 3 s.h.

English

8W: 15 Writing for Practice Purposes 2-3 s.h.
8W: 100 Nonfiction Writing 3 s.h.

Geology

12:123 Vertebrate Osteology 2 s.h.
The athletic training program provides concentrated studies and clinical experiences leading to National Athletic Trainers Association certification in athletic training. Employment opportunities for graduates include serving as health care professionals for sports medicine clinics and professional teams as well as 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 prior to enrolling at The University of Iowa should talk to an athletic training adviser or their college adviser upon entering the University. Early advising should be sought for course counseling since prerequisite courses and sequenced skill development must be completed along with general education course work.

College of Liberal Arts students are formally admitted into the program and begin clinical experience as sophomores. Application should be made between September 1 and March 1 of the freshman year. To be considered for admission, students must submit an application; complete the following course requirements–human anatomy, basic athletic training, first aid and CPR, human growth and motor development, contemporary issues in health education; and maintain a grade-point average of 2.50 or higher.

Prior to admission, students must have completed, with a grade-point average of 2.50 or higher, at least one course in at least two of the following areas: principles of biology, chemistry, mathematics, physics, and psychology.

Program requirements include the following.  
27:107 Introduction to Biomechanics 3 s.h. 
27:140 Exercise Physiology for Practitioners 3 s.h. 
27:160 Motor Control I: Neurophysiological Basis 3 s.h. 
27:171 Administration of Athletic Training Programs 3 s.h. 
*27:172 Clinical Sciences I 2 s.h. 
*27:173 Clinical Sciences II 1 s.h. 
*27:182 Clinical Sciences III 3 s.h. 
*27:183 Clinical Sciences IV 3 s.h. 
*27:184 Seminar in Athletic Training 5-10 s.h. 
*27:185 Practicum in Emergency Care O-3 s.h. 
27:253 Laboratory in Advanced Anatomy 6 s.h. 
28:130 Human Nutrition 3 s.h. 
7C: 199 Counseling for Related Professions 3 s.h. 
71:120 Drugs: Their Nature, Action, and Use 2 s.h. 
72:130 Systemic Physiology 3 s.h. 

Enrollment is limited to students formally admitted into the athletic training program.

Graduate Programs

Master of Science without Thesis

The programs leading to the M.S. without thesis are terminal units of advanced study for athletic trainers and students in the combined physician assistant-exercise science program.

Athletic Training Program

The nonthesis program in athletic training is 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 research and education base to the knowledge and skills of the entry-level athletic trainer. The program focuses on a health care team approach to sports medicine, professional preparation, and sports epidemiology.

The following undergraduate course work (total of 30 semester hours) is required background for the nonthesis M.S. program in athletic training.

Human anatomy, minimum of 3 s.h.
Human physiology, 3 s.h.
step in graduate study leading to the Doctor of Philosophy. As such, it is a research-oriented program that introduces students to the nature and quality of research in exercise science and gives them an opportunity to specialize in an area of interest. The five areas of specialization leading to the M.S. degree with thesis are anatomy, athletic training, biomechanics, exercise physiology and motor control.

Because the M.S. with thesis is regarded as the first step toward the Ph.D. degree in one of five areas of specialization, the undergraduate prerequisite courses required 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. adviser and the professor in charge of the emphasis area selected by the candidate.

**COURSE REQUIREMENTS**

The following courses (total of 30 semester hours) are required for the M.S. with thesis.

**Courses Outside Specialization Area**

Two courses chosen from:

- 27:141 Exercise Physiology
- 27:142 Exercise Physiology Laboratory
- 27:153 Connective, Muscle, Nerve Tissue Anatomy
- 27:155 Skeletal Muscle Biology
- 27:160 Motor Control I: Neurophysiological Basis
- 27:197 Biomechanics of Human Motion

Three courses chosen from:

- 7P:143 Introduction to Statistical Methods
- 63:161 Introduction to Biostatistics
- An approved graduate-level course in computer science
- An approved graduate-level course in scientific writing

**Specialization Area Courses**

- 27:404 Thesis: M.A.
- Specialization courses approved by adviser
- Electives

**Doctor of Philosophy**

**Admission**

Admission to the Ph.D. program is based on the applicant’s grade-point average on work completed for the M.A or 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 grade-point average of 3.00 or higher on all graduate work.

For admission to the Ph.D. program in therapeutics, applicants must be graduates of an approved professional program in physical therapy and must hold a master’s degree, which need not be in physical therapy. Deadlines for admission applications are October 15, March 15, and May 15; notification is made approximately two months after the respective application deadline.

**Requirements**

Ph.D. candidates should have a general knowledge of all areas in exercise science, a working knowledge of research techniques applicable to problems in the field, and an in-depth knowledge in at least one area of specialization in exercise science.

The specialization areas are anatomy, biomechanics, exercise physiology, motor control, and therapeutics.

The thesis program for the M.S., together with the Ph.D. core courses, provide the background required for the Ph.D. candidate’s specialization. Candidates must complete a minimum of 72 semester hours beyond the B.A. or B.S. This must include the completion of a dissertation in the area of specialization. It is expected that an appropriate manuscript of the dissertation will be submitted to an approved refereed professional journal for publication.

Many of the courses in the specialization areas are offered by departments other than the Department of Exercise Science. Professors from these departments frequently serve on comprehensive examination committees and on dissertation committees for the initial presentation of the candidate’s prospectus. They also participate in the final oral examination.

**GENERAL REQUIREMENTS**

Ph.D. candidates must fulfill the following requirements:

- completion of the M.A. or M.S. with thesis, or equivalent;
- a minimum of 10 semester hours of independent research, exclusive of the thesis requirement; and
- at least 72 semester hours of graduate credit beyond the B.A. or B.S. (typically more than 90 semester hours).

**CORE COURSE REQUIREMENT**

Two approved comes in statistics

- One approved computer science course
- 27:201 Research (minimum of 10 s.h.)
- 27:202 Practicum in College Teaching (minimum of 3 s.h.)
- 27:405 Thesis: Ph.D. (12 s.h.)

**SCIENTIFIC AREA COURSES**

In order to ensure that exercise science doctoral candidates obtain a breadth of knowledge over the key scientific areas that constitute the basis of the major, the following scientific area course requirements must be satisfied.

Students specializing in anatomy, biomechanics, exercise physiology, and motor control must select one course from each of the four areas listed below. Three must be second-level courses.

- Students specializing in therapeutics must select one course in three of the four areas. Two must be second-level courses. Students may submit a formal request to the exercise science faculty to substitute specific therapeutic courses for the scientific area courses listed below, provided the substitute courses contain both a lecture and a laboratory format.

**Anatomy**

First level: 27:150 and 27:151 (4 s.h.)
Second level: 27:253 (6 s.h.)

**Biomechanics**

First level: 27:107 (3 s.h.)
Second level: 27:197 (4 s.h.)

**Motor Control**

First level: 27:160 (3 s.h.)
Second level: 27:314 (3 s.h.)

**Exercise Physiology**

First level: 27:141 and 27:142 (4 s.h.)
Second level: 27:274 and 27:303, or 27:275 and 27:304, or 27:276 and 27:305 (3 s.h.)

**QUALIFYING AND COMPREHENSIVE EXAMINATIONS**

To assess general background knowledge, all Ph.D. candidates must pass an initial qualifying examination, which should be taken prior to the third semester of graduate study (prior to the fifth semester if the candidate entered with only a bachelor’s degree). Ph.D. candidates also must pass a comprehensive examination, which should be taken following the completion of the fourth semester of graduate study (sixth for students entering with only the bachelor’s degree). Candidates specializing in exercise physiology who wish a minor in physiology may write a separate comprehensive examination prepared and evaluated by faculty members of the Department of Physiology and Biophysics in the College of Medicine.

**Specializations**

Candidates are expected to obtain a broad knowledge base within their area of specialization. This normally entails approximately 30 semester hours. Recommended courses for each area of specialization are as follows.

**ANATOMY**

2:112 Cell, Tissue, and Organ Biology 5 s.h.
27:153 Connective, Muscle, Nerve Tissue Anatomy 2 s.h.
27:253 Laboratory in Advanced Anatomy 6 s.h.
27:295 Electromyography in Kinesiology and Biomechanics 3 s.h.
60:217 Developmental Anatomy 2 s.h.
60:234 Medical Neuroscience 4 s.h.
77:103 Introduction to Radionuclides and Radiobiology 4 s.h.
77:224 Radioisotopes in Biological Research 4 s.h.
99:110 Biochemistry 3 s.h.
99:120 Biochemistry and Molecular Biology I 4 s.h.
99:130 Biochemistry and Molecular Biology II 4 s.h.

**BIOMECHANICS**

27:253 Laboratory in Advanced Anatomy 6 s.h.
27:295 Electromyography in Kinesiology and Biomechanics 3 s.h.
EXERCISE PHYSIOLOGY

2: 112 Cell, Tissue, and Organ Biology 5 s.h.
2: 150 Endocrinology 3 s.h.
2: 152 Endocrinology Laboratory 2 s.h.
71: 105 Pharmacology for Health Sciences Medical 5 s.h.
72: 212 Medical Physiology 4 s.h.
72: 234 Medical Neuroanatomy 4 s.h.
72: 274 Exercise Physiology Seminar 2 s.h.
77: 103 Introduction to Radiocarbon dating and Radiobiology 4 s.h.
77: 224 Radioisotopes in Biological Research 4 s.h.
99: 1 10 Biochemistry 3 s.h.
99: 120 Biochemistry and Molecular Biology I 4 s.h.
99: 130 Biochemistry and Molecular Biology II 11 s.h.

MOTOR CONTROL
2: 380 Fundamental Neuroscience 3 s.h.
27: 295 Electromyography in Kinesiology and Biomechanics 3 s.h.
27: 314 Seminar in Motor Control 2 s.h.
101: 212 Biomedical Instrumentation arr.

Three courses chosen from the following areas: computer science, neuroscience, biomechanics, anatomy, and exercise physiology

THERAPEUTICS
Candidates for this area of specialization must be accepted to the graduate program in physical therapy education as well as in exercise science. Prerequisites are listed under required courses for the Master of Arts in physical therapy under “Division of Associated Medical Sciences” in the College of Medicine section of the Catalog. Students specializing in therapeutics must satisfy the scientific area course requirements listed for the exercise science major.

General Core
22C: 100 Introduction to Computing with Fortran (or equivalent) 2 s.h.
63: 273 Research Data Management 3 s.h.
27: 405 Thesis: Ph.D. 12 s.h.
101: 214 Advanced Seminar in Physical Therapy 3 s.h.
101: 280 Teaching Practicum 3 s.h.
Total 23 s.h.

Research
27: 201 Research arr.
101: 284 Practicum in Research arr.
101: 325 Independent Study arr.
101: 327 Research in Therapeutics arr.
Total 10 s.h.

Specialty Emphasis
Individual plans of study are developed jointly by the graduate student and faculty adviser. Course requirements depend on the student’s specific area of interest (cardiopulmonary, ergonomics, musculoskeletal, neuromuscular).

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 exercise science students to use additional special facilities and research equipment in other departments on campus (e.g., biology, biochemistry, orthopedic surgery, internal medicine, pharmacology, physiology and biophysics, and the College of Engineering).

Courses

Primarily for Undergraduates
27: 000 Cooperative Education Internship 0 s.h.
27: 53 Human Anatomy 3 s.h.
General human anatomy covering most systems of the body.
27: 56 First Aid and CPR 2 s.h.
American Red Cross certification: basic first aid, CPR procedures. Same as 28: 32.
27: 57 Basic Athletic Training 3 s.h.
Basic pathophysiology, materials, and techniques for prevention and immediate care of athletic injuries. Prerequisite: 27: 53.
27: 81 Kinesiology 3 s.h.
27: 96 Special projects arr.
27: 117 Human Growth and Motor Development 2 s.h.
Human growth, development of nervous system; focus on motor development from birth through puberty. Offered fall semesters. Same as 7E: 117.

For Undergraduates and Graduates
27: 107 Introduction to Biomechanics 3 s.h.
Biomechanics concepts and their application to improving performance in physical activities. Offered fall semesters and summer sessions.
27: 140 Exercise Physiology for Practitioners 3 s.h.
Effects of acute and chronic exercise on different physiological systems (energy, respiratory, circulatory, endocrine); topics include fitness evaluation, weight control strategies, training programs. Prepares students for ACSM Certification. Offered spring semesters and summer sessions. Recommended: a course in human physiology.
27: 141 Exercise Physiology 3 s.h.
Mechanisms responsible for the acute and chronic effects of exercise on different organ systems of the body. Offered fall semesters. Prerequisites: 72: 130 or 72: 150 or equivalent.
27: 142 Exercise Physiology Laboratory 1 s.h.
Supplements 27: 141; principles of scientific investigation used to demonstrate acute and chronic effects of exercise. Consent of instructor required.
27: 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. Open only to exercise science majors. Offered fall semesters.
27: 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. Open only to exercise science majors. Offered fall semesters.
27: 153 Connective, Muscle, Nervous Tissue, Anatomy 2 s.h.
Structure, growth, and development of connective, muscular, neural tissues from embryology to adult stages; specific organ, their structure and movements. Offered spring semesters.
27: 155 Skeletal Muscle Biology 3 s.h.
Skeletal muscle structure, contractile mechanisms, production of movement, biomechanical properties, adaptation to increased use, fatigue, and injury. Offered spring semesters.
27: 157 The Qualitative Analysis of Human Motion 3 s.h.
Applicant of basic concepts in biomechanics to qualitative analysis of motor skills analyses are based on development of a deterministic model: observation of performance, identification of faults; establishment of priority among faults; instruction of the performer. Offered summer sessions.
27: 160 Motor Control I: Neurophysiological Basis of Movement 3 s.h.
Neuroanatomical and neurophysiological bases of human motor control. Topics include mechanisms for locomotion and posture, eye-hand coordination, control of arm and hand movements, role of sensory information. Offered spring semesters.
Prerequisite: 27: 117.
27: 171 Administration of Athletic Training Programs 2-3 s.h.
Health care supervision, professional responsibilities, philosophy in athletic health care. Offered fall semesters.
27: 172 Clinical Sciences I 2 s.h.
Theoretical and practical skill development in therapeutic modalities. Offered only to athletic training majors. Offered fall semesters.
27: 173 Clinical Sciences II 1 s.h.
Pathology and evaluation, theory of sports reduced trauma. Offered only to athletic training majors. Offered summer sessions. Prerequisite: 27: 172.
27: 182 Clinical Sciences II 11 s.h.
Theoretical and practical skill development in therapeutic modalities. Offered only to athletic training majors. Offered fall semesters. Prerequisite: 27: 172.
27: 183 Clinical Sciences IV 3 s.h.
Continuation of 27: 182. Evaluation, completion of EMT, chest, abdomen, and paramedic evaluation, plus rehabilitation programs. Offered spring semesters. Prerequisite: 27: 182.
27: 184 Seminar in Athletic Training arr.
Current issues and relationships in research, education, clinical practice. Open only to athletic training majors. Consecutive registrations required for a total of 56 s.h. Offered fall and spring semesters.
27: 185 Practicum in Emergency Care 0-3 s.h.
Open only to athletic training majors.
27: 196 Exercise Science Senior Seminar 2-3 s.h.
Independent study or laboratory research in one of four areas of specialization (anatomy, biomechanics, exercise physiology, or motor control); results presented orally and in writing. Open only to exercise science majors. Offered fall and spring semesters.
27: 197 Biomechanics of Human Motion 4 s.h.
Application of the principles of mechanics to the investigation of human motion in two dimensions; topics include system modeling, force measurement 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.
27: 216 Physiological Responses to Exercise and Training 3 s.h.
Effects of exercise and training on muscular, respiratory, circulatory functioning, and energy systems.

Primarily for Graduates
27: 200 Problems arr.
Consent of instructor required.
27: 201 Research arr.
Consent of instructor required.
Teaching arr.

Rosemarie 3.h.

Italian in

They may go on to graduate study in areas such as French, comparative literature, or history 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, or communications, where the knowledge of a foreign language is essential.

Bachelor of Arts in French

The major in French was revised in 1994. All students who declare the major August 22, 1994, or later must complete the new major requirements. Students who declare before that date may choose to complete either the old requirements (see the 1992-94 General Catalog) or the new requirements. Students who wish to graduate under the old requirements must complete the major and graduate by August 1998.

The undergraduate major in French may be completed with an emphasis on literature, culture and civilization, teaching, or language.

All majors must complete the following courses (total of 31 semester hours):

9:11 1 Third-Year Composition 3 s.h.
9: 112 Third-Year French Grammar 3 s.h.
9: 126 French Conversation: Third Level 2 s.h.
9: 136 French Conversation: Fourth Level 2 s.h.

Seven courses in French language, culture, or literature (one of these seven may be taught in English under the French department number 9, such as 9:141, 142, 147) 21 s.h.

Students must maintain at least a 2.00 grade-point average in all major work, including all University of Iowa 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.

Upon declaring the major (or later, but prior to the senior year), students should choose an emphasis in one of the following four tracks.

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.

B.A. requirements for the literature track include the following courses.

Five or six courses in literature (at least two numbered above 9:150) One or two courses in culture or language

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 wishing to combine studies in French with a major in another area, such as history, political science, pre-law, communications, or journalism.

B.A. requirements for the culture and civilization track include the following courses.

Four courses in culture

Three courses in literature or language (at least two numbered above 9:150)

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. Several courses in the College of Education are required, as is one semester of student teaching. Contact the College of Education, Division of Curriculum and Instruction, for more information.

B.A. requirements for the teaching track include the following courses.

Two courses in culture

Two courses in literature

Three courses in culture, literature, pedagogy, or language (at least two numbered above 9:150)

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 the College of Education section of the Catalog.

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 stylistic, and translation.

B.A. requirements for the language track include the following courses.

9:115 Business French 9:155 Techniques of Translation 9:197 Translation Project

Four courses in culture or literature

Courses in French stylistic and textual analysis, another language, economics, political science, and/or business administration are recommended as adjunct electives.

Bachelor of Arts in Italian

Requirements for the major in Italian total 28 semester hours, as follows.

18:11-12 Intermediate Italian 6 s.h.
18:11-112 Advanced Composition and Conversation 7 s.h.
18:105-106 Introduction to Modern Italian Literature 6 s.h.
18:119-120 Medieval and Renaissance Italian Literature 6 s.h.
A 100-level course taught in Italian 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 semester hours in either 18:13 or 18:14, 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 College of Education, Division of Curriculum and Instruction for more information.

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 the College of Education section of the Catalog.

Honors
The department participates in the University Honors Program. To gain admission to the honors program in French or Italian, a student must have a 3.20 overall grade-point average and a 3.50 departmental grade-point average, and must be enrolled in the University Honors Program. For more information about requirements for honors in French or Italian, contact the French and Italian honors adviser.

Minor in French
The requirements for a minor in French are 16 semester hours with a minimum grade-point average of 2.00. Twelve of these must be taken at The University of Iowa in courses numbered 9:107 or above. Courses numbered in the 140s, 150-152, 158, and other courses taught in English do not count toward the minor in French.

Minor in Italian
The requirements for a minor in Italian are 15 semester hours with a minimum grade-point average of 2.00. Twelve of these must be taken at The University of Iowa in courses numbered 18: 105 or above.

Summer Program in France
The department cosponsors a summer program in France for students enrolled in the three state Board of Regents’ 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 program combines formal class work in language skills, courses in the culture and civilization of France, and visits to points of culture and historical interest. Students may earn 8 or 9 semester hours of credit 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. 

Doctor of Philosophy in French
The Ph.D. program is designed to prepare students for research, teaching, and professional service normally required of college and university faculty members.

To fulfill requirements for the Ph.D. degree in French, candidates must complete at least three years of graduate study, of which at least one must be spent in residence at The University of Iowa. They must pass a comprehensive examination and make a successful oral defense of their dissertation.

Specific requirements include: 9:251 Introduction to Old French Grammar and four semesters of college study or equivalent proficiency in a foreign language other than French.

Candidates also must complete three graduate courses, for a total of at least 8 semester hours of credit in a related field, such as another literature, history, or philosophy, and must earn at least 6 semester hours of credit in 9:277 Thesis.

Students working toward the doctorate are required to spend at least one year teaching as graduate assistants in the department.

Admission
To be considered for admission to an M.A. program in French, applicants must have completed the equivalent of The University of Iowa undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

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 studies.

Following admission to the Ph.D. program, students must be formally accepted for candidacy by a vote of the faculty, usually in the third semester of doctoral study.

The Graduate Record Examination (GRE) General Test scores are required by the Graduate College.

Appointments
Teaching and research assistantships and University fellowships and scholarships are available to qualified graduate students (see the Graduate College section of the Catalog). Inquiries should be addressed to the departmental office.

Exchange assistantship agreements with the University of Haute Bretagne, the University of Picardie, and the University of Poitiers provide one year of residence in France for a limited number of graduate students.

Courses
A detailed description of courses offered each semester is available in the department office. French courses are conducted in French and Italian courses are conducted in Italian, unless.

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.

Foreign Language House
The French and Italian department maintains close connections with the Maison Française in the Foreign Language House 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.

Graduate Programs

Master of Arts in French without Thesis
Candidates must earn a minimum of 30 semester hours of graduate credit and pass a written and oral examination. The program must include 9:209 Advanced Grammar and Lexicology, 9:210 Comparative Stylistic, and at least four graduate level (200 and above) literature or culture courses. With the permission of the department chair, candidates may take up to 6 of the required 30 semester hours outside the department. Teaching assistants in the department also must take 9:234 Principles of Teaching and Learning Foreign Languages.

Master of Arts in French with Thesis
The requirements for the thesis program are the same as for the M.A. without thesis, except that candidates may earn up to 6 semester hours of credit for thesis work. Candidates must defend the thesis at the time of the comprehensive examination.

Master of Arts in French Education
This program is intended primarily for prospective secondary school and junior college teachers. Requirements include a total of 38 semester hours of graduate credit in French. The program must include 9:209 Advanced Grammar and Lexicology (3 semester hours) and 9:210 Comparative Stylistic (3 semester hours), and at least 9 semester hours in graduate (200-level) courses in French literature.

The following courses also are suggested: 9:154 Literary Analysis 3 s.h. 9:113-1 14 French Civilization 6 s.h. 9:150 Methods: Secondary School Foreign Language 3 s.h. 9:162 Contemporary France 3 s.h. 9:165 French Civilization Through the Arts 3 s.h. 9:175 Advanced French Pronunciation 3 s.h. Candidates must pass a final written and oral examination.
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 - Primarily for Undergraduates

Courses numbered 150-199 are intended primarily for advanced undergraduates; graduate students should consult with their adviser before registering for these courses.

Courses numbered 140-149 are conducted in English. Only one such course may be used to fulfill requirements for the major in French; consultation with the adviser is recommended prior to registration. Students who have had significant experience with French through study or foreign residence are advised to consult with the department before enrolling.

9:00 Cooperative Education Internship 0 s.h.

9:1 Elementary French 1 4 s.h.
For students who have no knowledge of French. GER: foreign language.

9:2 Elementary French 11 4 s.h.
GER: foreign language. Prerequisite: 9:1 or equivalent.

9:10 First-Year French Review 5 s.h.
A year in one semester. GER: foreign language.

9:11 Intermediate French 3 s.h.
Open only to nonmajors. GER: foreign language. Prerequisite: 9:2 or equivalent.

9:12 Intermediate French 3 s.h.
Continuation of 9:11. Open only to nonmajors. GER: foreign language. Prerequisite: 9:1 or equivalent.

9:25 French Pronunciation 2 s.h.

9:26 French Conversation: First Level 2 s.h.
GER: foreign language. Prerequisite: 9:12 or equivalent.

9:27 French Conversation and Conversation 2,4 s.h.
GER: foreign language. Prerequisite: 9:25 or equivalent.

9:36 French Conversation: Second Level 2 s.h.
Prerequisite: 9:26 or equivalent.

9:57 special work arr.
Prerequisite: 9:2 or equivalent.

French - For Undergraduates and Graduates

9:101 French for Research/Research 2 s.h.
Preparation for research; doctoral candidates in other departments.

9:102 French for Reading/Research 2 s.h.

9:103 French for Reading/Research 2 s.h.

9:104 French for Reading/Research 2 s.h.

9:107 Introduction to French Literature: Medieval and Renaissance 3 s.h.
Prerequisite: 9:28 or equivalent.

9:108 Introduction to French Literature: Seventeenth and Eighteenth Centuries 3 s.h.
Prerequisite: 9:28 or equivalent.

9:109 Introduction to French Literature: Nineteenth Century 3 s.h.
Prerequisite: 9:28 or equivalent.

9:110 Introduction to French Literature: Twentieth Century 3 s.h.
Prerequisite: 9:28 or equivalent.

9:111 Third-Year Composition 3 s.h.
Prerequisite: 9:28 or equivalent.

9:112 Third-Year French Grammar 3 s.h.
Word forms, sentence patterns. Prerequisite: 9:28 or equivalent.

9:113 French Civilization 3 s.h.
French social history from the Middle Ages to 1789. GER: foreign civilization. Prerequisite: 9:28 or equivalent.

9:114 French Civilization 3 s.h.
French social history from 1789 to the present. Prerequisite: 9:28 or equivalent.

9:115 Business French 3 s.h.
Language of economics and business; practice in business correspondence and communication; overview of the BEC; active use of business vocabulary. Offered fall semesters. Prerequisite: 9:1 or 12.

9:119 Regents Summer Program in France 8-9 s.h.

9:120 Internship in France 0-3 s.h.
Two months’ summer work in a French firm; priority to French students, selection by competition. Prerequisites: 9:110, and 9:155 or 9:197; or consent of director.

9:126 French Conversation: Third Level 2 s.h.
Prerequisite: 9:36 or equivalent.

9:136 French Conversation: Fourth Level 2 s.h.
Prerequisite: 9:126 or equivalent.

9:141 Literature and Society 3 s.h.

9:142 French and Francophone literature and Culture 3 s.h.
Introduction through literature to nations and people whose indigenous cultures have been influenced by French language and civilization; readings in French. GER: foreign civilization and culture. Prerequisite: 9:12 or 9:28 or equivalent.

9:145 Literature, Music, and Aesthetics 2-4 s.h.
Interdisciplinary connections between literature, music, and art. Prerequisite: 9:12 or 9:28 or equivalent.

9:147 French Cinema 3 s.h.
GER: foreign civilization and culture. Same as 256:105.

9:150 Methods: Secondary School Foreign Language 3 s.h.

9:152 Issues and Materials in Foreign Language Education 3 s.h.

9:154 Literary Analysis 3 s.h.
French literary styles through analysis of representative texts. Prerequisite: 9:11 or 12.

9:155 Techniques of Translation 3 s.h.
Methodology of translation; comparative stylistics exercises in translating English to French. Offered fall semesters.
Prerequisite: 9:12.

9:156 Pastiche and Parody 3 s.h.
History and theory of the genre, its presence in original literature; analysis of texts; creative compositions in the genre. Prerequisite: 9:11 or 12.

9:158 Topics in Foreign Language Instructional Technology 3 s.h.
Concepts for development of technology based materials for foreign language instruction; topics may include computer authoring languages, interactive media, language laboratory methods and management, same as 13:123, 35:117.

9:161 Topics in French Civilization 3 s.h.
Prerequisite: 9:11 or 12.

9:162 Contemporary France 3 s.h.
Aspects of the Fifth Republic. Prerequisites: 9:112 and 9:114.

9:163 Francophone Literature of the African Diaspora 3 s.h.
African and Caribbean literature written in French; focus on migration and issues of identity, institutional power, and resistance. Prerequisite: 9:12 or 9:28 or equivalent.

9:164 Queerbian Literature 3 s.h.
Prerequisite: 9:12 or equivalent.

9:165 French Civilization through the Arts 3 s.h.
Prerequisite: 9:11 or 12.

9:175 Advanced French Pronunciation 3 s.h.
Offered fall semesters. Prerequisite: 9:112 or equivalent.

9:177 The French Writer and Social Criticism 3 s.h.
Prerequisite: 9:11 or 12.

9:178 Topics in French Literature 3 s.h.
Topics in French and/ or Francophone literature. Prerequisite: 9:11 or 12.

9:180 Women Writers 3 s.h.
Prerequisite: 9:112 or equivalent.

9:181 Women in literature 3 s.h.

9:182 Critical Approaches to French Literature 3 s.h.
Prerequisite: 9:112 or equivalent.

9:186 Twentieth-Century French Poetry 3 s.h.
Prerequisite: 9:112 or equivalent.

9:187 Aspects of Poetry 3 s.h.
Prerequisite: 9:11 or 12.

9:188 Twentieth-Century French Drama 3 s.h.
Prerequisite: 9:112 or equivalent.

9:189 The Novel 3 s.h.
Prerequisite: 9:112 or equivalent.

9:192 French Classical Literature 3 s.h.
Prerequisite: 9:112 or equivalent.

9:193 French Literature of the Enlightenment 3 s.h.
Prerequisite: 9:112 or equivalent.

9:194 Nineteenth-Century French Novel 3 s.h.
Prerequisite: 9:112 or equivalent.

9:195 Twentieth-Century French Novel 3 s.h.
Prerequisite: 9:112 or equivalent.

9:196 Special Work arr.

9:197 Translation Project 3 s.h.
Offered spring semesters. Prerequisites: 9:155, and 9:112 or 115.

9:198 Honors Research and Thesis 3 s.h.

French - Primarily for Graduates

9:209 Advanced Grammar and Lexicology 3 s.h.
Emphasis on syntax and vocabulary building as means of expression. Prerequisite: 9:112 or equivalent.

9:210 Comparative Stylistics 3 s.h.
Translation from English to French, including literary texts. Prerequisite: 9:209. Same as 48:211.

9:211 Romanticism 3 s.h.

9:212 Realism and Naturalism 3 s.h.

9:213 Eighteenth-Century Fiction 3 s.h.

9:214 Studies in the Enlightenment 3 s.h.

9:215 The Renaissance in France 3 s.h.

9:216 symbolism 3 s.h.

9:221 Literature of the Twentieth Century 3 s.h.

9:224 Modern French Novel 3 s.h.

9:225 Literature of Immigration in France 3 s.h.
Contemporary literature written by non-European immigrants to France; issues of identity, institutional power, exclusion, displacement; rhetorical strategies used in these recentered texts to open a discursive/subversive space in canonical literary discourse.

9:227 Studies in the Seventeenth Century 3 s.h.

9:234 Principles of Teaching and Learning Foreign Languages 3 s.h.
Same as 13:221. Consent of instructor required.

9:235 Inter Second Lang Acquisition Research 3 s.h.
Research methods, survey of selected literature in second language acquisition.

9:240 studies in African Francophone Literature 3 s.h.
Sprer, topics, geographical areas, or in-depth study of one author. Same as 130:235, 141:240.

9:251 Introduction to Old French Grammar 3 s.h.

9:252 French Literature to 1180 3 s.h.
Epic and romance.
Co-chairs: Gary Gussin (Biological Sciences) and Jeff Murray (Pediatrics)

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.

Admission

Graduate Programs

The interdepartmental Ph.D. program in genetics 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, ranging from molecular to human genetics. Within this context, course requirements are flexible enough to permit students to tailor their formal course work to their individual needs.

All students enrolled in the program are required to take either 2:171 Molecular Genetics I or 142:210 Molecular Biology I. In addition, they must earn a total of at least 12 semester hours of credit in molecular and microbial genetics, cell and developmental genetics, or human genetics, and 5 semester hours of credit in seminar courses approved by the program.

Even more important than formal course work is the opportunity to do significant research in genetics. Students are encouraged to begin their own research as quickly as possible. 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, 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.

Financial Aid

All genetics graduate students currently receive a financial stipend that is in the range of $12,000 plus tuition per year. By April 1, nearly all financial aid is committed for students entering in the fall.

Financial support comes from 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 scientists and University faculty members.

Medical Scientist Training Program

Students may combine study toward an M.D. and a Ph.D. in genetics. Information about this program is available from the director of the Medical Scientist Training Program in the College of Medicine.

Departmental Ph.D. Programs

The Departments of Biochemistry, Biological Sciences, Physiology and Biophysics, and Microbiology offer degree programs in which students may specialize in a particular aspect of genetics. See the appropriate departmental sections in the Catalog for information about these programs.

Associated Courses

The following genetics courses are open to graduate students. Not all courses are offered every year.
2:125 Cyto genetics  2 s.h.
2: 131 Evolution  4 s.h.
2: 161 Plant Molecular Biology 3 s.h.
2:162 Population Genetics and Molecular Evolution 3 s.h.
2:168 Topics in Plant Molecular Biology 1-2 s.h.
2:168 Developmental Genetics 4 s.h.
2:171 Molecular Genetics I 4 s.h.
2:172 Topics in Molecular Genetics 1-2 s.h.
2: 176 Topics in Eukaryotic Molecular Biology 2 s.h.
2:195 Pattern Formation in Development 2 s.h.
2:210 Topics in Nematode Developmental Genetics 1-2 s.h.
61:179 Bacterial Diversity 4 s.h.
61:208 Molecular Biology of Animal Viruses 3 s.h.
70:161 Human Genetics 2 s.h.
99:130 Biochemistry and Molecular Biology 11 4 s.h.
99:237 Topics in Biochemistry 1 s.h.
142:215 Molecular Biology 11 (eukaryotic) 3 s.h.

Courses

127:270 Ethics and Responsible Conduct in Research 1 s.h.
Conducting and reporting of research, peer review, mentoring and laboratory supervision, human and animal subjects, misconduct, conflict of interest. Same as 132:270, 142:270, 148:270.
127:301 Graduate Research in Genetics 3 s.h.

GEOGRAPHY

Chair: R. Rajagopal
Professors: John W. Fuller, James B. Lindberg, Michael L. McNulty, R. Rajagopal, David R. Reynolds, Gerard Rushin
Associate professors: Marc P. Armstrong, Rex D. Honey, George P. Malanson, Frank H. Wierch, Rebecca S. Roberts
Assistant professor: Claire Pavlik
Adjunct faculty: David E. Osterberg

Undergraduate degrees: B.A., B.S. in Geography, minor in Geography
Graduate degrees: M.A., Ph.D. in Geography

Geography seeks to explain spatial organization and a real differentiation through detailed studies of significant patterns and processes. The discipline is concerned with "place" or "environment" and ongoing forces that promote change within and between human and physical systems. Geography is a composite science, requiring a broad base of knowledge from many related disciplines. It also is an analytical science that seeks answers to specific research questions from a distinctly geographic perspective.

Students of geography find that they develop insights and methods of inquiry that are particularly applicable to understanding many of the complex problems confronting societies. For instance, the distribution and consumption of natural resources, air and water pollution processes and management of natural environments, the growth and development of urban areas, increasing populations, transportation problems, spatial inequalities, location of services, and conflicts between nations are some of the issues dealt with by geographers.

Studies in geography also provide students with concepts and methods for organizing urban areas, marketing regions, school districts, health service areas, drainage basins, and other areas of concern. Thus, geographers can make substantial contributions toward understanding the behavior of individuals and of societies and their relations with the environment.

Career opportunities for majors in geography exist in many branches of government and in business. In demand are persons capable of dealing with resource management, regional development, market area analysis, and problems in distribution and spatial interaction of physical, ecological, economic, social, and political phenomena.

Courses in geography are commonly required of students preparing to teach at the elementary and secondary school levels, those who want to work in urban and regional planning, and as a background for many related professions, including law, health care, environmental or transportation engineering, and business administration.

Undergraduate Programs

The geography faculty has developed an undergraduate instructional program that serves students majoring or minoring in geography, as well as those concentrating in other disciplines who are interested in elective geography courses as part of a liberal education. The department also participates in interdepartmental programs with global, urban, and environmental components.

Bachelor’s Degrees

Each student majoring in geography selects one of the following three concentration areas: urban and regional studies, international development studies, or environmental studies.

Majors may work toward either a Bachelor of Science or a Bachelor of Arts. Students who plan advanced training or careers in geography should elect the B.S. Those with a liberal arts objective may elect either the B.A. or B.S.

Requirements for the majors in geography were changed in 1994. All students who declare a geography major before August 22, 1994, must complete the new requirements. Students who declared a geography major before August 22, 1994, may choose to complete either the new or the old requirements (see the 1992-94 General Catalog). Students who wish to use the old requirements must complete the major and graduate by August 1998.

General Requirements

All geography majors must complete the following courses.

Both of these methods courses:
44:85 Introduction to Economic and Social Statistics 3 s.h.
44:109 Computer Methods in Geographical Analysis 3 s.h.

One of the following writing/research courses:
44: 150 Undergraduate Seminar for Geography Majors 3 s.h.
44: 151 Senior Thesis 3 s.h.

One of the following computer programming courses:
22C:7 Introduction to Computing with FORTRAN 3 s.h.
22C:16 Introduction to Programming with Pascal 4 s.h.

Bachelor of Science students must satisfy a mathematics requirement consisting of one of the following pairs of courses.
22M: 15 Mathematics for the Biological Sciences 4 s.h.
and 22M: 16 Calculus for the Biological Sciences 4 s.h.
or 22M:25 Calculus I 4 s.h.
and 22M:26 Calculus II 4 s.h.
or 22M:35 Engineering Calculus I 4 s.h.
and 22M:36 Engineering Calculus II 4 s.h.

With the consent of the geography faculty, students may fulfill the computer programming and mathematics requirements by taking equivalent courses with objectives similar to these.

In addition, all geography majors must complete one of the three course sequences described below. Students are advised to pay close attention to the prerequisites of the intermediate and advanced courses in each sequence and to develop programs of study that ensure timely satisfaction of the prerequisites of required courses.

Urban Regional Studies

The undergraduate program in urban and regional studies is designed for students who are preparing for positions in government and professional programs such as urban and regional planning, business administration, or policy analysis. The program provides a thorough understanding of the processes of urban and regional development; the roles of elites, institutions, and social movements in effecting changes; and the processes through which policy decisions are reached. Courses cover economic theories of location, methods of locational analysis and modeling, 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 development potential, identifying the best locations for service facilities, evaluating urban and regional transport systems, and forecasting the populations of small areas.
Students concentrating on urban and regional studies are required to complete the following sequence of courses.

**INTRODUCTORY COURSES**

44:1 Introduction to Human Geography 4 s.h.
44:3 Introduction to Earth Systems Science 4 s.h.
At least one of these:
44:15 Introduction to Political Geography 3 s.h.
44:30 Introduction to Economic Geography 3 s.h.

**ADVANCED COURSES**

At least two of these:
44:162 Geography of Underdevelopment 3 s.h.
44:163 Geography of the Newly Industrializing Countries 3 s.h.
44:172 Development Planning and Policy 3 s.h.

One of these:
44:161 African Development 3 s.h.
44:164 Geography of the Middle East 3 s.h.

**Environmental Studies**

The undergraduate program in environmental studies is designed for students interested in the environment from either a social or a physical perspective. They may have career expectations or personal interests in resource management, physical geography, environmental policy or law, global environmental change, sustainable development, or other environmental issues. Career goals may involve environmental and earth sciences such as geomorphology or landscape ecology; environmental planning and regulation; or environmental law, policy, and politics. The program stresses the interrelationships among social and natural processes affecting the environment.

Training in field observation, quantitative analysis, computer methods, and cartographic representation are included in this concentration. The program also provides a sound foundation for graduate or professional-level studies in either the natural or social aspects of the environment, including the physical geography and water resources subprograms of The University of Iowa Department of Geography.

Students concentrating in environmental studies must complete the following sequence of courses. They must take all of the introductory courses, 15 semester hours of intermediate and advanced courses, and at least one additional methods course.

**INTRODUCTORY COURSES**

29:5 Chemistry and Physics of the Environment (or a more advanced course in chemistry or physics) 3 s.h.
44:1 Introduction to Human Geography 4 s.h.
44:3 Introduction to Earth Systems Science 4 s.h.
44:19 Contemporary Environmental Issues 3 s.h.

**INTERMEDIATE COURSES**

44:101 Climatology 3 s.h.
44:102 Earth Surface Processes 3 s.h.
44:103 Biogeography 3 s.h.
44:121 Natural Resources Policy 3 s.h.
44:122 Environmental Conservation in the United States 3 s.h.

**ADVANCED COURSES**

44:123 Landscape Ecology 3 s.h.
44:124 Gender and the Environment 3 s.h.
44:125 Environmental Impact Analysis 3 s.h.
44:126 Water in the Biosphere 3 s.h.
44:127 Water Quality: Science, Technology, and Policy 3 s.h.
44:128 Drainage Basin: Form and Process 3 s.h.
44:129 Water Resources Management 3 s.h.
44:180 Field Studies in Physical and Environmental Processes arr.

**ADDITIONAL METHODS COURSES**

44:107 Maps and Mapping 2 s.h.
44:108 Applications of Geographic Information Systems 3 s.h.
44:113 Principles of Geographic Information Systems 3 s.h.

**REINFORCED COURSE WORK**

Under the direction of an adviser, students should select at least 12 semester hours of courses from one of the following clusters (or similar combination of courses).

**Biophysical Systems**

2100 Land Plants: An Evolutionary Survey 4 s.h.
2111 Plant Ecology 4 s.h.
2116 Field Ecology 4 s.h.
2119 Plant-Animal Interactions 4 s.h.
2134 Ecology 4 s.h.
12108 Introduction to Oceanography 2 s.h.
12110 Introduction to Remote Sensing 4 s.h.
12128 Quaternary Palynology and Paleobotany 4 s.h.
12132 Sedimentology 4 s.h.
12166 Hydrogeology and Groundwater Quality 3 s.h.
12172 Glacial and Pleistocene Geology 3 s.h.
12173 Quaternary Environments 3 s.h.
12179 Engineering Geology 3 s.h.

**Environmental Engineering**

5371 Principles of Hydraulics 3 s.h.
5378 Principles of Hydrology 2 s.h.
53150 Environmental Engineering: Natural Systems 3 s.h.
53152 Environmental Chemistry Laboratory 3 s.h.
53153 Environmental Chemistry Laboratory 3 s.h.
53154 Environmental Microbiology 3 s.h.
53155 Environmental Engineering: Engineered Systems 3 s.h.
53178 Hydro meteorology 3 s.h.

**Environmental Management**

6E1 Principles of Macroeconomics 3-4 s.h.
6E2 Principles of Macroeconomics 3-4 s.h.
6E100 Economics for Business Decision Making 3 s.h.
6E105 Macroeconomics 3 s.h.
6E119 Economics of the Government Sector 3 s.h.
6E133 Environmental and Natural Resource Economics 3 s.h.
6F100 Administrative Management 3 s.h.
6F161 Individual Behavior in Organizations 3 s.h.
6F163 Organizational Design and Operations 3 s.h.
Cooperative Education Program

The Department of Geography is a participant in the University's Cooperative Education Program, which provides opportunities for both undergraduate and graduate students to secure cooperative training assignments related to their academic programs.

Courses for the Nonmajor

Students in the College of Liberal Arts as well as other areas of the University may find geography courses meaningful to their own programs of study. The beginning-level courses 44:11 Introduction to Human Geography, 44:19 Introduction to Social Geography, 44:19 Contemporary Environmental Issues, and 44:30 Introduction to Economic Geography are approved for the General Education Requirement in social sciences; 44:15 Third World Development Support is approved for the General Education Requirement in foreign civilization and culture; 44:161 African Development is approved for the General Education Requirements in social sciences and foreign civilization and culture; and 44:33 Introduction to Earth Systems Science is approved for the General Education Requirement in natural sciences. These courses serve as part of a liberal education. Other courses also may be attractive as individual electives. These include 44:15 Introduction to Political Geography, 44:35 World Cities, 44:126 Water in the Biosphere, 44:128 Drainage Basin: Form and Process, 44:132 Industrial Location, and 44:133 Introduction to Economics of Transportation.

Graduate Programs

The department’s graduate programs prepare students to carry on creative and productive research in selected areas of geography involving the use and further elaboration of theory. They also prepare students for positions in research, teaching, or an area of applied geography. Success in achieving these goals has been demonstrated by the strong demand for University of Iowa graduates to fill positions on college and university faculties, in private research organizations, and in business and government.

The department offers specialized instruction in the teaching of geography at the college level for those pursuing academic careers. Opportunities are provided for all graduate students to gain practical teaching experience through service as departmental teaching assistants or graduate instructors.

Master of Arts

The B.A. or B.S. degree in geography is not a prerequisite for entry into the program, but students are expected to have an undergraduate background relevant to pursuing graduate work. A strong analytical background in any of the social or environmental sciences and an interest in exploring the regional and spatial perspectives characterizing modern geography are more important than the particular disciplinary orientation of the student’s baccalaureate degree. Depending on the strength and suitability of their prior training, however, students may be required to take courses that are prerequisites for courses in their elected subprograms. Credit received for such courses cannot be applied toward the 30 semester hours required for the M.A.

Each of the M.A. subprograms is designed to be completed in four semesters. This means that the student typically will accumulate 40 to 48 semester hours of graduate credit in completing the M.A. Students are advised to use these additional hours to elect graduate courses in other subprograms in geography and/or in other University departments and programs, thereby tailoring their programs of study to their individual interests.

The department offers six M.A. subprograms: locational analysis, physical geography, political geography, regional development, transportation systems analysis, and water resources. These specialties are designed for students seeking positions in community planning, health planning, development planning in the Third World, environmental or water resources management, and transportation, as well as for those who intend to pursue the Ph.D.

Each subprogram cuts across some of the more traditional fields of geography and builds on the research specialties of the faculty. For example, topics of interest in urban geography are included in three subprograms—locational analysis, political geography, and regional development—while the traditional concerns of economic geography are included in locational analysis and regional development. The more quantitative perspectives of regional science are included in locational analysis and transportation systems analysis. The subprogram in physical geography emphasizes interacting processes and integrates field studies with computer modeling. The water resources subprogram builds on foundations in environmental science and political economy.

Although M.A. students pursue a program of study within one of the subprograms, they also may gain a basic proficiency in another. The M.A. emphasizes the acquisition of analytical skills and their application in research. Courses that provide necessary training in oral and written communication, computer programming and graphics, statistics, mathematics, and research methods are integrated into the M.A. program. Students in the transportation subprogram may take additional electives that enable them to receive a transportation certificate in addition to their M.A.

General Requirements

The M.A. requires a minimum of 30 semester hours of graduate work, of which 15 semester hours must be in courses numbered 200 or above. In addition to fulfilling the course requirements in one of the department’s six subprograms, students must: complete at least one course not in their own subprogram from the following introductory graduate courses: 44:121, 44:123, 44:125, 44:126, 44:128, 44:129, 44:134, 44:137, 44:175, 44:194, or 44:210;
enroll in the department’s general colloquium series (44:350 Research Seminar: Staff) during each semester in residence; satisfy the department’s B.S. requirements or their equivalents in mathematics, statistics, and computer programming; and complete, with a grade of B or better, at least one 3-semester-hour quantitative methods course from a list of courses approved by the faculty.

The M.A. may be earned with or without thesis, except in the physical geography and water resources subprograms, which require a thesis. A maximum of 6 semester hours of credit may be earned for thesis work. Students who elect the M.A. with thesis, the written examination can be waived and the thesis defense serves as the oral M.A. examination.

Subprogram Requirements

**LOCALATIONAL ANALYSIS**
- 44:108 Applications of CIS Information Systems 3 s.h.
- 44:134 Principles of Geographic Analysis 3 s.h.
- 44:137 Economic Theory of Location 3 s.h.

Three of these:
- 44:216 Behavioral Analysis in Geography 3 s.h.
- 44:232 Advanced Industrial Geography 3 s.h.
- 44:285 Methods of Regional Analysis: Regional Science 3 s.h.
- 44:293 Advanced Location Theory 3 s.h.
- 44:308 Research Seminar: Quantitative Methods, Computer Methods, and Modeling 2-3 s.h.

**PHYSICAL GEOGRAPHY**
- 44:308 Research Seminar: Location Theory arr.

An M.A. thesis is required of all students in this subprogram.

Group A
- 44:211 Managerial Economics 3 s.h.
- 44:274 Seminar: Social Change 3 s.h.
- 44:275 Seminar: Urbanization 3 s.h.
- 44:227 Social Theory and Human Geography 3 s.h.
- 44:229 Water Resources Management 3 s.h.
- 44:225 Water Resources Systems Analysis 3 s.h.

Three of the following with at least one each from Group A and B:

**Group B**
- 44:123 Natural Resources Policy 3 s.h.
- 44:222 Nature-Society Theory 3 s.h.
- 44:222 Environmental Social Movements 3 s.h.

An additional sequence of three courses in social theory and regional development, systems analysis, or biophysical processes, chosen under the direction of a faculty adviser is required. This sequence may include courses in other departments and may fill the out-of-subprogram requirement.

**Doctor of Philosophy**

The Doctor of Philosophy program is designed to prepare students for positions in college and university teaching and in advanced research. It provides programs of study leading to broad knowledge of a field of geography and its literature and special expertise in a specific subfield. The former usually represents the general area in which the Ph.D. holder seeks employment, whereas the latter represents his or her area of most active research involvement.

The Ph.D. is fundamentally a research degree and as such is constrained by the expertise of the faculty. At the Ph.D. level, the department is best known for its rigorous analytical orientation, particularly in the areas of locational analysis, spatial behavior, transportation, Third World regional development, urban political geography, physical geography, and water resources management and policy.

The Ph.D. is a four- to five-year, postbaccalaureate program, the first two years of
which are identical to the department’s M.A. program. Students can enter the program with advanced standing corresponding to their previous graduate training. For those required or recommended for one of the department’s subprograms that is not the student’s general area of interest;

- complete at least 3 additional quantitative methods course (3 semester hours) that is at a level above that required for the B.S. and is chosen from a list of courses approved by the faculty (students in the Ph.D. program are advised to take the M.A. and Ph.D. quantitative methods requirements-a total of 6 semester hours-during their first year in residence);

- complete one additional research seminar under the direction of a faculty member who is not directing the research seminar satisfying the student’s M.A. requirement; and

- register for the department’s colloquium series, 44:350 Research Seminar: Staff, each semester that the student is in residence. Before students can be admitted formally to candidacy for the Ph.D., they must submit an original research paper to the faculty for its approval. Students completing the M.A. with a thesis can submit the M.A. thesis to fulfill this requirement. Students entering the program with an M.A. from another institution can submit theses or research papers completed elsewhere to fulfill the requirement. Students who initially enter the M.A. program with a terminal M.A. as their degree objective and who complete that program can enter the Ph.D. program by fulfilling the research paper requirement.

By the end of the M.A. portion of the program (typically the fourth semester for the student entering the program directly from the B.S. or B.A.), the student should submit a written report that includes an assessment of progress to date, an outline of the area of geography in which he or she intends to specialize, and a proposed plan of study for the remainder of his or her Ph.D. program. This report is prepared in consultation with the student’s Ph.D. advisor and other members of the faculty in the student’s general area. The plan of study is amended, as necessary, throughout the remainder of the student’s program. The remainder of the Ph.D. program includes the completion of the student’s individual program of study designed to prepare him or her for a career research in a specific area of concentration. It consists of appropriate graduate courses, seminars, readings, and independent research in geography; courses in related disciplines; and courses that satisfy the major requirements of the student’s program of study.

Prior to taking the comprehensive examination, consisting of both written and oral components, the 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. adviser, consists of a critical review of research in the student’s area of concentration. As such, it is a culminating step in a student’s program of study as well as a statement of future research directions. The comprehensive examination covers both the student’s area of concentration and his or her more general field in the discipline. After obtaining the approval of a dissertation supervisor, the student must submit a dissertation proposal to his or her dissertation committee for its critical comments and approval. The student then must complete and defend the dissertation.

Before receiving the Ph.D., students are expected to serve as both classroom instructors (or teaching assistants) and research assistants.

### Admission

The department adheres to the general rules and regulations set forth in the Manual of Rules and Regulations of the Graduate College, and evaluates the applicant’s undergraduate grade-point average, especially of her or his junior and senior years; scores on the Graduate Record Examination (GRE) General Test; three letters of recommendation; and an essay in which the applicant sets forth the reasons for wanting to study geography at The University of Iowa.

Ordinarily, applicants must have earned an undergraduate grade-point average of 3.00 or better to be admitted to either the M.A. or Ph.D. program in geography. Students from foreign countries or from undergraduate institutions that evaluate students on a basis other than grade-point average will be considered according to academic standing in their respective institutions.

### Financial Aid

A number of graduate appointments as teaching or research assistants are available. Awards are based on merit. Students usually must have a combined score of 1100 on the GRE General Test and quantitative sections and a 3.00 undergraduate or graduate grade-point average to be appointed to an assistantship. Applications for graduate appointments should be received by February 15.

### Facilities

The department houses a geographic information system and spatial analysis laboratory equipped with a variety of workstations, digitizers, and plotters. These UNIX, DOS, and Macintosh workstations support a variety of GIS software packages, including ARC/INFO, ERDAS, IDRISI, MAP, MAPINFO, Transcad, and GIS Plus. The department maintains expertise in an advanced GIS facility in the Center for Global and Regional Environmental Research. Departmental computers are linked to the University’s SYTEK broadband communication network, which provides access to graphics, data management, and analysis software on University IBM and VAX computer systems. Selected departmental systems have Ethernet Connections to facilitate data transfer.

Students also have access to a University computing cluster that contains IBM PCs, Macintosh computers, terminals, several printers, and a plotter. It is located on the same floor as the department offices.

For studies in water resources and physical geography, the department has laboratories for analysis of vegetation, sediment, soil, and water quality; a field station in California; and a variety of field equipment ranging from electronic data loggers to boats.

The map collection in the University’s Main Library contains more than 115,500 maps, a total of 3,600 atlas and reference works, and about 100,000 aerial photographs, primarily of Iowa. The library is a depository for maps of the U.S. Army Topographic Command (formerly the Army Map Service).

The Geology Library contains approximately 70,000 maps, including both geologic maps and U.S. Geological Survey topographic maps. The Department of Geography has its own collection of topographic maps, maps of large urban centers, and aerial photographs for use by students in laboratory exercises.

### Courses

#### Primarily for Undergraduates

**44:000 Cooperative Education Training**

- 0 s.h.

**44:1 Introduction to Human Geography**

- 4 s.h.

- Application of geographical principles to contemporary social, economic, and political problems; urban growth; problems of the ghetto; diffusion of renovations; territoriality and perception. GER: social sciences.

**44:3 Introduction to Earth Systems Science**

- 4 s.h.


**44:11 Introduction to Social Geography**

- 3 s.h.

- Spatial considerations of population growth and distribution: minorities within a population; poverty; housing; social organization and segregation; social systems including education, religion, recreation, medical, social services; diffusion of ideas and traits over space. GER: social sciences.

**44:15 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, and electoral geography.

**44:19 Contemporary Environmental Issues**

- 3 s.h.

- Pollution: economic, cultural, technological, ecological, and ethical issues associated with natural resource and environment problems including population, global climate change, food production, tropical deforestation, soil erosion, and waste management. GER: social sciences.

**44:30 Introduction to Economic Geography**

- 3 s.h.

- Location and spatial organization of the world’s major types of economies: agriculture, energy and materials manufacturing, transportation, trade and service centers. GER: social sciences.

**44:35 World Cities**

- 3 s.h.

- Urbanization, as a process: specific concepts and theories of urbanization through global patterns, regional urban systems, individual metropolitan areas. Offered spring semesters.

**44:85 Introduction to Economic and Social Statistics**

- 3 s.h.

- Statistical methods applied to problems in economics, other social sciences; graphical methods; descriptive statistics, sampling error, reference, regression analysis, simple forecasting methods. Same as 66:50.
For Undergraduates and Graduates

44:101 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: 44:4 or consent of instructor.

44:102 Earth Surface processes 3 s.h.
Basic geomorphic and environmental processes that shape the surface of the earth; emphasis on processes of weathering; mass movement such as creep, landslides, earthflow, erosion, transport, deposits by fluid agents such as wind, water, ice; methods used to study these physical processes. Prerequisite: 44:3 or a course in geology. Same as 12-102.

44:103 Biogeochemistry 2-3 s.h.
Distribution and abundance of plants and animals, spatial patterns and processes, and temporal dynamics of succession, response to climatic change, and evolution, methods applied to the study of vegetation and plant communities. Prerequisite: 44:3 or 2:1 or consent of instructor. Same as 2:103.

44:107 Maps and Mapping 2 s.h.
Qualities of a good map; types of maps for particular uses; major types of cartographic presentations; available tools for constructing maps; methods for the compilation of maps and diagrams. Laboratory experiences in compiling maps.

44:110 Applications of Geographical Information Systems 3 s.h.
Use of geographical information systems in human and physical geography. Open only to graduate students. Prerequisites: 44:85 and 44:109 or equivalent; or consent of instructor.

44:119 Computer Methods in Geographical Analysis 3 s.h.
Use of computers as a tool in geographical analysis; spatial data collection and analysis, mapping programs, and simulation models.

44:110 Perspectives on Geography 3 s.h.
Traditions of geographic research; common themes in specialty areas; contemporary views of geographical methodology.

44:115 Principles of Geographic Information Systems 4 s.h.
Issues important to the establishment of geographic information systems: spatial data encoding, raster vector options, spatial and attribute resolution; geographic data models, linkages to spatial analysis procedures, display techniques for decision support, institutional setting. Prerequisite: 44:109.

44:121 Natural Resources Policy 3 s.h.
Geographical, cultural, political, economic; ethics: dimensions of natural resources policy; substantive and theoretical insights from the natural sciences, social sciences, humanities in building a conceptual framework for the analysis of current resource problems from a geographic perspective. U.S. natural resource problems and policy questions.

44:122 Environmental Conservation in the United States 3 s.h.
Variat: 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: 44:3 or 44:9 or consent of instructor.

44:123 Landscape Ecology 3 s.h.
Effects of spatial pattern on: spatial processes; ecosystem: characteristics of matrix, patch, corridor; fragmentation, deforestation, habitat loss; spatial flows of energy, matter, genetic information; relationship to human impact, global climate change. Prerequisites: 44:103 or a 100 level course in ecology, and 44:85.

44:124 Gender and the Environment 3 s.h.
Relationships between gendered human activities and environmental problems and developed and less developed countries; role of women's activism in environmental movements; ecofeminist perspectives. Prerequisite: 44:19 or 44:121 or an introductory women's studies course. Same as 131 - 124.

44:125 Environmental Impact Analysis 4 s.h.
Environmental impact assessment: methods, emphasis on cost-benefit analysis, overlay and graphic techniques, optimal resource use, system simulation; field trips to local environmental control facilities. Prerequisites: 44:19, and 25:5 or equivalent.

44:126 Water in the Biosphere 3 s.h.
Biological aspects of water resources production; geographical basis of biogeophysical processes in drainage basins; spatial aspects of stream ecology; regional characterization of watershed structure and process. Prerequisites: 44:101 or 44:102 or 44:103 or 2:111.

44:127 Water Quality: Science, Technology, and Policy 3 s.h.
Geographical perspectives in the study and interpretation of chemicals in water; primary and secondary drinking water standards; local and regional studies in drinking water and health: economic and institutional concerns in designing water quality protection strategies. Prerequisite: 44:85 or consent of instructor.

44:128 Drainage Basin: Form and Process 3 s.h.
Hydrological principles, stream channel processes, and fluvial geomorphology within the drainage basin system: spatial and temporal variations in water distribution, analyses of hydrological data, flow mechanisms, sediment transport, forecasting procedures, hydrography construction and modeling. Prerequisites: 44:102 or 44:104 or 44:105 or 44:106 or 44:107 or 44:108 or 2:111, and 44:121 or 44:122 or 44:127 or equivalent.

44:130 Location Strategy of Firms 3 s.h.
Theory and methods used by public and private sector firms to geographically organize their activities: market selection, site analysis, small-area demand forecasting and sales forecasting, network development, delivery of urban and rural services, use of geographical information systems in strategic and spatial planning; spatial allocation; location analysis and spatial behavior; spatial allocation; location analysis and spatial decision making; route service delivery functions, attribute preference functions, and spatial competition. Prerequisite: 44:85 or 44:95.-

44:131 Medical Geography: Health Services 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.

44:132 Industrial Location 3 s.h.
Theory and analysis of manufacturing location, classical location theory, behavioral analysis of location decision making, analysis of structural economic change, internal location analysis processes, region impact of industrial change, regional industrial development policies, environmental impact of industrial production.

44:135 Introduction to Economics of Transportation 3 s.h.
Overview of transportation markets-intercity, rural, urban-and transportation modes—railroads, highways, air, commercial, waterways, discussion of regulation, finance, physical distribution issues. Same as 102: 133, 184: 145.

44:134 Methods of Transportation Analysis 3 s.h.
Conceptual basis for predicting effects of transportation policy measures on traffic flows and system performance: transportation measurements; introduction to travel demand modeling; introduction to system performance modeling, network analysis and evaluation. Prerequisites: graduate standing, or 44:85 and a previous transportation course. Same as 102: 134.

44:135 Urban Geography 3 s.h.
Central ideas of modern urban geography, their links to social theory; focus on interaction between social change and urban environment, evolution of urban systems, emergence of the metropolis, urban and rural social differentiation, local political decision making, urban-rural development, urban-rural transfer. Prerequisite: 44:1 or 44:15 or 44:16.

44:137 Economic Theory of Location 3 s.h.
Behaviorally based location theories for social and economic activities traced from their classical origins to the contemporary literature. One of several conceptual, theoretical, and analytical tools available for understanding the relationship between location and function in the real world. Prerequisite: 44:104 or 44:105.

44:138 Health and Development 3 s.h.
Political institutions for planning, managing urban transport, production, pricing, distribution of travel and highway services, city case studies, urban freight issues. Prerequisites: 6E: 1 and 6E:2, or 44:133 or 44:134 or 102: 101. Same as 102: 143.

44:150 Undergraduate Seminar for Geography Majors 3 s.h.
Participation in a term project and preparation of a documented report. Offered spring semesters. Open only to seniors. Prerequisites: 44:85, 44:109, and satisfaction of computer programming requirement.

44:151 Senior Thesis 3 s.h.
Origina research. Open only to seniors. Consent of instructor required.

44:157 Third World Development Support 3 s.h.
Critical analysis of theories, policies programs, practice of Third World development; nature of the social scientific support needed to understand and accelerate the process: analysis of historical trends in the administration of overseas development aid since its inception in 1945. GER: foreign civilization and culture. Same as 19: 157.

44:161 African Development 3 s.h.
Problems of economic, political, spatial integration in Africa; problems and processes of economic development and nation building. GER: foreign civilization and culture, social sciences. Prerequisite: 44:94. Same as 140: 146, 140: 146.

44:162 Geography of Underdevelopment 3 s.h.
Spatial implications of the economic, political development of African societies; strategies, urban policy, institutional implications affecting contemporary Third World countries; politics of development and underdevelopment studies through reading major theoretical works and analyzing case studies. Prerequisite: 44:94 or graduate standing.

44:163 Geography of the Newly Industrializing Countries 3 s.h.
Newly industrializing countries (NICs) in geographic and historical perspectives: U.S. manufacturing base as a backdrop to NICs industrialization off shore industrial production, women in development, import substitution industrialization (ISI), export led industrialization; theories of industrial location; high technology industries the international division of labor, regional profiles taken from the Pacific Rim, Chile, Brazil, and the northern Mexican maquiladora industry. Prerequisites: 44:94 and 44:85.

44:164 Geography of the Middle East 3 s.h.
Social, political, and economic geography of the Middle East; countries; analysis of the region and the rest of the world. GER: foreign civilization and culture. Prerequisite: 44:94.

44:166 Contemporary Europe: Interaction and Change 3 s.h.
Contemporary Europe, stressing societal problems and attempts to resolve them; interactions within and among European countries, and between Europe and the rest of the world. Prerequisites: 44: 15 or 44:33, and 44: 135.

44:170 Political Organization of Space 3 s.h.
Geographical aspects of jurisdictional organization, provision of public services, location of public facilities, geography of elections, public policy.

44:171 Geography of the U.S. and Canada 3 s.h.
Geography and contemporary perspectives on place, regions, regionalism in North American society. Prerequisites: 44:15 or 44:33, and 44: 135; or 44: 122 or consent of instructor.

44:112 Development Planning and Policy 3 s.h.
Exploratory and policy strategies for economic and social development: origins, goals, formulations, execution, results; policy analysis methods. Prerequisites: 44:54 and 44:85.

44:175 Locational Conflict 3 s.h.
Behavioral and institutional bases of locational and community conflict public choice, social justice, radical perspectives; politicizing processes; strategies of resolution in housing urban infrastructure, public education, social and economic community development: neighborhood activism. Prerequisites: 44:15 and 44:135.

44:180 Field Studies in Physical and Environmental Processes 1 s.h.
Field studies in physical and environmental processes designed and research design in a field setting: sampling theory and procedures, collection of primary data using different sensor and recording methods, data analyses and interpretation of physical and ecological processes in geomorphic, climatic, biogeographic, and environmental research. Prerequisite: 12 semester hours of courses in geography or consent of instructor.
44:194 Geographic Perspectives on Development 3 s.h.  
Tutorials and related studies of the regional development process. With special emphasis on developing countries, alternative regional development theories and changes in development theories evidenced in the literature of geography and related disciplines. Prerequisite: prior or concurrent satisfaction of all other international development track requirements.

44:198 Honors Tutorial  
Individual study. May be repeated.

44:985 Honors Thesis  
Original research. Open only to honors students.

For Graduates

44:200 Readings  
arr.

Supervised readings by graduate students in topics of their choice. Consent of instructor required.

44:210 Philosophy and Epistemology in Geography  
3 s.h.  
Analysis of the philosophy and methodology of modern geography, with emphasis on epistemological and ontological issues; discussion of positivism and empiricism, in variants, and alternatives, in light of past and current research.

44:216 Behavioral Analysis in Geography  
3 s.h.  
Behavioral analysis of the human and physical environment; environmental perception, mental maps, spatial cognition, spatial choice models; preference structures, utility theory, decision making by individuals or groups in relation to the geographical organization of activities.

44:221 Nature-Society Theory  
3 s.h.  
Theoretical bases for understanding the relationship between human society and the natural environment. Prerequisite: 44:121 or consent of instructor.

44:222 Environmental Social Movements  
3 s.h.  
Processes of mobilization and resolution in environmental conflicts; perspectives of public choice, liberta and radical theories; relationships to new social movements; regional development; applications to environmental movements in First and Third Worlds.

44:225 Water Resources Systems Analysis  
2-3 s.h.  
Linear optimization and related models; recent applications in water resources management. Prerequisite: 12:228.

44:226 Advanced Biogeography/Landscape Ecology  
3 s.h.  
Current questions on spatial distribution of organisms and effect of spatial structure on ecological processes: environmental gradients, ecotones, and boundaries, metapopulations, and hierarchies.

44:227 Water Quality: Science, Technology, and Policy  
3 s.h.  
Graphical perspectives in the study and interpretation of chemicals in water; primary and secondary drinking water standards; local, regional, national, international cases studies in drinking water and health; socioeconomic and institutional considerations in designing water quality protection strategies.

44:228 Advanced Earth Surface Processes  
3 s.h.  
Theoretical concepts and empirical studies of hydrologic, climatic, geomorphic processes as related to the earth’s surface: measurement, analysis, modeling; drainage basin analysis and modeling; responses to cliamap and environmental change. Prerequisite: strong background in physical geography or consent of instructor. Same as 12:228.

44:229 Water Resources Management  
2-3 s.h.  
Theoretical concepts, empirical studies of hydrologic, geometric processes and principles within drainage basin systems; spatial and temporal variation; integration of processes of water distribution. Prerequisite: 44:128 or equivalent.

44:230 Advanced Drainage Basin Analysis  
3 s.h.  
Theoretical concepts, empirical studies of hydrologic, geometric principle and processes within drainage basin systems; spatial and temporal variation; integration of processes of water distribution, hydrologic data, flow and transport models, marshing. Consent of instructor required. Prerequisite: 44:128 or equivalent.

44:232 Advanced Industrial Geography  
3 s.h.  
The new industrial geography, economic growth processes, industrial organization, theory of the firm; current research.

44:236 Travel Demand Modeling  
3 s.h.  
Same as 66:226.

44:262 Political Economy of Regional Development  
3 s.h.  
The "unequal" relationship between Third World countries and the industrial world; contemporary development problems of Third World societies; form and function of the Third World international relationship, in both external and internal dimensions. Consent of instructor required.

44:294 Agrarian Change and Rural Development in the Third World  
3 s.h.  
Classical and comparative theories that inform rural development programs and programs; historical roots of contemporary rural development thinking; in depth research paper on the nature of rural development in a Third World nation.

44:265 Transportation Regulation and Finance  
3 s.h.  
Public policy options for improving passenger and commodity movements within and between cities; as these policies relate to public, private, and mixed transportation modes. Same as 102:265.

44:270 Jurisdictional Organization/Public Service Provision  
3 s.h.  
In depth examination of literatures dealing with geographical aspects of jurisdictional organization, provision of public services, location of public facilities, geography of elections, public policy.

44:273 Social Theory and Human Geography  
3 s.h.  
Alternative theories and paradigms of social theory; social theory and issues of social science; the development of a sociological perspective on human geography.

44:274 Seminar: Social Change  
arr.

Sociocultures of economic and political transformations: mapping of rural urban migration; gender and ethnicity as products and consequences of systems transformation. Same as 70:300, 34:274, 42:274.

44:275 Development Policy and Planning in the Third World  
3 s.h.  
Advanced seminar; focus on comparing development policies and planning in Third World countries; important development problems and alternative perspectives on problems and proposed solutions. Same as 70:275, 11 3275, 42:275, 34:275, 102:275.

44:280 Advanced Field Studies in Physics and Environmental Processes  
arr.

Problem definition and research design in a field setting; sampling theory and procedures, collection of primary data using different sensor and recording methods; data analyses and interpretation of physical and environmental processes in geographic, climatic, biogeographic, and environmental research. Prerequisite: 12 semester hours of courses in geography or consent of instructor.

44:285 Methods of Regional Analysis: Regional Science  
3 s.h.  
Important definition and research design in regional analysis conducted within a field setting: important definition and research design in regional analysis conducted within a field setting; important definition and research design in regional analysis conducted within a field setting; important definition and research design in regional analysis conducted within a field setting.

44:293 Advanced Location Theory  
3 s.h.  
Economics of location; location of the firm; transportation cost and location; allocation models; spatial price theory. Consent of instructor required. Prerequisite: 66:203.

44:38 Research Seminar: Quantitative Methods, Computer Methods, and Modeling  
2-3 s.h.  
Prerequisite: 44:236.

44:315 Research Seminar: Political Geography  
arr.

44:328 Research Seminar: Physical Geography  
arr.

44:329 Research Seminar: Water Resources  
arr.

44:330 Research Seminar: Location Theory  
arr.

Crucial of the contemporary location theory literature, discussion of solutions to the problems identified. Prerequisite: 44:137.

44:337 Seminar: Urbanization  
arr.

Social consequences of economic, political transformations; focus on impacts of rural urban migration; gender and ethnicity as products, consequences of systems transformation. May be repeated. Same as 70:300, 30:324, 34:279.

44:350 Research Seminar: Staff  
arr.

44:394 Research Seminar: Regional Development 3 s.h.  
arr.

44:441 Research: Location Analysis  
arr.

44:450 Thesis  
arr.

Geography

Chair: Richard G. Baker  

Professor emeriti: William M. Furnish, Richard A. Hoppin, Sherwood D. Tuttle

Adjunct professors: G. Brian Bailey, George R. Hallberg, Darrel B. Hoff, Donald L. Koch

Associate professors: Robert L. Brenner, Ann F. Budd, C. Thomas Foster, Jr.

Assistant professors: James E. Faulls, Luis A. Gonzalez, Mark K. Reagan, You-Kuan Zhang

Adjunct assistant professors: Ray Anderson, Michael Barkart, Gregory A. Ludvigson, Sanders Rhodes Harris, Brian J. Wittke

Curator, paleontology repository: Julie Golden

Undergraduate degrees: B.A., B.S. in Geology; minor in Geology

Graduate degrees: M.S., Ph.D. in Geology

Geography is the basic study and practical application of scientific disciplines related to understanding the earth. Geographical concerns include the earth’s origin, its present appearance and character internally and at the surface, its alteration with time, location of economic and energy resources, and how mankind is changing the earth for future generations. The Department of Geography has several subfields-mineralogy, petrology, stratigraphy, structural geology, paleontology, paleoecology, sedimentology, economic geology, geomorphology, glacial geology, environmental geology-as well as applied geophysics, geochemistry, paleobiology, engineering geology, and remote sensing.

Career opportunities are available to professional geologists in industry (especially related to environmental concerns), education, urban planning, state and federal geological surveys, and government resource and research organizations. The master’s degree is regarded by most hiring agencies as the working degree in geology. However, an undergraduate degree is fully satisfactory in certain teaching, federal, and industrial situations.

Many of the University of Iowa’s geography 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 other fields such as urban planning, environmental studies, engineering, archaeology, science education, or oceanography as advanced areas. Geography is good preparation for all of these.

Each year more than 700 students enroll in 12:3 Earth History and Resources and 12:8 Introduction to Environmental Geology, laboratory lecture courses designed to fulfill the College of Liberal Arts General Education Requirement in natural sciences.

For nonmajors, the department offers a lecture sequence featuring a general survey of geology and several advanced courses with few prerequisites—paleontology, geology of Iowa,
remote sensing, geomorphology, and oceanography.

Undergraduate Programs

Geology 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 geology must meet the general requirements of the College of Liberal Arts. It is recommended that they satisfy the foreign language requirement with French, German, or Russian, and the social sciences requirement with approved courses in economics, geography, and/or anthropology. The department offers the Bachelor of Science and the Bachelor of Arts. Both degree programs can be enriched by adding courses from environmental tracks. Options in the environmental tracks are informal; they are recommended paths of study for students seeking employment in the environmental sciences.

Bachelor of Science

The Bachelor of Science professional program in geology is designed primarily as preparation for graduate study and for employment in industry and government. The following courses are required.

*12:4 Evolution and the History of Life 4 s.h.
*12:5 Introduction to Geology 4 s.h.
12:41 Mineralogy 4 s.h.
12:52 Elementary Petrology 4 s.h.
12:92 Structural Geology 5 s.h.
or
12:132 Sedimentology 3 s.h.
or
12:161 Principles of Stratigraphy 3 s.h.
or
12:166 Hydrogeology and Groundwater Quality 3 s.h.
(All four courses listed above may be taken for credit.)

*12: 16 or 12:116 Field Trip (two sections) 4 s.h.
Geology electives 12 s.h.
Total 35 s.h.

*Students may substitute 12:109 Advanced Historical Geology: Iowa or 12:121 Principles of Paleontology for 12:4 Evolution and the History of Life, and 12:3 Earth History and Resources for 12:5 Introduction to Geology.

The geology major requires at least 10 semester hours of college mathematics, including 22M:26 Calculus I or 22M:36 Engineering Calculus II. Computer science or statistics courses may be counted toward the 10-semester-hour requirement. Additional mathematics courses are strongly recommended.

Eight semester hours each of laboratory courses in physics and chemistry, and a laboratory course in a biological science also are required.

Bachelor of Arts

The B.A. degree in geology 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, interdisciplinary environmental programs, or earth science teaching (see the College of Education section of the Catalog).

Completing the minimum requirements for this degree may not adequately prepare students for entry-level professional jobs in geology. Students may elect to take courses listed in one or more environmental geology tracks in order to prepare themselves for careers in the environmental sciences.

In addition to courses required for the B.A., carefully scheduled “track” courses may satisfy GER requirements as well as geology elective requirements. All B.A. students must complete a minimum of 35 semester hours of departmental requirements, including the following required course work.

**12:4 Evolution and the History of Life 4 s.h.
**12:5 Introduction to Geology 4 s.h.
12:41 Mineralogy 4 s.h.
12:52 Elementary Petrology 4 s.h.
12:92 Structural Geology 5 s.h.
or
12:132 Sedimentology 3 s.h.
or
12:161 Principles of Stratigraphy 3 s.h.
or
12:166 Hydrogeology and Groundwater Quality 3 s.h.

(All four courses listed above may be taken for credit.)

*12: 16 or 12:116 Field Trip (two sections) 4 s.h.
Geology electives 12 s.h.
Total 35 s.h.

*Students may substitute 12:109 Advanced Historical Geology: Iowa or 12:121 Principles of Paleontology for 12:4 Evolution and the History of Life, and 12:3 Earth History and Resources for 12:5 Introduction to Geology. Geology Field Trip Selected National Parks can be substituted for 12:16 or 12:116. 12:93 Geologic Field Methods may be substituted for both sections of 12:16 or 12:116. An intensive field course at the Iowa Lakeside Laboratory may be substituted for both sections of 12:16 or 12:116 with consent of the academic adviser.

The B.A. in geology requires at least 10 semester hours of college-level mathematics, which may include computer science or statistics. Eight semester hours of chemistry are also required, and courses in other sciences and social sciences appropriate to the student’s objectives are recommended.

Environmental Tracks

Groups of environmentally oriented courses that are desirable for students who wish to pursue environmental science careers in the earth sciences are organized into environmental tracks. These tracks are informal and flexible, and they include recommended courses that go beyond the minimum requirements for either the B.S. or B.A. degrees. The course 12:8 Introduction to Environmental Geology and 44:19 Contemporary Environmental Issues are not listed in these tracks, but geology majors whose study has an environmental orientation should take them as well as all required courses or options.

Students may choose courses from one particular track, or they may take courses from several tracks, depending on their career objectives. It may not be possible for students to complete all courses in any particular track during their four-year degree programs because of time, prerequisites, or limited enrollments in some programs. Students should consult with their academic advisers, and in some cases with course instructors, prior to registering for environmental track courses.

Courses marked (*) may satisfy Liberal Arts GER requirements. Geology courses marked (**) may be used to satisfy a geology course requirement.

Environmental Geology

*2:1 Introduction to Botany 4 s.h.
*2:2 Introductory Animal Biology 4 s.h.
*2:10 Principles of Biology I 4 s.h.
*2:11 Principles of Biology II 4 s.h.
2:111 Plant Ecology 4 s.h.
2:134 Ecology 4 s.h.
**12:121 Principles of Paleontology 3 s.h.
12:122 Evolution of the Vertebrates 2 s.h.
12:127 Paleobotany 4 s.h.
12:128 Quaternary Palynology and Paleobotany 4 s.h.

Environmental Geophysics

12:173 Quaternary Environments 3 s.h.
12:175 Palooecology of Quaternary Mammals 3 s.h.
44:103 Biogeography 3 s.h.

Environmental Geochemistry

4:101 Elementary Quantitative Analysis 4 s.h.
4:121 Organic Chemistry I 3 s.h.
4:149 Elements of Geochemistry 3 s.h.
**12: 166 Hydrogeology and Groundwater Quality 3 s.h.
53:152 Environmental Chemistry 3 s.h.
53:153 Environmental Chemistry Laboratory 3 s.h.
53:155 Environmental Engineering: Engineered Systems 3 s.h.

Engineering Geology

B.S. required courses in calculus and physics 18 s.h.
12:92 Structural Geology 5 s.h.
12:102 Earth Surface Processes 3 s.h.
12:110 Introduction to Remote Sensing 4 s.h.
12:161 Principles of Stratigraphy 3 s.h.
**12: 166 Hydrogeology and Groundwater Quality 3 s.h.
12:179 Engineering Geology 3 s.h.
12:180 Environmental Geophysics 3 s.h.
12:181 Exploration Geophysics 3 s.h.

Environmental Geostatistics

12:253 Geocomputing 1-3 s.h.
22S:101 Biostatistics 3 s.h.
22S:102 Introduction to Statistical Methods 3 s.h.
22S:148 Intermediate Statistical Methods 3 s.h.

Hydrogeology and Water Resources

12:92 Structural Geology 5 s.h.
12:102 Earth Surface Processes 3 s.h.
12:110 Introduction to Remote Sensing 4 s.h.
12:161 Principles of Stratigraphy 3 s.h.
**12: 166 Hydrogeology and Groundwater Quality** 3 s.h.
**44: 121 Natural Resources Policy** 3 s.h.
**44: 122 Environmental Conservation in the U.S.** 3 s.h.
**44: 123 Landscape Ecology** 3 s.h.
**44: 125 Environmental Impact Analysis** 4 s.h.
**44: 128 Drainage Basin Form and Process** 3 s.h.
**44: 129 Water Resources Management** 3 s.h.
Water law courses offered by the College of Law

**ENGLISH AND THE ENVIRONMENT**

**6E: 133 Environmental and National Resource Economics** 3 s.h.
**12: 110 Introduction to Remote Sensing** 4 s.h.
**12: 180 Environmental Geophysics** 3 s.h.
**12: 181 Exploration Geophysics** 3 s.h.
**12: 186 Petroleum Geology** 3 s.h.
**44: 121 Natural Resources Policy** 3 s.h.
**44: 122 Environmental Conservation in the U.S.** 3 s.h.
**44: 125 Environmental Impact Analysis** 4 s.h.
Environmental law courses offered by the College of Law

**COMPUTER APPLICATIONS IN ENVIRONMENTAL GEOLOGY**

B.S. required courses in calculus 8 s.h.
**12: 149 Elements of Geochemistry** 3 s.h.
**12: 153 Geocomputing** 1-3 s.h.
**22C: 5 Problem Solving and Computing** 3 s.h.
**22C: 7 Introduction to Computing with Fortran** 3 s.h.
**22C: 16 Introduction to Programming with Pascal** 4 s.h.

**Honors**

A degree with honors in geology is offered. Students in the honors program must elect a senior thesis and maintain a 3.20 cumulative grade-point average in order to graduate with honors in geology.

**Minor**

A minor requires at least 15 semester hours of geology courses with a minimum grade-point average of 2.00. At least 12 of the 15 semester hours must be earned in advanced geology courses taken at The University of Iowa. All geology courses numbered 100 and above, except 12: 103 Physical Geology, may be taken as advanced courses. In addition, 12: 41 Mineralogy, 12: 52 Elementary Petrology, and 12: 92 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 geology should be sufficiently prepared in the areas of supporting sciences before they take advanced courses in geology.

Recommended advanced courses in geology that deal with important areas of earth materials and earth processes are as follows.

12: 41 Mineralogy 4 s.h.
12: 52 Elementary Petrology 4 s.h.
12: 92 Structural Geology 5 s.h.
12: 121 Principles of Palentontology 3 s.h.
12: 132 Sedimentology 3 s.h.
12: 161 Principles of Stratigraphy 3 s.h.
12: 180 Environmental Geophysics 3 s.h.

**Joint Programs**

Joint programs can be arranged, usually with chemistry, physics, biological sciences, environmental engineering, and anthropology.

**Original Research**

A junior or senior who is ready to pursue original research for credit in geology may assist a faculty member or graduate student with a current research project or may initiate a small-scale project involving a combination of field, laboratory, and library investigation. Independent study is encouraged. Undergraduate classes have produced term reports that subsequently were published.

**Graduate Programs**

Students planning to take graduate work in geology should have completed geology and supporting courses equivalent to those required for an undergraduate major in geology at The University of Iowa. Students with deficiencies may remedy them at the beginning of graduate study.

Beginning graduate students in geology must take 12: 107 Geologic Orientation. All graduate students must perform teaching, research, or related appropriate services as part of the degree program.

Graduate students who begin their programs in August 1992 or later must deliver a 15-minute presentation about his or her thesis topic. The format of the presentation is decided individually by each student in consultation with his or her committee. Suggested modes of presentation include either oral or poster presentations at local, regional, national, or international meetings; presentation as part of a Friday seminar; and informal brown-bag lunch presentations. Students who began their study before August 1992 are encouraged to make these presentations voluntarily.

Prospective graduate students should consult “Rules and Regulations” in the Graduate College section of the Catalog for general admission and graduate study requirements.

**Master of Science**

The M.S. degree programs are designed to complete the student’s broad, fundamental background in geology and the supporting sciences, They prepare the student for a professional career in geology or for more advanced and specialized studies—although in certain situations and with faculty approval, the student may pursue an already specialized program at the master’s level.

Entering graduate students are assigned to a general graduate adviser. By the end of the first month of the second semester in residence, each student must select a research topic and a thesis committee. The department chair then approves a thesis adviser and two additional faculty members, who form the student’s advisory committee. The student is responsible for getting the committee’s approval for a suitable program of course work, and for satisfactory development of a research plan as outlined in a thesis proposal that is submitted for departmental approval. This proposal can, but does not have to be, in the form of a AAPG, GSA, Sigma Xi, or similar grant proposal.

Automatic continuation of financial aid beyond the first year is contingent on the student’s timely selection of adviser, thesis topic, and presentation of research proposal or program to his or her committee.

To qualify for admission to the final master’s examination, the candidate must have at least a 3.00 grade-point average on graduate courses that he or she is taking toward the 30-semester-hour minimum requirement for the degree with at least 24 semester hours in residence at The University of Iowa. Additionally, the grade-point average on all graduate geology courses should be at least 3.00. Not more than 8 semester hours of thesis and research may be counted toward the 30-semester-hour minimum required for the degree program.

**M.S. with Thesis**

Students are encouraged to select thesis topics involving a variety of geological subdiscipline and scientific skills. Research topics might include field work or mapping, laboratory experiments, analytical work, or some combination of these.

**M.S. Without Thesis**

In lieu of a thesis, the student must submit a manuscript that his or her committee deems acceptable for submission for publication. Students may submit a previously published manuscript. The manuscript must be formatted in the style of the journal to which it will be submitted. It must also be repositioned in the Main Library. No college credit is granted for the manuscript.

The M.S. without thesis requires at least 38 semester hours of graduate course work, of which at least 8 semester hours must be earned in other departments of the University.

The faculty may require that students submit a formal scientific report dealing with an appropriate subject or project. Credit may be granted for this report.

The final examination covers course work and work done in lieu of the thesis.

**Master of Arts in Teaching (Earth Science)**

This program enables students to combine certification to teach secondary school with participation in a specialized graduate curriculum. Awarded by the College of Education, the M.A.T. requires at least 20 semester hours of graduate study in professional education and at least 18 semester hours of graduate course work in earth science.
Doctor of Philosophy

The Ph.D. in geology requires at least 72 semester hours of graduate credit, including at least two full-time semesters in residence beyond the first 24 semester hours of graduate study.

The following are the minimum requirements. Ph.D. students must satisfy course requirements for the M.S. in geology at The University of Iowa; where appropriate, additional work in one area may be approved as satisfying requirements in another. They also must take an appropriate graduate course in another discipline. courses cross-listed between geology and other departments generally are not considered to meet this requirement. Candidates must complete at least 24 semester hours of graduate credit beyond that applied toward the M.S. and exclusive of credits for dissertation research.

The comprehensive examination covers, in depth, all subdivisions of the candidate's major field and appropriate related areas as represented by the committee. It also presumes that the doctoral candidate is proficient in the basic elements of general geology, as presented by current elementary textbooks. A dissertation is required. It must conform to a format prescribed by the Graduate College, but it can consist of three papers submitted or accepted for publication.

Facilities

Resources and equipment available for research in the Department of Geology include mineralogy/petrology lab (X-ray diffractometers, powder cameras, wet chemistry lab), A.A. spectrophotometer, fluid-inclusion stages, microscopes); sedimentary geochemistry lab (wet chemistry, ion chromatography); sedimentology lab (thin-section lab, petrographic facilities, cathodoluminescope); paleontology facility (invertebrate, vertebrate, palynological), including a major repository; research equipment for palynology, micropaleontology, and exploration geophysics; photographic lab; geophysicists (gravity meter, field and rock magnetometers, susceptibility meter); the Iowa Geological Survey Bureau (located in the same building as the department), with subsurface-core repository and remote sensing lab; in-house terminals for the University's Wapiti Computing Center (IBM 370, HP2000 computers); trailer-mounted soil probe; scanning electron microscope; microscope; and the geology departmental library, with 33,000 volumes and journals and 70,000 maps.

Cooperative Activities

The department has collaborative work with the Iowa Geological Survey Bureau, and geology students sometimes work on projects for the survey.

The Departments of Geology, Geography, Anthropology, Chemistry, Environmental Engineering, and Biological Sciences cooperate in sharing services, expertise, joint instruction, and equipment. The geology department is an important participant in the Iowa Quaternary Studies group, an interdisciplinary program that promotes projects combining work in geology, geography, botany, biological sciences, anthropology, and statistics. Course work, degree programs, and facilities are shared among departments.

Field Trips

Field trips are integral parts of several courses in geology, with frequent weekend general-interest events. In the Iowa City region, the geology is characterized by a layer of glacial drift 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 geoclue sites are located within a few hours' drive. Numerous Pleistocene glaciation are represented in Iowa, and field studies of landforms, exposures, and cores continue to yield information on sedimentology, stratigraphy, soil formation, paleopedology, and fossils from both glacial and interglacial deposits.

Spring break provides time for longer trips available to all geology students. In recent years, students have traveled to Death Valley, the Florida Keys, the southern Appalachians, New Mexico, and the Ozarks. Advanced classes visit Colorado, Ontario, Kansas, Oklahoma, and California.

Courses

Not all courses are offered every year.

Primarily for Undergraduates

12:00 Cooperative internship in Geology

Practical experience. Consent of instructor required. Prerequisites: grades of C or higher in 12:52, and 1,000 grade point average in geology.

12:11 Lectures in Earth History and Resources

Major types of rocks, processes by which DMS formed; use and misuse of earth resources. Same as 12:3 without lab.

12:12 Lectures in Introduction to Environmental Geology

Same as 12:8 without lab.

12:3 Earth History and Resources

Relationship of volcanoes and geothermal, sedimental, metamorphic rocks; absolute versus relative time; landscape evolution; mountain building; continental drift; relationship of resources to expanding human populations. GER: natural sciences. Offered fall semesters.

12:4 Evolution and the History of Life

Fossils over past 3.5 billion years; methods used to interpret their succession, evolutionary relationships. GER: natural sciences. Offered spring semesters.

12:5 Introduction to Geology

Rocks and minerals, surface processes (glaciers, rivers), major earth processes (mountain building, plate tectonics). GER: natural sciences.

12:6 Lectures in Evolution and the History of Life

Survey of fossils over the past 3.5 billion years; methods to interpret succession and evolutionary relationships. GER: natural sciences. Same as 12:4 without laboratory.

12:8 Introduction to Environmental Geology

Problems including people's effect on climate, interaction of people and landscape, water resources, population and food problems, energy resources and alternatives. GER: natural sciences.

12:10 Honors Thesis in Geology

Content of department required.

Field Trip

12:16 Field Trip

Areal of geologic interest, such as carbonate area of Florida, Rio Grande Rift (New Mexico), Death Valley (California, Nevada), Appalachian Mountains (Virginia). Offered spring break. May be repeated. Consent of instructor required.

12:17 Geology of the U.S. National Parks

Geologic features, geologic history; important biological and archaeological characteristics with emphasis on features that caused areas to be included in national park system. Offered spring semesters. Prerequisite: introductory geology course or consent of instructor.

12:18 Geology Field Trip: Selected National Parks

Observation, interpretation of salient geologic geomorphic, biological features. SEMESTER END VIST different parks each year. Offered spring semesters. May be repeated. Consent of instructor required.

12:19 Directed Study

May be repeated. Consent of instructor required.

12:41 Mineralogy

Crystallography, physical and chemical properties, phase relations, silicate structures, identification. Offered fall semesters. Prerequisites: 12:5; a math course through 22M:5 or equivalent, or consent of instructor. Pre or corequisite: introductory chemistry.

12:52 Elementary Petryology

Nature, origin, and hand specimen petrography of igneous, sedimentary, and metamorphic rocks. Prerequisite: 12:41.

12:92 Structural Geology

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. Prerequisites: 12:52 and 22M:5.

12:93 Geologic Field Methods

Principles and techniques of basic geologic mapping in Black Hill or South Dakota, Bighorn Mountains of Wyoming. Offered in June. Prerequisite: 12:52.

For Undergraduates and Graduates

12:100 Geologic Training Assignment

Practical experience. Consent of instructor required. Prerequisites: grade of C or higher in 12:52 and 3.00 grade point average in geology.

12:102 Earth surface Processes

Basic geomorphic, environmental processes that shape the earth's surface; emphasis on weathering-mass movement (creeks, landslides, earth flow), erosion, transport, deposition by fluid agents (wind, water, ice); methods used to study these processes. Prerequisite: 44:3 or 12:5 or consent of instructor. Same as 44:102.

12:103 Physical Geology

Processes that have generated and continue to alter our physical environment; composition, alteration of the earth from atomic to planetary level, relative to resource requirements; weathering, erosion, rock deformation, volcanism, mountain building, earthquakes; geomagnetism, continental drift. Offered spring semesters. Recommended: college-level science course.

12:107 Geologic Orientation

Degree requirements, programs; field survey of local geology; geotechnical skills, specialized facilities. Graduate standing or consent of instructor required.

12:108 Introduction to Oceanography

Descriptive, chemical, physical, biological, geologic aspects. Offered spring semesters. Recommended: knowledge of basic chemistry, biology, physics, earth science.

12:109 Advanced Historical Geology: Iowa

Geologic periods through geology of eastern Iowa. Prerequisite: course in earth science or geology.

12:110 Introduction to Remote Sensing

Remote sensing of the earth's surface from aircraft, satellites; aerial photograph interpretation; remote sensing systems, methods, data analysis using electromagnetic spectrum and image processing techniques, including microwave, visible, infrared, microwave radiation; remote sensing applied to geologic and environmental problems. Prerequisite: college physics or physical geology or equivalent.
12:13 Summer Field Course 6 s.h.
Descriptive geology of rock units, geologic structure in the Wasatch and Uinta Mountains, Park City, Utah. Offered summer sessions. Prerequisites: 12:24, 12:52, and 12:92.

12:14 Energy and the Environment 3 s.h.
Geological processes and environmental responsibilities for formation of petroleum, coal, uranium, development of alternative fuels. Environmental impact of exploration, production, use of fossil fuels and alternative sources. Prerequisite: College level earth science course or graduate standing or consent of instructor.

12:16 Field Trip 2 s.h.
Aptly named, experience, such as carbonate area of Florida, Rio Grande Rift (New Mexico), Death Valley (California, Nevada), Appalachian Mountains (Virginia). Offered spring break. May be repeated. Consent of instructor required.

12:19 Directed Study 2 s.h.
May be repeated. Consent of instructor required.

12:10 Collection Care and Management 2 s.h.
Same as 24: 120.

12:11 Principles of Paleontology 3 s.h.
Patterns of evolution in fossils; record; systematic, biostratigraphy, systematics, evolution of animals, biology, paleoenvironmental interpretation; large scale both in time and geographic change.

12:12 Evolution of the Vertebrates 2 s.h.
Vertebrate evolution as recorded in geologic record; fundamental concepts and concepts of selected taxa; some major transformations required. Prerequisite: Introductory geology or zoology.

12:13 Vertebrate Osteology 2 s.h.
Skeletal structure of vertebrates; emphasis on mammals, interpretation, interpretation of remains from paleontological, archaelogical sites. Just site standing required Prerequisite: Introductory geology or zoology.

12:14 Invertebrate Paleontology 4 s.h.
Morphology, taxonomy, paleoecology, eco of significant macroscopic invertebrates. Prerequisite: College geology or consent of instructor.

12:17 Paleobotany 4 s.h.
Phylogenetic study of plants using fossil evidence; paleobotanical techniques, economic applications in coal, petroleum industries. Prerequisite: Introductory botany or geology. Same as 2: 120.

12:18 Quaternary Paleontology and Paleobotany 4 s.h.
Morphology of pollen, seeds, flowers plant parts found as fossils their reproduction, preservation, use in biogeography, paleoecology, paleoclimatology, archaeology. Prerequisite: College level geology or Many. Same as 2: 121.

12:19 Sedimentology 3 s.h.
Physical, chemical, biochemical processes that generate sediments in rivers, including weathering, transportation, deposition and stratigraphic processes. Offered fall semester. Prerequisite: Physical and biological geology and one year of college chemistry.

12:20 Carbonate Petrology 4 s.h.
Phylogeny study of plants using fossil evidence; paleobotanical techniques, economic applications in coal, petroleum industries. Prerequisite: Introductory botany or geology. Same as 2: 120.

12:22 MicroPaleontology 4 s.h.
Morphology, taxonomy, and evolution of microfossil groups. Prerequisites: 12:121 or 12:166, and College zoology, or consent of instructor.

12:22 Advanced Earth Surface Processes 3 s.h.
Theoretical concepts, empirical studies of hydrologic, climatic, geomorphic processes in relation to the earth’s surface; measurement, analysis, modeling of processes; drainage basin analysis, modeling, responses to climatic change. Prerequisite: 12:52.

12:23 sedimentary Environments 1 s.h.
Introductory sedimentology, environments, geochemistry and diagenesis of sedimentary rock units; detection of paleogeographies in earth history. Offered fall and spring semesters. Prerequisite: 12:135.

12:24 Mineralogy 2 s.h.
Geologic processes that affect petroleum generation, migration, transport, trap filling, trapping, accumulation; survey of geological, geophysical exploration techniques; economic, policy factors that influence petroleum exploration, production. Prerequisite: 12:52.

12:25 Metamorphic Petrology 3 s.h.
Origin of metamorphic rocks using textural relationships, experimental data, geological observations. Prerequisite: 12:52 and 12:141, or consent of instructor.

12:26 Metamorphic Petrology Seminar 1 s.h.

Primarily for Graduates

12:222 Micropalaeontology 4 s.h.
Morphology, taxonomy, and evolution of microfossil groups. Prerequisites: 12:121 or 12:166, and College zoology, or consent of instructor.

12:223 Advanced Earth Surface Processes 3 s.h.
Theoretical concepts, empirical studies of hydrologic, climatic, geomorphic processes in relation to the earth’s surface; measurement, analysis, modeling of processes; drainage basin analysis, modeling, responses to climatic change. Prerequisite: 12:52.

12:234 Sedimentary Environments 1 s.h.
Introductory sedimentology, environments, geochemistry and diagenesis of sedimentary rock units; detection of paleogeographies in earth history. Offered fall and spring semesters. Prerequisite: 12:135.

12:240 Mineralogy 2 s.h.
Geologic processes that affect petroleum generation, migration, transport, trap filling, trapping, accumulation; survey of geological, geophysical exploration techniques; economic, policy factors that influence petroleum exploration, production. Prerequisite: 12:52.

12:251 Igneous Petrology 3 s.h.
Phase equilibria, isotope and trace element geochronology, geochronology, geochronology and geochronology modeling, generation, differentiation of magma in context of plate tectonic theory. Prerequisites: 12:52 and 12:141, or consent of instructor.

12:252 Isotope Geochemistry 2 s.h.
Radiogenic and stable isotopes systematic applications to geological and environmental problems. Prerequisite: 12:49 or consent of instructor.

12:254 Geochemical Thermodynamics and Kinetics 3 s.h.
Principles of chemical thermodynamics, kinetics applicable to high-temperature and low-temperature geologic systems; equilibrium and irreversible thermodynamics, phase rule, chemisorption, solid solutions, reaction potential, diagram, ionic activity in aqueous electrolytes, electron, reduction potential of thermodynamic data, evaluation of thermodynamic databases, heat capacity, reaction rates, calculation of thermodynamic and kinetic properties of minerals and fluids in natural geologic systems. Prerequisite: 12:49 or consent of instructor.

12:255 Metamorphic Petrology 3 s.h.
Origin of metamorphic rocks using textural relationships, experimental data, geological observations. Prerequisite: 12:52 and 12:141, or consent of instructor.
12:261 Regional Stratigraphy 3 s.h.
Contemporary concepts in light of new developments in global tectonics; detailed stratigraphic analyses of sedimentary basins, areas. Prerequisite: 12:161 or consent of instructor.

12:263 Biostatigraphy 3 s.h.
Principles, methods of biostratigraphic correlation; emphasis on evaluation of current techniques. Prerequisites: 12:161 and 12:222, or equivalent.

12:266 (Land) Hydrogeology 3 s.h.
Evaluation of existing landfills, design and operation of new facilities; emphasis on groundwater protection in diverse Midwestern hydrogeologic settings: case histories. Pre or corequisite: 12:16, 12:17, or 53:103.

12:272 Advanced Scanning Electron Microscopy 3 s.h.
Theoretical and practical aspects of high-resolution scanning electron microscopy, advanced electron beam specimen interaction, image analysis, signal processing techniques in a wide variety of applications using state-of-the-art equipment. Consent of instructor required. Prerequisite: 12:156. Same as 53:272.

12:279 Engineering Geology Field Problems 1.5 s.h.
Environmental geology design problems; emphasis on field aspects, including mine reclamation, wetlands, river management, erosion control. Corequisite: 12:179.

12:280 Seminar Geophysics 1-2 s.h.
High pressure geophysics, exploration geophysics, physical properties of rocks, computer processing of data.

12:281 Gravity and Magnetic Exploration 3 s.h.
Basis, techniques, use of gravity and magnetic methods of geophysical prospecting; field work in data acquisition, and interpretation. Prerequisite: 12:181.

12:292 Seismic Exploration 3 s.h.
Basics, techniques, applications of seismic methods of geophysical prospecting; data acquisition, analysis and processing. Prerequisite: 12:181.

12:296 Seminar: Structural Geology 1.5 s.h.
Consent of instructor required.

12:300 Research: Summer Field and Laboratory May be repeated.
At least 2 s.h.

12:301 Research: General Geology May be repeated.
At least 2 s.h.

12:315 Research: Ground Water May be repeated.
2 s.h.

12:320 Research: Paleontology May be repeated.
1 s.h.

12:321 Research: Micropaleontology May be repeated.
1 s.h.

12:330 Research: Sedimentology and sedimentary Petrology May be repeated.
2 s.h.

12:340 Research: Mineralogy May be repeated.
1 s.h.

12:350 Research: Petrology May be repeated.
1 s.h.

12:360 Research: Stratigraphy May be repeated.
1 s.h.

12:370 Research: Geomorphology and Reconstruct Geology May be repeated.
1 s.h.

12:380 Research: Economic Geology May be repeated.
1 s.h.

12:385 Research: Geophysics May be repeated.
1 s.h.

12:390 Research: Strucure Geology May be repeated.
3 s.h.

12:395 Research in Geologic Remote Sensing May be repeated.
3 s.h.

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**German**

Chair: Wolfgang Ertl

**Professors:** Judith P. Aikin, Wolfgang Ertl, John A. A. van der Haar

**Associate professors:** Sarah M.B. Fagan, Sabine I. Sandrock, Ingeborg H. Scibrig

**Assistant professors:** Glenn Ehrstine, Angelika Sandrock, Ingeborg H. Scibrig

**Associate professor emeritus:** Milton Zagel


Associate professor emeritus: Milton Zagel

Assistant professors: Glenn Ehrstine, Angelika Sandrock, Ingeborg H. Scibrig

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**Undergraduate Program**

The following course sequences, or their equivalents, are required for students who begin a major in German with no previous experience in the German language.

**BASIC PROGRAM**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:11</td>
<td>Elementary German I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>13:12</td>
<td>Elementary German II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>13:21</td>
<td>Intermediate German I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>13:22</td>
<td>Intermediate German II</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

The basic program also may be satisfied by various combinations of 13:13, 13:14, 13:25, 13:26, and 13:27. See the German department undergraduate adviser for details.

Students majoring in German choose one of two major tracks: the humanities track or the applied German track. Students who plan to complete the undergraduate teaching major in German in conjunction with the College of Education (see the College of Education section of the Catalog) may choose either the humanities track or the applied German track.

**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 humanities track was revised in 1994. All students who declare this track beginning August 22, 1994, must complete the new requirements. Students who declared before that date may choose to complete either the old requirements (see the 1992-94 General Catalog) or the new requirements. Students who wish to graduate under the old requirements must complete the major and graduate by August 1998.

*13:101 Introduction to German Literature 3 s.h.*

*13:103 Composition and Conversation 3 s.h.*

*13:104 Composition and Conversation 3 s.h.*

*13:105 German Culture History 3 s.h.*

*13:110 Eighteenth-Century German Literature 3 s.h.*

*13:111 Nineteenth-Century German Literature 3 s.h.*

*13:121 Twentieth-Century German Literature 3 s.h.*

*13:16 Advanced Composition and Conversation 3 s.h.*

*13:198 Undergraduate Special Topics 3 s.h.*

An elective from the courses offered within the department, or an elective related to Germanic studies offered by another department (approval of major adviser required) 3 s.h.

*13:101 is prerequisite for all other literature courses.

**APPLIED GERMAN TRACK**

The applied 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 the College of Business Administration offer a joint program leading to an International Business Certificate. For details, see the College of Business Administration section of the Catalog.

*13:103 Composition and Conversation 3 s.h.*

*13:104 Composition and Conversation 3 s.h.*

*13:106 Principles and Techniques of Translation 3 s.h.*

*13:108 The German Media 3 s.h.*

*13:114 Business German 3 s.h.*

*13:115 Contemporary German Civilization 3 s.h.*

*13:16 Advanced Composition and Conversation 3 s.h.*

*13:198 Undergraduate Special Topics 3 s.h.*

One German department course in literature or culture.

An elective from the courses offered within the department, or a course related to Germanic studies offered by another department (approval of major adviser required) 3 s.h.

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.

**Elementary and Secondary Teaching Licensure in German**

German majors interested in licensure to teach in elementary and 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 College of Education, Division of Curriculum and Instruction, for further information.

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.

Honors

Honors in German is open to exceptional students who are members of the University Honors Program and have completed three years of college-level German, or the equivalent, with a grade-point average of at least 3.50 in upper-division German courses.

Participating students register for the following courses:

13:190 Honors Program in German 3 s.h.
13: 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 semester hours of course work in college-level German with a minimum grade-point average of 2.00. Twelve of these semester hours must be in advanced courses (13: 100 and above) at The University of Iowa. All courses numbered 100 and above count toward the minor except 13: 118, 13:123, and 13: 183.

Graduate Programs

Master of Arts

The department offers the Master of Arts both with and without thesis. The M.A. without thesis is considered a terminal degree.

Students must complete a minimum of 33 semester hours of qualifying course work to complete the M.A. degree.

M.A. students may elect a concentration in either Germanic linguistics, including applied linguistics, or German literature. Those who have not completed major courses or their equivalents in the department’s undergraduate program must take those courses along with the courses required for the M.A. Some candidates may qualify for graduate credit for such work.

With the graduate adviser’s approval, students may take some of the required 33 semester hours outside the department in related subjects, such as philosophy, history, linguistics, or other languages.

Students who elect to pursue the M.A. with thesis must submit a prospectus before the end of the semester in which they pass the M.A. examination, and they must complete the thesis no later than eight months after they take the M.A. examination.

Usually students may receive 2 semester hours of credit for satisfactory completion of the thesis. The semester hours are in addition to the 33 semester hours required for the M.A. The thesis topic may be either linguistic or literary and is subject to approval by the faculty.

Candidates must present an oral defense of the thesis. If the thesis is deemed acceptable, the faculty will consider the candidate’s application for formal admission to the Ph.D. program.

Doctor of Philosophy

The Ph.D. is awarded upon satisfactory completion of a minimum of 72 semester hours of graduate credit and fulfillment of other requirements of the Department of German and the Graduate College (see the Graduate College section of the Catalog). Students may elect a concentration in either Germanic linguistics, including applied linguistics, or German literature.

Credit received toward the M.A. usually is applied to the Ph.D. Students may earn up to 12 additional semester hours of credit for satisfactory completion of the Ph.D. dissertation.

Graduate courses in related subjects outside the department may be counted toward the degree with the approval of the graduate adviser.

Graduate Degree Language Tools

Master of Arts

Before taking the M.A. exam, candidates must demonstrate a 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.

Competence may be demonstrated either by submitting proof of having taken the required course work with a grade-point average of 3.00 or higher, or by passing an exam at the fourth-semester college level as determined by the appropriate language department.

Doctor of Philosophy

Candidates must demonstrate a reading knowledge of two languages determined by the adviser to be pertinent to the candidate’s research interests.

Competence may be demonstrated by the methods described under “Master of Arts.”

Financial Aid

Teaching assistantships, research assistantships, and partial tuition scholarships are available for qualified graduate students. The department awards the Wilson and the Funk prizes to students of distinction.

study Abroad

The Department of German participates in the Regents Summer Program in Austria. Sponsored by the three State Board of Regents universities, this program is open to students in all disciplines.

A three-week session is conducted at St. Radegund, near Graz, Austria. Instruction in both language and culture is provided at appropriate levels. A second four-week session is held in Vienna, where faculty of the International University at the University of Vienna conduct morning classes daily, again at several levels. An independent travel period is scheduled during the program.

To participate, students must be admitted to one of the three State Board of Regents universities for the summer session. Applicants should have a good basic knowledge of German—usually two years of college-level German or the equivalent. Students with less than two years may be accepted with the approval of the campus coordinator.

The study abroad program is intended primarily for undergraduates, but graduate students may also apply. All students are expected to speak only German while participating in the program. Grants are available for qualified applicants.

Students register for 13: 109 Regents Program Abroad in Austria. Contact the Department of German 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 computer-assisted instruction program. An extensive collection of works and periodicals in the University Libraries facilitates research in all major areas of German literature and Germanic linguistics and at all levels of study.

The Foreign Language House is an on-campus housing option for undergraduate and graduate students.

Courses

Primarily for Undergraduates

13:00 Cooperative Education Internship 0 s.h.
13:11 Elementary German 1 3-4 s.h.
Understanding and speaking “everyday German”; reading and writing skills; acquaintance with the German-speaking world through discussions, readings, videos. GER: foreign language.
13:12 Elementary German 11 3-4 s.h.
13:13 Intensive Elementary German 6 s.h.
A year in one semester. Open only to undergraduates. GER: foreign language.
13:14 First-Year German Review 4 s.h.
Accelerated course in preparation for third semester German. GER: foreign language. Prerequisite: two or more years of high school German.
13:21 Intermediate German 1 3 s.h.
Proficiency in spoken and written German: German-speaking culture of central Europe; basic vocabulary; emphasis on refinement of reading skills. GER: foreign language. Prerequisites: 13:12, 13:13, and 13:14; or equivalent.

13:22 Intermediate German 11 3 s.h.
Continuation of 13:21. GER: foreign language. Prerequisite: 13:21 or equivalent

13:25 Intensive Intermediate German 3 s.h.
A year in one semester. Open only to undergraduates. GER: foreign language. Prerequisites: 13:12, 13:13, 13:14, or equivalent.

13:26 Accelerated German Reading 1 4 s.h.
First of a two course sequence; thorough foundation in German grammar and vocabulary, intensive approach to reading. German. Open only to undergraduates. GER: foreign language.

13:27 Accelerated German Reading 11 4 s.h.
Continuation of 13:26; vocabulary building and extensive reading of short texts. Open only to undergraduates. GER: foreign language. Prerequisite: 13:26 or equivalent.

**For Undergraduates and Graduates**

13:100 Individual German 1 arr.
Open only to German majors and minors or to others with consent of instructor.

13:101 Introduction to German Literature 3 s.h.
Literary works from various genres; taught in German. Prerequisite: 13:22 or equivalent.

13:103 Composition and Conversation I 3 s.h.
Active command of German in reading, speaking, writing. Prerequisite: 13:22 or equivalent.

13:104 Composition and Conversation II 3 s.h.
Prerequisite: 13:103 or equivalent.

13:105 German Cultural History 3 s.h.
Emphasis on development of art and literature. GER: foreign language and culture. Prerequisite: consent of instructor.

13:106 Principles and Techniques of Translation 3 s.h.
Theory, methods, techniques for translating technical scientific, journalistic, literary texts; emphasis on German to English translation. Offered spring semesters of even years. Prerequisite: a third year of college-level German or equivalent and a 3.5 grade-point average in German.

13:108 The German Media 3 s.h.
Reading and listening skills: comprehension, reading speed, vocabulary building, scanning and skimming, parsing complex constructions through media accounts of current events. Offered fall semesters of odd years. Prerequisite: 13:22 or equivalent.

13:109 Regents Program Abroad in Austria arr.
See “Study Abroad” in the Catalog.

13:110 Eighteenth-Century German Literature 3 s.h.
Representative works from various genres in their literary, historical, social background; taught in German. Prerequisite: 13:101.

13:111 Nineteenth-Century German Literature 3 s.h.
Representative works from various genres in their literary, historical, social background; taught in German. Prerequisite: 13:101 or equivalent.

13:112 Twentieth-Century German Literature 3 s.h.
Representative works from various genres in their literary, historical, social background; taught in German. Prerequisite: 13:101 or equivalent.

13:114 Business German 3 s.h.
World of German business, role of German speaking countries in world trade; emphasis on German business protocol. Consent of instructor. Offered fall semesters of even years. Prerequisite: two years of college-level German or equivalent.

13:115 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. Offered spring semesters of odd years. GER: foreign language and culture. Prerequisite: a 290Y, year, college level German course or equivalent.

13:116 Advanced Composition and Conversation 3 s.h.
Speaking and writing. Open only to undergraduates in German or to open with consent of instructor. May be repeated. Prerequisites: 13:103 and 13:104, or equivalent

13:118 The Third Reich and Literature 3 s.h.

13:120 Methods: Secondary School Foreign Language 3 s.h.

13:123 Topics in Foreign Language Instruction Technology 2 s.h.
Development of technology-based materials for foreign language instruction; computer authoring languages, interactive media, language laboratory methods and management. Same as 9:168, 36:1. 17.

13:130 Internship Abroad arr.
Work experience related to student's major field of study; position must require significant use of German language in a German speaking country; must be arranged in collaboration with Office of Cooperative Education. Corequisite: 13:100.

13:137 Twentieth-Century German Fiction 3 s.h.
Major writers from turn of the century to postwar Germany. open standing in German required.

13:183 The Faust Tradition and Goethe's Faust 3 s.h.
Development of Faust theme in world literature, beginning with antiquity; the historical Faust, the Faustian Book, Marlowe's Dr. Faustus, critical analysis of Goethe's Faust I, last act of Faust II, modern Faust criticism; requires no knowledge of German. GER: humanities.

13:190 Honors Program in German 3 s.h.
Individual work in German literature and culture. Prerequisites: three years of college level German or equivalent and a 3.5 grade-point average in German.

13:191 Honors Research and Thesis 3 s.h.
Open only to honors students. Consent of instructor required. Prerequisite: 13:190.

13:198 Undergraduate Special Topics 3 s.h.
Open only to advanced undergraduates. Maybe repeated. Consent of instructor required.

**Language Courses for Graduate Nonmajors**

13:1 13 Intensive Elementary German 4 s.h.
Open only to graduate students.

13:125 Intermediate German 1 4 s.h.
Open only to graduate students.

13:126 Accelerated German Reading 1 4 s.h.
Open only to graduate students.

13:127 Accelerated German Reading 11 4 s.h.
Open only to graduate students. Prerequisite: 13:126 or equivalent.

**For Graduates**

13:200 Advanced Studies 4 s.h.
Special problems of German literature and linguistics. Open only to graduate students in German.

13:220 The German Novel 3 s.h.
May be repeated.

13:221 Principles of Teaching and Learning Foreign Language 3 s.h.
Theoretical foundations of teaching and learning a foreign language; emphasis on practical applications of methods to a language classroom. Same as 9:234.

13:222 German Rhetoric and Style 3 s.h.
Advanced writing and speaking; structure and texture of German academic discourse.

13:223 German Poetry 3 s.h.
May be repeated.

13:224 The German Drama 3 s.h.
May be repeated.

13:227 German Novels 3 s.h.
May be repeated.

13:241 History of the German Language 3 s.h.
Same as 105/231.

13:242 Structure of Modern German 3 s.h.
 Morphology and syntax; linguistic concepts such as gender and cases; tense, mood, aspect; functional sentence (perspective word format) on: relationship between gender and sex; how cognitive and social characteristics of language users are related to or represented in morphology and syntax of a language; taught in German.

13:243 Middle High German 3 s.h.
Emphasis on linguistics. Same as 103:252.

13:244 Middle High German Literature 3 s.h.

13:247 Gothic 3 s.h.
Structure of Gothic; close reading and translation of Gothic; relationship of gothic European linguistics to Germanic languages.

13:249 History of the Scandinavian Languages 3 s.h.
Linguistic texts in Danish, Swedish, Norwegian extensive readings. Same as 103:232.

13:251 Early German Literature 3 s.h.
From earliest documents to Middle High German period.

13:271 German Literature of the Baroque 3 s.h.

13:281 The Age of Enlightenment and the Early Period of Storm and Stress 3 s.h.

13:283 The Age of Goethe 3 s.h.

13:285 Goethe 3 s.h.

13:291 German Romanticism 3 s.h.

13:295 German Literature from Naturalism to Expressionism 3 s.h.

13:298 Special Topics in German Literature 3 s.h.
Open only to graduate majors in German. May be repeated.

13:300 Master’s Thesis 3 s.h.

13:350 Pre-Comprehensive Registration 0 s.h.

13:371 Seminar in Early German Literature 3 s.h.
May be repeated.

13:381 Seminar in German Literature of the Eighteenth Century 3 s.h.
May be repeated.

13:391 Seminar in German Literature of the Nineteenth Century 3 s.h.
May be repeated.

13:396 Seminar in German Literature of the Twentieth Century 3 s.h.
May be repeated.

13:398 German Poetry of the Twentieth Century 3 s.h.

13:399 Theory of Literature 3 s.h.

13:400 Ph.D. Dissertation 3 s.h.

**Global Studies**

Chair: James McCue (Religion) Committee members: Stephen Arum (Office of International Education and Services), Rex Honey (Geography), William Klink (Physics), Gerald Nordquist (Economics), Rebecca Roberts (Geography), David Schoenbaum (History), Gerald Sorkin (Political Science), Burns Weston (Law)

Undergraduate degree: B.A. in Global Studies; undergraduate minor and certificate in Global Studies

The Global Studies Program provides undergraduate students with a multidisciplinary study of major contemporary, interrelated global issues: war, peace, and security; development, health, and human resources; environment and natural resources; and cross-cultural understanding.

The program provides a suitable background for a variety of careers. Depending on how it is shaped by individual students, it can provide a
Global Studies is a constituent program of the Center for International and Comparative Studies (CICS).

Programs

The Bachelor of Arts in global studies is designed solely for students in the University Honors Program while tie certificate and minor are intended for all students interested in complementing their study with courses that develop global perspectives and emphasize global issues.

Bachelor of Arts

The global studies major is a broadly conceived program that provides a great deal of flexibility yet has a definite structure. To be eligible, students must be members of the University Honors Program. To fulfill the requirements of the major, students take a core curriculum of courses, develop a familiarity with one major world area, develop usable skills in a language of that area, study in some depth one of three areas of topical concentration, and complete a senior project. The course requirements total 54 semester hours.

All students take the following honors core curriculum of 27 semester hours.

GROUP A: GLOBAL STUDIES

47:1 Global interdependence and Human Survival 3 s.h.
47:180 Global Studies Seminar 3 s.h.

GROUP B: DISCIPLINARY STUDIES OF THE GLOBAL SYSTEM

Four of these:

6E: 125 International Economics 3 s.h.
16A: 152 United States in World Affairs 1900-1975 3 s.h.
or
30:162 American Foreign Policies 3 s.h.
30:60 Introduction to International Relations 3 s.h.
30:170 The Politics of International Economics 3 s.h.
44:15 Introduction to Political Geography 3 s.h.
47:195 Introduction to Public International Law 3 s.h.

GROUP C: INTRODUCTION TO TOPICAL CONCENTRATIONS

Students must take one course in each of the following three areas.

War, Peace, and Security

16:143 War and Society 3 s.h.
30:160 International Politics 3 s.h.

(Students who declared a certificate in global studies and completed 30:60 Introduction to International Relations before August 1994 may use that class.)

Development, Health, and Human Resources

30:42 Introduction to the Politics of Developing Areas 3 s.h.
44:94 International Development 3 s.h.
113:151 Sociology of the Third World 3 s.h.

Environment and Natural Resources

12:8 Introduction to Environmental Geology 3 s.h.
44:19 Contemporary Environmental Issues 3 s.h.

WORLD AREA

Students take 12 semester hours of courses that focus on a major world area other than their home area.

Areas for which there are sufficient course offerings at The University of Iowa are listed below. Students who wish to study a particular area for which courses are not available in sufficient number may take the courses at another institution and transfer them, with the approval of the program chair.

Africa
Asia: China, Japan, India
Latin America
Middle East
Russia and Eastern Europe
Western Europe: France, Germany, Great Britain, Western Europe as a unit

For a listing of courses in these areas, contact the Global Studies Program office.

FOREIGN LANGUAGE

Each student is required to demonstrate an ability to use a foreign language that is widely used in the world area studied. The details of this requirement are worked out on an individual basis. In no case is the requirement less than four semesters of college-level study, and it commonly requires more work. Because of the additional time required for Chinese, Japanese, or Russian, students who elect these languages may count some semester hours of language study (6 for Chinese and Japanese and 3 for Russian) as partial fulfillment of the world area requirement.

TOПICAL CONCENTRATION

Each student develops a topical concentration (12 semester hours) focused on one of the following.

War, peace, and security
Development, health, and human resources
Environment and natural resources

For a current list of courses that may be used to complete the topical concentration, contact the Global Studies Program office.

SENIOR HONORS PROJECT

Each student completes an honors project, usually during the senior year. Students register for 3 semester hours of research on the project.

Certificate Program

The Certificate Program in Global Studies is designed to provide an international and global orientation for students in a variety of majors. Students in such diverse fields as engineering, business, anthropology, journalism, history, economics, and political science have completed the certificate program. Requirements total 27 semester hours.

Students complete all requirements for their departmental major as well as the requirements of the certificate program. Courses applied toward the certificate also may be used to satisfy the General Education Requirements or the requirements for a major or a minor.

Students who complete the requirements are awarded a certificate in global studies when they receive their bachelor’s degrees, and completion of the program is noted on their transcript. 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 global studies. Students interested in pursuing the certificate in global studies should contact the program chair to ensure that they receive appropriate advising and current course information.

Requirements

Students in the certificate program must take courses in the basic area, in each of four emphasis areas, and in a foreign language. A minimum grade-point average of 2.00 is required in all course work applied toward the certificate.

BASIC AREA

Both of these:

47:1 Global Interdependence and Human Survival 3 s.h.
47:180 Global Studies Seminar 3 s.h.

One of these:

6E: 125 International Economics 3 s.h.
16A:152 United States in World Affairs 1900-1975 3 s.h.
30:60 Introduction to International Relations 3 s.h.
30:162 American Foreign Policies 3 s.h.
30:170 The Politics of International Economics 3 s.h.
44:15 Introduction to Political Geography 3 s.h.
47:195 Introduction to Public International Law 3 s.h.

EMPHASIS AREAS

Students take one course listed in each of the following four areas. They also choose one of the areas as their topical emphasis and take two additional courses in that area. The Global Studies Program office can provide a list of additional courses that may be counted toward an emphasis area.

War, Peace, and Security

This component deals with the use of armed force for pursuit of political ends on a continuum ranging from potential global nuclear war to individual acts of terrorism. The approaches consider cause, effect, limitation,
History ● Liberal Arts

16:143 War and Society 3 s.h.
or 30:160 International Politics 3 s.h.
(Students who declared a major in global studies and completed 30:60 Introduction to International Relations before August 1994 may use that class.)

Development, Health, and Human Resources

This component deals with the problems of developing societies within the framework of a competitive global economy.

30:42 Introduction to the Politics of Developing Areas 3 s.h.
or 44:94 International Development 3 s.h.
or 113: 151 Sociology of the Third World 3 s.h.

Environment and Natural Resources

This component is concerned with the use, availability, and disposal of global resources. Of special concern are environmental problems that arise from the transformation of these resources by humans using modern technology.

12:8 Introduction to Environmental Geology 3 s.h.
or 44:19 Contemporary Environmental Issues 3 s.h.

Cross-Cultural Understanding

Global issues require that people be educated to understand that perceptions, values, and beliefs vary among societies; that these differing values complicate the process of people communicating about and arriving at possible solutions; and that without careful examination, it is risky to accept as absolutes the perceptions, values, and beliefs of any one society or culture.

The goals of this component are to highlight cross-cultural differences as a major contemporary global issue; to address some of the sources, dimensions, and policy implications of these value differences; to foster the cross-cultural sensitivity necessary for dealing with global issues; and to encourage students to clarify their own values as they bear on the analysis of global problems. Students who choose to take three courses in this area may select courses that bear on the history, culture, and politics of a single world region.

Students may wish to take one of the following news colloquia in combination with other regional courses: 39: 150 Contemporary Asian News Colloquium (same as 16W:181), 130:120 Contemporary Latin American News Colloquium, 141:10 African News Colloquium. Students who take just one course in this area should take 113:3 Introduction to the Study of Culture and Society (3-4 s.h.).

FOREIGN LANGUAGE

All certificate program students are required to complete four semesters (or equivalent) of a foreign language and are encouraged to go beyond this minimal requirement.

Minor

The requirements for the global studies minor are the same as those for the certificate, except that courses taken to satisfy the student’s major do not count toward the minor. Students interested in pursuing a minor in Global Studies should contact the program chair to ensure that they receive appropriate advising and current course information.

Study Abroad

Global Studies students are encouraged to spend a semester or a year studying abroad. When planning their time abroad, students should consult with the global studies program chair to discuss whether course work completed at an institution in another country will count toward the major, minor, or certificate program at Iowa.

Stanley Scholarships

Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Research/Fieldwork through the Center for International and Comparative Studies. The scholarships are awarded to outstanding University of Iowa undergraduates who, in close consultation with a faculty member, propose a well-conceived small-scale research or fieldwork project on an international topic.

Special Programs

The Global Studies Program often collaborates with the International and Comparative Law Program or other units on campus to bring scholars and professionals to campus. The visitors take part in conferences and seminars and address the University community on current global issues. They often address the Iowa City Foreign Relations Council as well.

Courses

47:195 Introduction to Public International Law 3 s.h.

Principles of law that determine rights and duties of nations in their dealings with each other; contemporary international problems and controversies. Junior, senior, or graduate standing required. Recommended: background in International Relations.

Same as 91:195.

GREEK

See “Classics.”

HISTORY

Chair: Jeffrey L. Cox

Professors emeriti: William O. Anderson, Ralph E. Giesey, Sidney Mead, Stow Persons, Alan B. Spitzer

Associate professors: Mitchell G. Ash, Kenneth M. Colletti, James L. Giblin, Steven L. Hoch, Rebecca Rogers, Allen Steinberg

Assistant professors: Sarah Farmer, Colin Gordon, Kathleen Higgins, Susan Lawrence, Leslie Schwalm, Penny Von Eschen

Undergraduate degree: B.A. in History; minor in History

Graduate degrees: M.A., Ph.D. in 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 liberal education, the department trains professional historians and teachers of history; serves those who require knowledge of a period or aspect of history as background for their own specialized interests in other fields; and participates in several interdisciplinary programs, such as American studies, African-American and world studies, Asian studies, Latin American studies, and women’s studies.

Undergraduate Program

Baccalaureate graduates in history work in a variety of positions in business, public service, or 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 will illuminate and expand the meaning of history courses as well as introduce undergraduates to different bodies of information and approaches to understanding how societies and cultures work. For example, students majoring in history are encouraged to fulfill the College of Liberal Arts General Education Requirement in foreign language by selecting a language that fits their interests in history. Majors also are encouraged to improve their writing skills.

Requirements for the major in history were changed in 1994. All students who declare the history major beginning August 22, 1994, must complete the new requirements. Students who
declare a history major before August 22, 1994, may choose to complete the old or the new requirements. Students who choose the old requirements must complete them and graduate by August 1999.

The general major is for students with a general interest in history. The new program requirements are as follows:

Students must earn a minimum of 30 semester hours in history courses and present a portfolio of written work. The portfolio, which should consist of at least three papers the student has written while enrolled in history classes, is submitted to the student’s adviser in the semester before graduation. Honors students who successfully complete an honors essay are not required to submit a portfolio (see “Honors” in this section of the Catalog).

College Level Equivalency Program (CLEP) 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 15 hours, including the colloquium, must be taken at The University of Iowa.

Undergraduate courses are divided into four areas: American history (prefix 16A), European history (16 E), non-western world history (16W), and courses that have no area designation (16).

The major requires at least one course each from the American, European, and non-western world history lists.

REWRIED COURSES

Colloquium

One of the following (3 semester hours):

16:51 Colloquium for History Majors 3 s.h.
16A:51 Colloquium for History Majors (American) 3 s.h.
16E:51 Colloquium for History Majors (European) 3 s.h.
16W:51 Colloquium for History Majors (World) 3 s.h.

Freshmen who enter the University as history majors take the colloquium during their second semester on campus; students who declare history as a major after entering the University take the colloquium in the semester following their declaration. Every colloquium includes assigned papers; students must include in their history portfolio at least one paper from their colloquium.

Other Required Courses

Total of 6-9 semester hours, depending on colloquium credit:

At least 3 semester hours of American history
At least 3 semester hours of European history
At least 3 semester hours of non-western world history

History Electives

The major requires a total of 18-21 semester hours, depending on colloquium credit. History electives can be chosen from all courses within the department except those numbered below 16:51, which cannot be counted toward the history major. No more than 15 semester hours of American history (16A) may be included in the major.

Teacher Licensure

Students majoring in history who wish to qualify for a teaching license must choose an area of concentration in history and meet the requirements listed under “American History Concentration” or “World History Concentration” below. They also must complete professional courses in the College of Education required for teacher licensure. Students should consult an adviser in social studies education (see the College of Education section of the Catalog).

AMERICAN HISTORY CONCENTRATION

Courses in U.S. history (16A, including 16A:51 Colloquium for History Majors) 30 s.h.

Students must select 15 semester hours of course work in each of two related areas chosen from economics, geography, world history (non-U.S.), political science, and sociology. Students also must meet a special requirement in early European history by taking a 100-level course covering a period prior to 1750. This course also may be counted toward the related-area requirement in world history if that is one of the two areas chosen.

Courses in economics, geography, political science, or sociology that have been taken to satisfy the General Education Requirement in social sciences may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

WORLD HISTORY CONCENTRATION

Courses in non-U.S. history (16W or 16E, including 16W:51 or 16E:51 Colloquium for History Majors) 30 s.h.

Students must select 15 semester hours of course work in each of two related areas chosen from economics, geography, American history, political science, and sociology. Students also must meet a special requirement in early European history by taking a 100-level course covering a period prior to 1750.

Courses in economics, geography, political science, or sociology that have been taken to satisfy the General Education Requirement in social sciences may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

Honors

The requirements for entry into the history department’s honors program are the same as those for entry into the University Honors Program: a 3.20 grade-point average. 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 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 semester hours of Honors Theses in each of two semesters (16-91-92 Honors Thesis). The 6 semester hours count toward the total number of hours needed for the history major.

Minor

Any student who completes at least 15 semester hours in history with a grade-point average of 2.00 may earn a minor. Twelve of the 15 semester hours must be in advanced courses taken at The University of Iowa. For the minor, all courses numbered above 16:71 are regarded as advanced.

Graduate Programs

The graduate programs in history prepare students for occupations such as high school or college teaching, publishing, commercial research, 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 Program” 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, available from the departmental 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. degree. It requires a minimum of 30 semester hours of credit, including the completion of a research essay. The candidate must earn at least 24 semester hours 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. Twelve semester hours must be in the area of the student’s essay topic, and at least six semester hours must be 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 in length. It usually begins as a term paper for the seminar in the major division and is completed the following semester under the guidance of the supervisor, when the student is enrolled in 16:296 Individual Study: Graduate. 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 the doctorate in history. The basic course requirements are much the same as those for the Ph.D.-track M.A. They are: 30 semester hours overall; 24 in history; 12 in one major area of concentration in history and meet the requirements listed under “American History Concentration” or “World History Concentration” below. They also must complete professional courses in the College of Education required for teacher licensure. Students should consult an adviser in social studies education (see the College of Education section of the Catalog).
division, including at least one readings or seminar course. The two plans differ mainly in respect to concentration in fields: the Ph.D. track emphasizes the development of research capabilities culminating in the essay; the alternate plan stresses breadth of learning. Students in the alternate plan must take at least 6 semester hours in each of the other two divisions in history, or 6 semester hours in one other division in history and 6 semester hours in a related department. Included in these 12 semester hours 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, the M.A. candidate must take an oral and written comprehensive examination in the 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 general requirements for admission to the Graduate College (see the Graduate College section of the Catalog) and must submit a specimen of their writing, 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 candidate must earn at least 72 semester hours of credit, including credit for work done toward the master’s degree. The 72 semester hours must include at least eight 4-semester-hour, 200-level history courses, apart from thesis credit. At least five of these eight courses must be completed before the student takes the comprehensive examination. Research seminars 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 common language requirement for the Ph. D., but the supervising faculty member may require the candidate to demonstrate a reading knowledge of one or more foreign languages and proficiency in the use of other study tools. The candidate 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 Europe, Russian, and the former Soviet Union
- United States
- Latin America
- China
- Japan
- India
- Africa

Another field may be constructed by the student, subject to approval by the comprehensive exam committee.

The third field must be a division outside the candidate’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 will focus on issues and problems arising from the examination papers.

The candidate must submit to a 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 of 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, usually lasting two hours.

**Admission**

Applicants for admission to the graduate program in history must meet the general requirements for admission to 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-to-two-page personal statement of the applicant’s purpose in taking graduate work. All applicants must submit these materials by January 10.

**Special Facilities**

The University’s libraries are unusually strong 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 Iowa State Historical Society in Iowa City and the Herbert Hoover Presidential Library in West Branch possess additional valuable research materials.

**Courses**

Courses numbered 16:1 through 16:30 are ordinarily taken to satisfy the General Education Requirement in historical perspectives. They cannot be taken pass/no credit even when they are taken as electives. Majors should take 16:51, 16A:51, 16 E:51, or 16W:51 in the first semester after declaring the major. Other courses numbered below 200 are open to freshmen who have already satisfied the General Education Requirement in historical perspectives. Courses numbered 200 and above are offered as occasion demands.

**For Undergraduates**

16:00 Cooperative Education Internship 0 s.h.
16:1 Western Civilization to 1792 3 s.h.
16:2 Western Civilization since 1792 3 s.h.
16:5 Civilizations of Asia: Premodern China and Japan 3 s.h.
16:6 Civilizations of Asia: Modern China and Japan 3 s.h.
16:7 Civilizations of Asia: South Asia 3 s.h.
16:10 Issues in Human History Foundations of Science from Copernicus to Einstein 3 s.h.
16:11 Issues in Human History: The Vietnam War in Historical Perspective 3 s.h.
16:12 Issues in Human History: Communities and Society in History 3 s.h.
16:13 Issues in Human History: The Political Left in Modern History 3 s.h.
16:14 Issues in Human History Europe’s Expansion Overseas 3 s.h.
16:15 Issues in Human History: Women in Historical Perspective 3 s.h.
16:16 Issues in Human History: The Cold War 3 s.h.
16:17 Issues in Human History: Twentieth-Century Crisis 3 s.h.
16:18 Issues in Human History: Modern Imperialism 3 s.h.
16:19 Issues in Human History: Modernization 3 s.h.
16:20 Issues in Human History: Medieval Society 3 s.h.
16:21 Issues in Human History: Decolonization 3 s.h.
16:30 Science and Medicine in World History Perspective 3 s.h.
16:51 Colloquium for History Majors 3 s.h.
16:52 Colloquium for History Majors (American) 3 s.h.
16E:51 Colloquium for History Majors (European) 3 s.h.
16W:51 Colloquium for History Majors (World) 3 s.h.
16:90 Individual Study: Undergraduate May be repeated.
16:91 Honors Thesis 3 s.h.
16:92 Honors Thesis 3 s.h.
16:93 Honors Thesis 3 s.h.
16:94 Historical Background of Contemporary Issues
World and General History

16:100 Historical Background of Contemporary Issues 3 s.h.
Arranged.

16W:1 10 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:113 The Mexican Revolution 3 s.h.

16W:116 Women in Latin America 3 s.h.

16W:17 History of Brazil 3 s.h.

16W:19 African and Afro-American Interactions 3 s.h.

16W:120 Pre-Colonial African History 3 s.h.

16W:121 African History Since 1880 3 s.h.

16W:125 Topics Modem African History 3 s.h.

16W:124 Women in African History 3 s.h.

16W:125 The History of South Africa 3 s.h.

16A:135 History of Modern Psychology 3 s.h.

16A:128 American Intellectual History 3 s.h.

American History

16A:60 introduction to Afric-American society 3 s.h.

16A:61 American History 1492-1877 3 s.h.

16A:62 American History 1877-1945 3 s.h.

16A:106 Disability in American History 3 s.h.

16A:108 American Popular Culture - 19th century 3 s.h.

16A:11 Law in American History I 3 s.h.

16A:111 Law in American History II 3 s.h.

16A:114 Introduction to Native American History 3 s.h.

16A:118 Ultraconservative and Radical Theologies in American History 3 s.h.

16A:120 Readings: Religion in American History 3 s.h.

16A:121 punitivism in Old and New England 3 s.h.

16A:122 Varieties of American Religion 3 s.h.

16A:123 Religious Thought in America 1607-1860 3 s.h.

16A:124 Religious Thought in America 1860 to Present 3 s.h.

16A:127 American Intellectual History 1607-1865 3 s.h.

16A:128 American Intellectual History 1870-1917 3 s.h.

16A:131 The Frontier its American History to 1840 3 s.h.

16A:132 The Frontier in American History 1840-Present 3 s.h.

For Undergraduates and Graduates

16A:134 Great Plains 3 s.h.

16A:135 American West in the Twentieth Century 3 s.h.

16A:137 History of Iowa 3 s.h.

16A:141 American Working class to 1900 3 s.h.

16A:142 American Labor in the Twentieth Century 3 s.h.

16A:144 American Economic History 3 s.h.

16A:151 United States in World War II 3 s.h.

16A:152 United States in World War II 1917-1918 3 s.h.

16A:153 United States in World War II 1939-1945 3 s.h.

16A:154 Liberal Arts 3 s.h.

16A:157 History of American Society 1776-1850 3 s.h.

16A:158 History of American Society 1850-1917 3 s.h.

16A:159 The Transformation of America 1815-1890 3 s.h.

16A:161 The Colonial Period in America 3 s.h.

16A:165 The Gilded Age in America 3 s.h.

16A:166 The progressive Era in America 3 s.h.

16A:173 American Intellectual History 1870-1917 3 s.h.

16A:181 Contemporary Asia: News Colloquium 3 s.h.
16A:168 The Contemporary United States 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 Women in America: Colonial Period to 1870 3 s.h. American history through women’s eyes; interaction of biology, economics, politics, ideology; how traditional historical generalizations are changed when women’s experience is considered; legal history and women’s education. Same as 131:170.

16A:172 Women in America: 1870-Present 3 s.h. From passage of Fourteenth Amendment to present; interaction of biology, economics, politics, and Ideology; emphasis on suffrage movement, second wave feminist change. Same as 131:172.

16A:173 U.S. Women’s Legal History 3 s.h. 

16A:175 Women and Work in America Since 1870 3 s.h.

16A:184 Introduction to African American History 3 s.h. Same as 129:185.

16A:185 Topics in African-American History 3 s.h. Life in Africa before trans-Atlantic slave trade; dynamics of slave trade; development, entrenchment of African slavery in mainland North America; conclusion of Civil War. Same as 129:189.

European History

16E:106 Survey of Ancient Near East and Greece 3 s.h. Social, economic, political, intellectual history of ancient civilization, from rise in Mesopotamia to eve of Alexander the Great’s conquests. GER: foreign civilization and culture.

16E:107 The Hellenistic World and Rome 3 s.h. Social, economic, political, intellectual history of Graeco-Roman world, from fourth century B.C. to Justinian’s reign. GER: foreign civilization and culture.

16E:108 National and Religious Resistance to Ancient Empires 2 s.h. Neo-Byzantine, Persian, Hellenistic empires, Italy under Roman Republic.

16E:110 Medieval Civilization 3 s.h. Europe from decline of Roman empire to Renaissance; cultural, political, economic foundations of Western civilization. GER: foreign civilization and culture.

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 twelfth century.

16E:112 Medieval Intellectual History 1150-1500 3 s.h. European philosophy, literature, art from twelfth century's 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. GER: foreign civilization and culture.

16E:114 Foundations of Anglo-American Law 3 s.h. Origins to early modern times; landlords and tenants, husbands and wives, crime and criminal justice, justice as profession and ideal. Same as 91:264.

16E:117 History of the Medieval Church 3 s.h. Development of Christianity to end of great schism; rise of Roman curia, development of monasticism, orthodox and heterodox groups. GER: foreign civilization and culture.

16E:118 Italy and the Mediterranean from 1000 to 1500 A.D. 3 s.h. Social, economic, cultural life of Italy, its Mediterranean empire from Crusades to Turkish conquest.

16E:119 Western, Marriage and Family in Medieval Europe 3 s.h. Ordinary and extraordinary medieval European women, social institutions of family, inheritance that affected their lives; marriage models, dowry and inheritance, work, literary and artistic contributions, religious benefactions, religious life. GER: foreign civilization and culture. Same as 131:119.

16E:120 The Book in the Middle Ages 3 s.h. Role of books, in creating textual communities; archaeology of the book, especially production, artistic embellishment, value.

16E:121 Italian Renaissance, 1250-1550 3 s.h. Social, political, intellectual assimilation of revived classical texts; effects of humanist learning on organization of families and city-states; history and law, creativity in architecture, painting, sculpture. GER: foreign civilization and culture.

16E:122 European Religious Reforms, 1250-1570 3 s.h. Catholic, Lutheran, Anglican, Calvinist, and radical sects in France, Germany, England, focus on shifting intellectual foundations, civic repercussions. GER: foreign civilization and culture.

16E:125 Sociology 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. GER: foreign civilization and culture. Same as 131:181.

16E:126 Early Modern France and the French Revolution, 1580-1800 3 s.h. Political theories, legal pact, social structures, and public opinion in France (and the Caribbean colony of Saint Domingue) that informed the monarchic state and the new Republic organized during the French Revolution. GER: foreign civilization and culture.

16E:127 European History in Text and Film: 1500-1945 3 s.h. General historical structure of early modern France (1500-1800) and modern France (1800-1945), focus on case studies involving community and identity. GER: foreign civilization and culture.

16E:129 Topics in Modern European History, 1870-1980 3 s.h. 

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:134 Nineteenth-Century Europe 3 s.h. Political, social, economic, and cultural factors. GER: foreign civilization and culture.

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:137 Topics in the History of Public Health 3 s.h. Historical, contemporary problems of medicine, public health, health care delivery in non-Western world; emphasis on European encounter with distinctive medical systems and health socialists in colonial, postcolonial Asia.

16E:139 Andent 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:140 The Scientific Revolution 3 s.h. Emergence of modern science to eighteenth century; continuity and change in astronomy and cosmology, physics, biological sciences, chemistry; relation of science to magic, religion, philosophy; development of scientific communities, relation of science to society.

16E:141 Science in the Modern Age 3 s.h. Science, culture, and society from evolutionary biology to computer age; shift from classical physics to relativity, rise of psychology as science, genetic code and ethology, professionalization of science.

16E:142 Science and Society 3 s.h. Science, religion, politics from Galileo to Newton; science and the industry revolution; social Darwinism, eugenics movement; women and science and the matter.

16E:144 Modern France 1870 to the Present 3 s.h.

16E:146 France from 1815 to the Present 3 s.h. GER: foreign civilization and culture.

16E:148 Sociology and Gender in Europe 1750 to the Present 3 s.h. Social structures, gender roles in modern Europe; changes in political, social organization, social relationship of sexes [education, sexuality, occupation], forms of social protest [feminism, socialism]. GER: foreign civilization and culture. Same as 131:182.

16E:151 Modern Britain 1760-1867 3 s.h. Industrial Revolution to mid Victorian age.

16E:152 Modern Britain 1867-Present 3 s.h. Age of Gladstone and Disraeli to present.

16E:155 Germany 1786-1914: Nationalism, Society, and Culture 3 s.h. Death of Frederick the Great to outbreak of World War I: dynamics of political consolidation during rapid social, economic change; innovations in art, thought. GER: foreign civilization and culture.

16E:156 Germany since 1914: Weimar, Hitler, and More 3 s.h. Continuity, change in twentieth century German politics, society, culture; creation, collapse of Weimar Republic; Nazism and Third Reich; East and West Germany since 1945; unification and its discontinuities. GER: foreign civilization and culture.

16E:161 Politics and Culture in Twentieth-Century Europe 3 s.h.

16E:173 Main Currents in East European History 3 s.h.

16E:174 Medieval Russia 3 s.h. Political, social, economic, cultural, ideological developments in Old Rus’ during Kievans, Suzdal-Vladimir-Galician-Volynian periods and in city-states Novgorod, Pskov, ninth to fifteenth centuries. GER: foreign civilization and culture.

16E:175 Muscovite Russia 1280-1599 3 s.h. Political, social, economic, cultural, ideological developments in Muscovite Russia. GER: foreign civilization and culture.

16E:176 Imperial Russia, 1598-1801 3 s.h. Political, social, economic, cultural, ideological developments in Imperial Russia. GER: foreign civilization and culture.

16E:177 Imperial Russia 1801-1917 3 s.h. Political, social, economic, cultural, and ideological developments in Imperial Russia. GER: foreign civilization and culture.

16E:178 Soviet Union 1917-1953 3 s.h. Revolution, foundation of Soviet Union; Leninism; major political, social, ideological developments during Stalinist period-collectivization, industrialization, terror; nationalism, foreign policy; World War II; Cold War; socialist state system. GER: foreign civilization and culture.


16E:180 Interpretation of Russian Culture: 900-1917 3 s.h.

16E:185 First World War 3 s.h. Social, economic, political, technological, military aspects of causes, conduct, consequences of war of 1914/1918, fiction, contemporary documents, historical works, films.

For Graduates

16:201 First-Year Graduate Colloquium 2 s.h. Quantitative approaches to historical analysis.

16:202 Statistical Methods in History 2 s.h. Introduction to history graduate program.

16:204 Readings: Emancipation and Reconstruction 2 s.h.

16:205 Seminar: North American Slavery 3 s.h.

16:207 Seminar in Social History 3 s.h.

16:209 Seminar in Medieval Economic and Social History 3 s.h.

16:210 Readings: Medieval Women 3 s.h.
Each plan of study is approved by a committee that may include the coordinator, the faculty advisory committee, and the ISP adviser. Reviews are held several times each semester. 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 a more 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 adviser. 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 adviser determines whether changes warrant a revised plan.

Forms and guidelines for preparing the plan of study are available from the interdepartmental studies adviser in the Liberal Arts Office of Academic Programs. A list of review committee meeting times is available each semester.

**Interdepartmental Studies Requirements**

Students must earn a total of at least 124 semester hours of credit to graduate with a B.A. in interdepartmental studies. They must complete a minimum of 30 semester hours after entering the program, 15 of which must be in advanced-level course work included in the plan of study. Hours taken during the semester in which the plan of study is approved are not counted as part of the final 30 semester hours.

**Grade-Point Average**

Students must achieve a grade-point average of at least 2.00 in all college work attempted, all college work undertaken at The University of Iowa, and all advanced courses attempted.

**General Educational Requirements**

Students must complete the College of Liberal Arts General Education Requirements, including four semesters of college-level foreign language or the equivalent. (See the College of Liberal Arts introductory section for specific information.)

**Advanced Course Work**

Students must complete at The University of Iowa at least 36 semester hours of advanced course work approved as the formal plan of study. No more than 18 semester hours of advanced course work from any one department may be counted toward this requirement. (However, students who earn more than 18 semester hours in advanced course work from one department may count these as elective hours and apply them toward the 124 semester hours needed for graduation.)

Courses taken to satisfy the General Education Requirements may not be counted toward completion of the advanced course work requirement.

Advanced courses typically are those numbered 100 and above. With approval of the Office of Academic Programs, courses numbered below 100 but taught at an advanced level also may be used to satisfy this requirement. See “Advanced Courses Numbered below 100” in this section of the Catalog.

The pass/nonpass grading option is not available for the 36 semester hours of advanced course work required for the degree, but it may be used for advanced course work taken as elective credit beyond the 36 semester hours.

Some study abroad advanced course work is considered residential work for the purposes of ISP requirements and college residence requirements. Students should check in advance with the 1.5P academic adviser or the ISP coordinator.

Advanced courses offered through University of Iowa Guided Correspondence Study count toward the advanced course work requirement, but the College of Liberal Arts residence requirement must be met by other UI course work.

**Restrictions**

No more than 40 semester hours of credit in one academic department may count toward the 124 semester hours required for graduation. This includes both upper- and lower-level course work, and both UI and transfer course work.

Students completing a B.A. in Interdepartmental Studies may earn no more than 30 semester hours of credit toward the 124 required for graduation from courses taken in all other colleges of the University (e.g., business administration, engineering). Undergraduate courses offered by the College of Education are an exception to this rule.

All other College of Liberal Arts policies regarding residence, pass/nonpass, satisfactory/fail, and academic standards apply to ISP students.

**Related Considerations**

All courses numbered with the prefix 7 (College of Education) are considered to be in one department. All courses numbered with the prefix 6 (College of Business Administration) except 6E (economics is also considered a department in the College of Liberal Arts) are considered to be in one department.

The following courses are accepted as part of the 36 semester hours of advanced course work required under the ISP rules. Some of the courses have prerequisites or require special permission signatures. Students must earn a grade-point average of 2.00 or higher in these courses and in those numbered 100 and above.

Advanced courses numbered below 100 that were taken before spring semester 1988 are not considered advanced-level course work.

**AMERICAN STUDIES**

45:90 Seminar in American Cultural Studies 3 s.h.

**ANATOMY**

60:2 Human Histology 4 s.h.

**ART AND ART HISTORY**

1K:49 Advanced Painting 2-3 s.h.

1M:22 Undergraduate Intaglio and Relief II 3 s.h.

IN: 17 Undergraduate Sculpture Workshop 3 s.h.

**ASIAN LANGUAGES AND LITERATURE**

39:23 Second-Year Sanskrit: First Semester 3 s.h.

39:24 Second-Year Sanskrit: Second Semester 3 s.h.

39:50 Non-Western Literary Traditions 3 s.h.

**BIOLOGICAL SCIENCES**

2:5 Iowa Flora (accepted as advanced course work only if 22101 Plant Taxonomy also is completed) 2 s.h.

**CLASSICS**

14: 11 Second-Year Greek I 3 s.h.

14: 12 Second-Year Greek II 3 s.h.

20:81 Age of Cicero 3 s.h.

20:82 Age of Augustus 3 s.h.

**COMMUNICATION STUDIES**

All courses numbered 36C:60 and above 3 s.h.

All courses numbered 36D:60 and above 3 s.h.

All courses numbered 36E:60 and above 3 s.h.

All courses numbered 36M:60 and above 3 s.h.

**COMPARATIVE LITERATURE**

48:40 Major Texts in World Literature 3 s.h.

48:41 Major Texts of World Literature 3 s.h.

48:50 Non-Western Literary Traditions 3 s.h.

48:95 Undergraduate Seminar 3 s.h.

**COMPUTER SCIENCE**

22C:21 Algorithms and Data Structures 3 s.h.

22C:23 Programming Language Concepts 3 s.h.

22C:31 Digital Systems and Computers 3 s.h.

22C:32 Introduction to Systems Software 3 s.h.

22C:51 Computer Graphics 3 s.h.

22C:55 Elementary Numerical Analysis 3 s.h.

**ENGLISH**

All courses numbered above 8:10, except 8G courses 3 s.h.

All 8W courses except 8W:1 3 s.h.

**EXERCISE SCIENCE**

27:53 Human Anatomy 3 s.h.

27:17 Human Growth and Motor Development 2 s.h.

**GEOLOGY**

12:41 Mineralogy 4 s.h.

12:52 Elementary Petrology 4 s.h.

12:92 Structural Geology 5 s.h.
The University of Iowa provides Thomas H. Macbride Scholarships in Natural Science for qualified graduate students attending the lab. The scholarships cover Iowa Lakeside Laboratory tuition costs. Scholarship applications close April 1.

Financial Aid

The University of Iowa provides Thomas H. Macbride Scholarships in Natural Science for qualified graduate students attending the lab. The scholarships cover Iowa Lakeside Laboratory tuition costs. Scholarship applications close April 1.

Registration

Enrollment in one of the State Board of Regents universities is required. Current or former students of The University of Iowa, the University of Northern Iowa, and Iowa State University may enroll in those institutions with the registration form in the Lakeside Laboratory bulletin. Students from other institutions must apply for admission to one of the Regents universities; each has a provisional admission policy for students who wish to register for summer work only. The admission and registration forms can be submitted at the same time.

Early registration is advisable. Students are urged to submit applications before May 1 for the following summer session.

Courses

Consent of instructor is required for all courses. Enrollment for most is limited to eight students. Classes meet all day, five days a week. Courses vary from year to year (see current Iowa Lakeside Laboratory bulletin); the following are representative.

IOWA LAKEISIDE LABORATORY

Director: Arnold van der Valk
Professors: Richard Baker (Geology, The University of Iowa), George G. Brown (Zoology, Iowa State University), Charles Drewes (Zoology, Iowa State University), Anne Kimber (Botany, Iowa State University), Clay Pierce (Animal Ecology, Iowa State University), Edwin Powell (Zoology, Iowa State University), Daryl Smith (Biology, University of Northern Iowa), Lois H. Tiffany (Botany, Iowa State University)

Visiting professors: Barbara Abraham (Biology, Hampton University, Virginia), Dennis Anderson (Biological Sciences, Humboldt State University, California), Neil Bernstein (Biology, Mount Mercy College, Iowa), Kenneth Lang (Biological Sciences, Humboldt State University, California), Michael J. Lanmoc (Muncie Center for Medical Education, Ball State University, Indiana), Eugene Stiermer (Great Lakes and Aquatic Sciences, University of Michigan)

The Iowa Lakeside Laboratory is a biological field station comprising approximately 140 acres of grassland and gallery forest along the west shore of West Okoboji Lake in northwest Iowa.

The laboratory was established in 1909 under the leadership of Thomas H. Macbride, whose eminence as a University of Iowa botanist and geologist from 1878 to 1914 was recognized by his appointment as University president from 1914 to 1916. The lab site was the first area set aside for the conservation and study of the rich flora and fauna of the northern Iowa lake and prairie regions.

Since 1947, the University of Iowa has cooperated with Iowa State University and the University of Northern Iowa in the lab program. Representatives of the three schools make up an advisory board, which determines the scientific and educational policies of the lab.

The Iowa Lakeside Laboratory offers career work in two five-week terms during the summer session. Enrollment is limited to one course per term, for 5 semester hours of credit. The laboratory gives graduate and advanced undergraduate students the opportunity to study plant and animal life in its natural setting. The courses have a strong discussion/field work/ investigative orientation that supplements the formal lecture and laboratory course work on the three campuses.

Students working for advanced degrees face excellent opportunities to develop thesis projects at the lab.

Teaching and research facilities include several laboratories, a library, and a lecture hall. Living accommodations include cottages, dormitories, and a large mess hall.

Double Major

Students in Interdepartmental Studies may earn a second major. No more than 6 semester hours of course work may be applied toward both majors. The focus represented by each major should be distinct and separate.

Minor

The Interdepartmental Studies Program does not offer a minor. Interdepartmental studies students may earn minors in other programs, departments, or colleges. The same course may not be used to meet the requirements of both the major in Interdepartmental Studies and the minor.
L:107 Field Parasitology 5 s.h.
Ecology and life history of parasites, protozoa, nematodes, arthropods, and helminths. Field and laboratory investigations including preparation, identification, and morphology of representative types and stages; general and comparative concepts of parasitology.

L:109 Freshwater Algae 5 s.h.
Structure and taxonomy of freshwater algae based on field collected material; emphasis on genus level identification made by students; habitats visited include lakes, fens, streams, and rivers; algae ecology.

L:11 Research 5 s.h.

L:12 Research 5 s.h.

L:13 Independent Study 5 s.h.

L:14 Independent Study 5 s.h.

L:15 Field Mycology 5 s.h.
Identification and classification of the common fungi; techniques for identification, preservation, and culture practiced with members of the various fungal groups.

L:17 Ecology and Systematic of Diatoms 5 s.h.
Field and laboratory study of freshwater diatoms-most genera, some species: techniques in collection, preparation, and identification, portion of diatom samples; study of environmental factors affecting growth, distribution, taxonomy; project design and execution. Microscopes available, but students with high quality oil immersion lens binocular microscopes are encouraged to bring them.

L:120 Developmental Biology of Freshwater Invertebrates 5 s.h.
Spawning, cleavage, cell lineages, torsions, appendage specialization, hormonal control, regeneration, colonies, grazing; varied habitats allow comparative approach with many species; field collections, culturing, analytical and experimental procedures.

L:122 Prairie Ecology 5 s.h.
Basic patterns and underlying physical and biotic causes of both regional and local distributions of plants and animals of North American prairies; field and laboratory analysis and projects. Prerequisite: familiarity with basic principles in biological sciences and ecology.

L:124 Wetland and Aquatic Plants 5 s.h.
Biology, identification of wetland plants; emphasis on life histories, including reproductive biology, herbivory.

E:126 Field Ornithology 5 s.h.
Field study of bird biology; focus on ecology and behavior; techniques; population studies such as census taking, banding, nesting, and behavior.

L:127 Field Entomology 5 s.h.
Field and laboratory study of insects, their diversity, life history; emphasis on ecology and behavior. Prerequisite: some biological background.

L:128 Fish Ecology 5 s.h.
Fish fauna of northwestern Iowa; adaptations to streams and lakes.

L:129 Vertebrate Ecology and Evolution 5 s.h.
Field and laboratory study of representative vertebrates and their major structural, functional, and behavioral characteristics; characteristics in terms of ecology and systematic; observations on live animals are central to projects.

Associate professor emeritus: William Zima
Assistant professors: John Bennett, Venise Berry, John Kimmich, Javier, Sue Jody Josephson
Adjunct professors: Douglas Aline, Robert Anderson, Gerald Carroll, Gilbert Cranberg, Iris Frost, Daniel Lind
Instructor: Richard Johns
Undergraduate degrees: B.A., B.S. in Journalism and Mass Communication; minor in Journalism and Mass Communication
Graduate degrees: M.A. in Journalism; Ph.D. in Mass Communications

Undergraduate Program

The Iowa undergraduate program prepares students for careers in journalism and mass communication by providing professional training as part of a strong liberal arts education. The program integrates the development of professional skills with theoretical consideration of the role of the media in society. Journalistic writing is the primary focus of the professional program, with visual communication, broadly defined, another important focus.

 Majors prepare for careers as journalists for newspapers, magazines, radio, and television and in a variety of areas such as public relations, publication design, photojournalism, cable television, and media research.

The program builds on the University’s commitment to a liberal arts education. Majors are required to take both professional and academic courses in the school and must complete extensive academic work outside of the school. Students earn the B.A. or B.S. degree.

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. Thus, students with declared interest in journalism are classified as prejournalism majors until they are admitted to major status.

To apply for admission to the program as majors, students must have taken or be taking two premajor courses, 19:120-19:125. Majors are required to take two professional and academic courses in the semester in which they will have completed these requirements and at least 45 semester hours. Students in the University Honors Program may apply for admission to major status in the semester during which they will complete the premajor requirements and 30 semester hours. A few outstanding students are invited to be majors on enrollment in the University.

Applications and deadline information are available in the School of Journalism and Mass Communication office.

The primary criterion for admission to major status is overall academic performance. Other factors considered are performance in the required premajor courses and other journalism courses, a statement of interest submitted by the student, and writing ability. The number of students accepted each semester depends on the number of students already in the program and available resources. Since the selective admission policy was instituted, all qualified applicants with overall and journalism grade-point averages above 3.00 have been admitted. Applications have been reviewed in light of the goal of admitting the most qualified students to the program.

Curriculum

Majors must complete a minimum of 30 and a maximum of 34 semester hours of journalism courses with a grade of C- or better in each course and 24 semester hours in a second area of concentration. All majors must complete 19:115 Journalistic Reporting and Writing and one advanced reporting and writing course (19:120–19:125). Students also must complete either an additional advanced reporting and writing course or a media workshop (19:120–19:139). Every major must complete 19:149 Legal and Ethical Issues in Communication and one advanced conceptual course numbered 19:150 to 19:169. Majors take additional electives according to professional and theoretical interests.

Because of the flexibility inherent in the undergraduate program, each new major should develop an individual plan of study in consultation with a faculty advisor.

Required Courses

Minimum of 30, maximum of 34 semester hours

Premajor Foundation
19:90 Social Scientific Foundations of Communication 3 s.h.
19:91 Cultural and Historical Foundations of Communication 3 s.h.

Journalism Laboratory
19:115 Journalistic Reporting and Writing 4 s.h.
One advanced reporting and writing course (19:120–19:125) 4 s.h.
A second advanced reporting and writing course (19:120–19:125) 4 s.h.
or One media workshop (19:130–19:139) 3 s.h.

Concept
19:149 Legal and Ethical Issues in Communication 3 s.h.
A conceptual course numbered 19:150 to 19:169 3 s.h.

Bectives
Chosen from undergraduate courses 6 s.h.

Additional Electives
An additional 3- or 4-semester hour course, for the maximum 34 semester hours (optional)
Second Area of Concentration

In addition to completing the College of Liberal Arts General Education Requirements, every journalism major must complete a second area of concentration outside of journalism and mass communication. Study in the second area permits students to acquire a substantial body of knowledge, learn how another discipline views the world, or develop a companion set of skills to those in journalism and mass communication.

This concentration requirement may be fulfilled by completing a second major or by choosing 24 semester hours of related courses in one or more departments. Students who do not complete second majors must complete at least 15 of the 24 required semester hours in advanced courses. Advanced courses are those numbered 100 or higher, or those numbered below 100 which are considered to be advanced. A list of advanced courses numbered below 100 is published with the degree requirements for the Interdepartmental Studies Program in the General Catalog. Course work in the second area must be arranged in consultation with an adviser; each student must have his or her adviser’s written approval of the second area before graduation.

Bachelor of Arts

A student seeking a B.A. in journalism and mass communication must complete the journalism major requirements (30 semester hours), and must fulfill the school’s second area of concentration requirement in one of two ways:

- obtain a full B.A. major in another department; or
- complete a 24-semester-hour concentration of related courses in one or more departments that offer B.A. degrees.

Bachelor of Science

A student seeking a B.S. in journalism and mass communication must complete the journalism major requirements (30 semester hours), and must fulfill the school’s second area of concentration requirement in one of two ways:

- complete a B.S. major in a natural, mathematical, or social science; or
- complete the following two requirements:

  A 24-semester-hour concentration of related courses in the social sciences (economics, geography, political science, psychology, or sociology) and/or the natural and mathematical sciences; and

  All the special math, research methods, statistics, computer science, and/or cognate science requirements necessary for the B.S. degree in the department in which the majority of second-area work is done.

Honors

 Majors with outstanding academic records who already participate in the University Honors Program may earn the honors degree in journalism and mass communication. The program gives students the opportunity to complete individual work under the guidance of a faculty member.

A major with an overall grade-point average of 3.20 or higher should contact the honors adviser in the School of Journalism and Mass Communication to review possible interest areas and topics the student might pursue in an honors project. The student also should identify a faculty member with whom he or she will develop an honors project. The student may arrange honors readings with a particular faculty member or take existing courses in the area of interest. Honors projects may be completed in the form of a thesis or a professional project.

Information about the honors degree in journalism is available in the school’s main office.

The school’s maximum limit of 34 semester hours of journalism courses maybe waived for students who complete honors degrees in journalism, on the recommendation of the honors adviser. Honors students must maintain a 3.20 grade-point average to graduate with an honors degree.

Minor

To meet the requirements for a minor, students must complete at least 15 semester hours in journalism and mass communication with a grade-point average of 2.00; 12 of the 15 semester hours must be taken in advanced courses at The University of Iowa. Advanced courses are those numbered 19:100 or higher, or those numbered below 19:100 which are considered to be advanced. One of the following courses is strongly recommended.

19:90 Social Scientific Foundations of Communication 3 s.h.
19:91 Cultural and Historical Foundations of Communication 3 s.h.

The minor is not intended to be sufficient professional preparation for a career in journalism or mass communication. It should be regarded as an introduction to the field.

Courses for the minor may not be taken pass/nonpass.

Transfer Students

All transfer students with a declared interest in journalism are classified as premajors. They may apply for major status during the semester in which they have completed at least 45 semester hours including those earned from The University of Iowa and other institutions, their rhetoric requirements, 19:90 Social Scientific Foundations of Communication, and 19:91 Cultural and Historical Foundations of Communication. Neither of these premajor course requirements may be waived on the basis of work taken at other institutions; thus, a transfer student will be a premajor for at least one semester.

The school’s policy is to accept journalism transfer credits from other institutions for up to, but not more than, 20 percent (6-7 semester hours for majors or 3 for minors) of the total number of semester hours the student must earn toward a major in journalism and mass communication at Iowa. Some journalism course work taken elsewhere might be applicable toward fulfilling elective and/or second area of concentration requirements. Any transfer credit intended to meet School of Journalism and Mass Communication requirements must be discussed with a journalism faculty adviser and approved by the head of undergraduate studies after the student is admitted to the school.

Graduate Programs

Master of Arts

The School of Journalism and Mass Communication offers a Master of Arts program with two separate emphases: professional journalism, and communication and mass communication. Applicants should indicate the emphasis for which they seek admission.

Each emphasis requires 30 semester hours of approved course work and successful completion of a master’s project or thesis. The specific requirements of each emphasis are listed below.

Professional Program in Journalism

This program is for individuals who wish to improve their technical and analytical skills and to broaden their understanding of the role and function of mass communication in contemporary society, but do not plan to engage in Ph.D. work.

It serves the student who has a background in a field other than journalism and has just completed an undergraduate degree in another field or has worked in a career unrelated to journalism (see “Group 1 Requirements”). It also serves the student who has worked in some area of mass communication (see “Group 2 Requirements”).

The program is not designed or intended for individuals who have just completed undergraduate programs in journalism and have no subsequent work experience in mass communication.

GROUP 1 REQUIREMENTS

19:1 15 Journalistic Reporting and Writing (does not count toward degree) (4 s.h.)
19:220 Master’s Seminar 3 s.h.
Two advanced reporting and writing courses (19:230-19:235) 6 s.h.
A third advanced reporting and writing course 3 s.h.
or One media workshop (19:240-19:249) 15 s.h.
19:299 Master’s Research (project) 3 s.h.
Electives require consent of the adviser and may be selected from either School of Journalism and Mass Communication courses or courses offered by other departments.

GROUP 2 REQUIREMENTS

19:220 Master’s Seminar 3 s.h.
19:299 Master’s Research (thesis) 3 s.h.
Journalism and mass communication electives 9 s.h.
Or Other electives 15 s.h.

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Liberal Arts, Journalism and Mass Communication
Electives require consent of the adviser. The 15 semester hours of “other electives” may be selected from either School of Journalism and Mass Communication courses or courses offered by other departments.

Every student in the professional program must complete a professional project (19:299) under the supervision of a committee of three members of the graduate faculty.

There is considerable flexibility within the professional journalism program. The model programs are intended as general information for new and prospective students. The actual program of study for any student is planned in close consultation with the adviser.

Communication and Mass Communication Emphasis

This emphasis offers a specialization in the study of communication phenomena with special emphasis on theory and methodology. Qualified individuals may petition the graduate admissions committee of the School of Journalism and Mass Communication for admission to the Ph.D. program after successful completion of their M.A. work. The following courses are required.

19:220 Master’s Seminar (two semesters) 2 s.h.
19:221 Approaches to the Study of Communication: Issues and Concepts 3 s.h.
One of the following methods courses: 3 s.h.
19:260 Communication Research: Historical Approach
19:261 Communication Research: Behavioral Approaches
19:262 Communication Research: Phenomenological Approaches
19:263 Communication Research: Legal Approaches

Electives in journalism and mass communication and in other departments 19 s.h.
19:299 Master’s Research (thesis) 3 s.h.

Every student in the communication and mass communication emphasis must complete an M.A. thesis (19:299) under the supervision of a committee of three members of the graduate faculty.

All students are expected to take course work outside the School of Journalism and Mass Communication; the nature and extent of the work is determined by the student and the faculty adviser.

Doctor of Philosophy

The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives. Approaches include philosophical, evaluative, and critical inquiry. The program’s substantive nature is defined by the scholarly interests of its faculty, who turn most frequently to investigations of historical, legal, economic, cultural, social, and cross-cultural aspects of communication, both verbal and visual.

The Ph.D. program is highly individualized. Drawing on the School of Journalism and Mass Communication as well as other academic units, each student develops a specific course of study that reflects his or her academic background, experience, professional goals, and intellectual preferences. Applicants should be interested in the opportunity to join a small group of students working to understand mass communication in its cultural contexts. A more complete description of the graduate program is available from the School of Journalism and Mass Communication. Students should ask for the Graduate Studies Handbook.

Facilities

The School of Journalism and Mass Communication is housed in the three-story Communications Center. The school has special laboratories for photography, typography, audio, video, electronic newswriting, and desktop publishing. Many students use the newsroom and other facilities of the University’s award-winning student newspaper, The Daily Iowan, which is housed in the Communications Center. Special facilities in the building include the Leslie G. Moer Seminar Room, the Merrill Speidel Presentation Room, the Fred M. Pownall Seminar Room, and the Les Benz Lounge for students and faculty.

The school has its own resource center, the Kenneth and Muriel Greene Resource Center, and provides accommodations for offices of the Iowa High School Press Association and the Quill and Scroll Society, an international honor society for high school journalists. A display gallery is available for student and faculty photography and other projects.

Iowa Center for Communication Study

The center encourages and facilitates student and faculty research in the field of communication. Among its publications are The Journal of Communication Inquiry ed by graduate students, and The Iowa Guide: Scholarly Journals in Communication and Related Fields.

Financial Aid

More than $70,000 in scholarships is available to undergraduate and graduate journalism majors each year. Information and applications for journalism scholarships are available from the school each fall. Research and teaching assistantships are available for graduate students, with preference given to doctoral students. The school also has a program of modest financial support for undergraduate and graduate student research projects.

Professional Enrichment

The school’s internship coordinator helps students who wish to take advantage of learning opportunities outside the classroom. Internships in journalism and public relations positions are available. The school does not award academic credit for internships, but students may earn credit by enrolling in independent study in conjunction with internships. In addition to internships, student-operated media—including The Daily Iowan and KRUI-FM radio—provide opportunities for journalism experience. The school cooperates with the University’s Center for Career Development and Cooperative Education.

Job Placement

The school’s placement coordinator helps students seeking career guidance and employment opportunities. The school posts notices of professional jobs open to journalism students and graduates. It cooperates with the University’s Career Development and Cooperative Education Center and the Business and Liberal Arts Placement Office 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. Many speakers visit campus each year as part of John F. Murray Lectureships, the Leslie G. Moer Lectureship Series, and an extensive visiting professional-in-residence program. Campus organizations for students include Kappa Tau Alpha (KTA, a national society honoring scholarship in journalism), National Association of Black Journalists (NABJ), Public Relations Student Society of America (PRSSA), and the Society of Professional Journalists (SPJ).

Courses

Primarily for Undergraduates

All courses listed as 100-level or higher (except 19:157 Third World Development Support) require junior standing, major status, or consent of instructor.

19:000 Journalist and Mass Communication Cooperative Education Internship 0 s.h.

19:200 Journalism and Mass Communication 3 s.h.

19:900 Journalism and Mass Communication 3 s.h.

19:910 Cultural and Historical Foundations of Communication 3 s.h.

19:950 Media and Consumers 3 s.h.

19:102 Workshop for Secondary School Journalism Teachers 1-2 s.h. Workshop on journalism/mass media curriculum, audio/video production, photojournalism, publication design, journalism writing techniques, advising student publications. Same as 76:130.

19:115 Journalism Reporting and Writing 4 s.h. Fundamentals of journalistic reporting and writing: from basic to complex, sophisticated news writing; emphasis on reporting techniques, enterprise, beat coverage. Required for majors.

19:120 Specialized Reporting and Writing 4 s.h. Topics may include public affairs, law, science, business, medicine, intercultural affairs, education, lifestyles, computer-assisted reporting. May be repeated. Prerequisite: 19:115 or consent of instructor.

19:121 Depth Reporting and Writing 4 s.h. Enterprise reporting; emphasis on reporting. Required for majors.

19:122 Magazine Reporting and Writing 4 s.h. Finding ideas, researching, interviewing; problems of organization and style; identification of audiences and markets. Prerequisite: 19:115 or consent of instructor.

19:123 Broadcast Journalism Reporting and Writing 4 s.h. Principles; gathering, writing, editing, reporting the news; techniques and concepts as a foundation for understanding, successfully delivering broadcast news. Prerequisite: 19:115 or consent of instructor.

19:124 Persuasive Writing 4 s.h. Principles, practices of persuasive writing in editorials, scripts, speeches, magazine essays, reviews, public relations. Prerequisite: 19:115 or consent of instructor.

19:125 Freelance Reporting and Writing 4 s.h. Approaches to writing and marketing articles to magazines, newspapers, other publications; developing ideas, researching, market analysis, writing queries, writing and rewriting articles for publication. Prerequisite: 19:115 or consent of instructor.

19:130 Media Workshop 4 s.h. Analysis and solution of problems with communication strategies and/or media products; public relations, newsletter production, media research. May be repeated. Prerequisite: 19:115 or consent of instructor.

19:131 Publication Design Workshop 4 s.h. Principles, practices of design; layout, techniques, functional and aesthetic considerations, creation of creative design projects. Prerequisite: 19:115 or consent of instructor.

19:132 Photographic Workshop 4 s.h. Techniques; basic craft, location shooting, editing photographs; group critiques of assignments. Prerequisite: 19:115 or consent of instructor.

19:133 Typography Workshop 4 s.h. Typography and typographic design; letterform terminology, differentiation, use in design. Prerequisite: 19:115 or consent of instructor.

19:134 Broadcast Journalism Workshop 4 s.h. Electronic news gathering (ENG); conceptualization, shooting, editing basic news packages. Prerequisite: 19:1.5 or consent of instructor.

19:135 Public Relations Practice Workshop 4 s.h. Development, implementation of public relations campaigns, client organizations; application of communication theory, research techniques to analysis and solution of public relations problems through objectives-based strategic planning. Prerequisite: 19:115 or consent of instructor.

19:136 Editing Workshop 4 s.h. Theory, principles, process in editing and packaging material for various forms of publication; basics of editing-copy editing, headline writing, illustration, layout, pen and computer editing; desktop publishing. Prerequisite: 19:115 or consent of instructor.

19:137 Book Design workshop 4 s.h. Specialized practices and problems of book design, computeraided typesetting and layout technology, applied technical and creative projects. Prerequisite: 19:115 or consent of instructor.

19:138 Advanced Media Workshop 4 s.h. journalism and mass communication skills; topics may include photography, photojournalism, copywriting, editing, broadcasting. May be repeated. Prerequisite: 19:115 or consent of instructor.

19:149 Legal and Ethical Issues in Communication 3 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. Required for majors. Usually offered fall semesters.

19:150 Visual Communication 3 s.h. History of twentieth century visual communication from a cultural perspective; development of visual form, composition, spatial representation, color; in depth study of selected artists, designers and photographers.

19:151 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. Prerequisite: 19:90 or consent of instructor.

19:152 History of Mass Communication in the United States 3 s.h. Development in context of U.S. history. Prerequisite: 19:91 or consent of instructor.

19:153 Popular Culture and Mass Communication 3 s.h. Theories relating to popular media fare and cultural realities; media formulas and communication practices in American culture.

19:154 Economic and Technological Issues in Communication 3 s.h. Economic condition of American mass media; relationship between technology, economics, impact on media content; core issues in U.S. communication policy: newspapers, television, radio, cable television, telecommunications.

19:155 Mass Media and Society 3 s.h. Audiences, characteristics of mass media; effects of mass media on audiences; relationship to public opinion, crime and violence, political and cultural forces, narcotics, sex, sin.

19:156 Comparative communication systems 3 s.h. Media systems, international communication; principles and practices of media communication under different political and cultural conditions; emphasis on contemporary problems.


19:158 News-Editorial Problems 2-3 s.h. Duties, responsibilities of mass media in contemporary society.

19:159 Electoral Politics and the Mass Media 3 s.h. Relationship between political campaigns and mass media; critical evaluation of nature, role, function of media coverage of politics.

19:161 Law and the American Media 3 s.h. First Amendment theory, topics in communication law. Prerequisite: 19:149 or consent of instructor.

19:162 Communication and Public Relations 3 s.h. Public relations problems in organizational systems; emphasis on communication theory and research in development of a problem solving perspective.

19:163 History of Books and Printing 3 s.h. Development and spread of printing technology; social and cultural impact in the West; books and other printed mass communications media, such as newspapers and magazines.

19:164 Images and Society 3 s.h. Cultural history of images in twentieth century; emphasis on social production and uses of photographs, film, television.


19:167 Gender and Mass Media 3 s.h. Representation of women, men in mass media; pornography, censorship; gender and the communications work force; women as producers of alternative media.

19:169 Topics in Mass Communication 3 s.h. May be repeated.

19:170 Current Issues in Mass Communication 1-2 s.h.


19:181 Readings in Communication and Mass Communication 1-3 s.h. Focus on a problem or issue. May be repeated. Consent of instructor required.

19:190 Honors Readings 1-3 s.h. Topic in journalism or mass communication, chosen by student. Open only to honors students. Consent of instructor required.

19:191 Honors Project 3 s.h. Independent research for candidates completing honors projects. Consent of instructor required.

Primarily for Graduates

19:200 Visual Communication 3 s.h. History of twentieth century visual communication from cultural perspective, development of visual form, composition, spatial representation, color; in depth study of selected artists, designers, photographers.

19:201 Communication Research Methods 3 s.h. Fundamentals of scientific inquiry in study of communication and mass communication behavior; emphasis on learning the language, concepts, procedures, application of behavioral research methods; field and experimental approaches.


19:203 Popular Culture and Mass Communication 3 s.h. Relationships between popular media fare and cultural realities; media formulas and communication practices in American culture.

19:204 Economic and Technological Issues in Media 3 s.h. Economic condition of American mass media; relationship between technology and economics, impact on media content; current issues in U.S. communication policy: newspapers, radio, television, cable television, telecommunications.

19:205 Mass Media and Society 3 s.h. Audience characteristics of mass media, effects of mass media on audiences; relationship to public opinion, crime and violence, political and cultural forces, narcotics, sex, sin.

19:206 Comparative Communication Systems 3 s.h. Media systems, international communication; principles and practices of media communication under different political and cultural conditions; emphasis on contemporary problems.

19:207 Third World Development Support 3 s.h. Patterns, processes of Third World development; Implications of regional growth and spatial diffusion; critical analysis of communication strategies in support of development projects.

19:208 News-Editorial Problems 2-3 s.h. Duties, responsibilities of mass media in contemporary society.

19:209 Electoral Politics and the Mass Media 3 s.h. Symbolic relationship between political campaigns and mass media; roles of media campaign coverage; issue versus issue orientations of campaign coverage and advertising; how these affect citizen perceptions, decision making.

19:210 Current Issues in Mass Communication 1-2 s.h.

19:211 Law and the American Media for Graduate Students 3 s.h. First Amendment theory, topics in communication law.

19:212 communication and Public Relations 3 s.h. Public relations problems in organizations; emphasis on communication theory and research in development of problem solving perspective.

19:213 History of Books and Printing 3 s.h. Development and spread of printing technology; social and cultural impact in the West; books and other printed mass communications media, such as newspapers and magazines.

19:214 Images and Society 3 s.h. Cultural history of images in twentieth century society; emphasis on social production and uses of photography, film, television.
The Latin American Studies Program

19:215 African-Americans and Mass Communication 3 s.h.
African American experience in music, radio, television, film, print media; mediated messages about African American culture; images in contemporary media development, practice in the United States.

19:217 Gender and Mass Media 3 s.h.
Representation of women, men in mass media; pornography, censorship; gender and the communication work force; women as producers of alternative media.

19:219 Topics in Mass Communication 3 s.h.

19:220 Master’s Seminar 1-3 s.h.
Separate section for students in M.A. professional and thesis programs; professional students investigate journalism as a mode of inquiry; conceptual approaches, professional and journalistic problems; thesis program section meets with Ph.D. seminar 19:320.

19:221 Approaches to the Study of Communication: Issues and Concepts 3 s.h.
Introduction to major communication and mass communication concepts; their use and development.

19:230 Specialist Reporting and Writing 3 s.h.
Advanced reporting and writing; taught in sections; topics vary and may include social change, law, science, business, medicine, intercultural affairs, media, lifestyles, art. Computer assisted reporting. Prerequisite: 9:115 or consent of instructor.

19:231 Depth Reporting and Writing 3 s.h.
Entreprise reporting, emphasis on reporter as researcher, organizer, writer of complex stories in a variety of contexts. Prerequisite: 19:115 or consent of instructor.

19:232 Magazine Reporting and Writing 3 s.h.
Finding ideas, researching, interviewing; problems of organization and style; identification of audiences, markets. Prerequisite: 19:115 or consent of instructor.

19:235 Broadcast Journalism Reporting and writing 3 s.h.
Principles; gathering, writing, editing, reporting the news; techniques and concepts in foundation for understanding successful writing, delivering broadcast news. Prerequisite: 19:115 or consent of instructor.

19:234 Persuasive Writing 3 s.h.
Principles, practices of persuasion writing in editorials, op-ed pieces, magazine essays, reviews, public relations. Prerequisite: 19:115 or consent of instructor.

19:235 Fre-lance Reporting and Writing 3 s.h.
Approaches to writing and marketing articles to magazines, newspapers, other publications; developing skills in writing, researching, periodical markets, writing queries, writing and rewriting articles for publication. Prerequisite: 19:115 or consent of instructor.

19:240 Media Workshop 3 s.h.
Analysis and solution of problems with communication strategies and/or media products; public relations, newsletter production. Prerequisite: 19:115 or consent of instructor.

19:241 Publication Design Workshop 3 s.h.
Problems of design; layout; fonts, techniques, functional and aesthetic considerations; creative design projects. Prerequisite: 19:115 or consent of instructor.

19:242 Photographic Workshop 3 s.h.
Techniques; basic craft, location shooting, editing photographs, combining words and images for variety of purposes; group critiques of assignments. Prerequisite: 19:115 or consent of instructor.

19:243 Typographic Workshop 3 s.h.
Typography and typographic design; interaction of form and function; differentiation, use in design; laboratory work and creative projects. Prerequisite: 19:115 or consent of instructor.

19:244 Broadcast Journalism Workshop 3 s.h.
Electronic news gathering (ENG); conceptualization, shooting, editing basic news packages. Prerequisite: 19:115 or consent of instructor.

19:245 Public Relations Practice Workshop 3 s.h.
Development, presentation of public relations campaigns for client organization; application of communication theory research techniques and solution of public relations problems through objectives-based strategic planning. Prerequisite: 19:115 or consent of instructor.

19:246 Editing Workshop 3 s.h.
Theory, principles, process in editing and packaging material for various forms of publication; basics of editing—copy editing, headlines, illustration, layout; pencil and computer editing, desktop publishing. Prerequisite: 19:115 or consent of instructor.

19:247 Book Design Workshop 3 s.h.
Specialized practices and problems of book design; computerized typesetting and layout technology; applied technique and creative projects. Prerequisite: 19:115 or consent of instructor.

19:248 Advanced Media Workshop 3 s.h.
Journalism and mass communication skills; topics may include photojournalism, documentary photography, editing, broadcasting. Prerequisite: 19:115 or consent of instructor.

19:250 Seminar in Visual Communication 3 s.h.
Conceptual, theoretical approaches for analyzing photographic media in relation to research on historical and cultural aspects of visual communication. Consent of instructor required.

19:251 History of the Book 3 s.h.
Technological, social, cultural dimensions; major texts. Same as 8:203, 21:223.

19:252 Social Meanings of News 3 s.h.
How concept of news has been studied in occupational, organizational, social contexts.

19:253 Economics, Technology, and American Mass Media 3 s.h.
Economic condition of American mass media; role in society; focus on how economics and technology affect that role; emphasis on role of mass media in shaping mass media; attention to contemporary British, continental scholarship.

19:254 Communication and Change 3 s.h.
Theory, research, methodological problems of studying change; diffusion of innovations, media and change, reform, social change; organizations, evolutionary and revolutionary organizations.

19:255 Problems in International Communication 3 s.h.
Topics may include communication systems in national development; international and cross-cultural communication structure and theory; images, values; mass persuasion; laws, agreements; information channels, context, flow, effects; censorship; language, literacy.

19:256 Gender and Mass Communication 3 s.h.
Feminist analysis of gender and language; images of women in mass media; employment of women and minorities by media; media created for women and men; affirmative action in broadcast regulation.

19:257 Communication and Social Theory 3 s.h.
Social theorists who emphasize communication processes in their analyses of social interaction, society.

19:258 Mass Communications in Modern Society 2-4 s.h.
Concept of mass communications; rights and responsibilities of parties revolved; public opinion; interaction of mass media and society; government, politics, world affairs, mass communications; mass media as institutions, systems, social change.

19:259 Theory of Popular Culture 3 s.h.
Major theoretical approaches; representative studies.

19:260 Communication Research: Historical Approach 3 s.h.
Readings, research.

19:261 Communication Research: Behavioral Approaches 3 s.h.
Planning, conducting, analyzing, interpreting surveys, content analysis; experiments.

19:262 Communication Research: Phenomenological Approaches 3 s.h.
How people construct and carry out communication; symbolic interactionism, ethnography, ethnotechnology; participant observation, ethnographic interviewing, field observation as methods for studying how people interpret and construct their worlds.

19:263 Communication Research: Legal Approaches 3 s.h.
Introduction to legal research methods and materials for studying communications law. Consent of instructor required.

19:270 History of Mass Communication 3 s.h.
Conceptualization, completion of a mass communication history research project or proposal.

19:271 Mass Communication Law 3 s.h.
Conceptualization, completion of a mass communication law research project or proposal.

19:272 Communication Seminar 3 s.h.
Readings, research.

19:280 Master’s Tutorial 1-3 s.h.
Topics in communication and mass communication inquiry. Consent of instructor required.

19:281 Master’s Practicum 1-3 s.h.
Research, readings, projects to fit needs, interests of student. Consent of instructor required.

19:299 Master’s Research Thesis 1-3 s.h.
Independent research for projects, theses. Consent of sponsoring faculty member, director of graduate studies, instructor required.

19:320 Ph.D. Seminar 1 s.h.
Forum on theoretical or methodological problems in mass communication. Consent of instructor required.

19:330 Literature of Communication 3 s.h.
Significant works in communication and mass communication theory.

19:340 Seminar in Organizational Communication Theory 3 s.h.
Major theoretical approaches to study of organizational communication; focus on communication as basic process in human organization, planning, acting. Same as 36:635.

19:341 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, continental scholarship.

19:342 Mass Communication and Society 2-4 s.h.
Political economy, social factors that influence content and character of mass media; ethics, rights, responsibilities of mass communication media; place of mass media in social change, social planning.

19:343 International Communication 3 s.h.
International and cross-cultural communication.

19:380 Ph.D. Tutorial 1-3 s.h.
Communication and mass communication inquiry. Consent of instructor required.

19:381 Ph.D. Research Practicum 3 s.h.
Conceptualization and execution of research projects. Consent of instructor required.

19:399 Dissertation 6-9 s.h.

**See “Classics.”**

**Latin American Studies Program**

Chair: Charles Hale
Professors: Thomas Chapple (Anthropology), Raul Curti (Mathematics), Noria England (Anthropology), Robert Frank (Spanish and Portuguese), Oscar Hahn (Spanish and Portuguese), Charles Hale (History)
Associate professors: Florence Babb (Anthropology), Enrique Sánchez (Anthropology/Women’s Studies), Enrique Carrasco (Law), Michael Chibnik (Anthropology), George DeMeco (Spanish and Portuguese), Maria Duarte (Spanish and Portuguese), Nora González (Spanish and Portuguese), Philip Klein (Spanish and Portuguese), Adriana Mender Rodenas (Spanish and Portuguese), Douglas Middrett (Anthropology), Mario Sartor (Music and Portuguese), Diu Vélez (Spanish and Portuguese). Irene Wernert (Spanish and Portuguese) Assistant professors: Laura Graham (Anthropology), Ralph Cunfin (Rhetoric), Kathleen Higgins (History), Kathleen Newman (Spanish and Portuguese), M. Mercedes Nito-Murcia (Spanish and Portuguese), Enedina Vázquez (Education)
Undergraduate degree: certificate, minor in Latin American Studies

The Latin American Studies Program (i.e. ASP) is an interdisciplinary program that focuses on the history, politics, social organization, economy, geography, art, and literature of Central and South America, Mexico, the Caribbean, and of...
0Latinos in the U.S. It 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.

Students enrolled in the program may earn a minor or certificate in Latin American studies. All students plan their programs in close cooperation with Latin American studies advisers.

The Latin American Studies Program (LASP) is a constituent program of the Center for International and Comparative Studies.

Programs

Certificate

Students pursuing the certificate in Latin American Studies must earn at least 27 semester hours of credit with a minimum grade-point average of 2.00 in courses selected from the list of approved LASP courses that follows. These courses should include 130:176 Latin American Studies Seminar and at least 6 semester hours in each of at least three of the following departments: anthropology, history, political science, and Spanish and Portuguese. It is recommended that students include 130:120 Contemporary Latin American News Colloquium (2 semester hours). LASP-approved courses may be used toward the student’s major subject to prior approval of the Latin American studies adviser or the LASP chair.

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. Students should consult the Latin American studies adviser. For course descriptions, see the appropriate departmental sections of the Catalog.

LATIN AMERICAN STUDIES
130:105 Independent Study arr.
130:1 15 Topics in Latin American Studies arr.
130: 120 Contemporary Latin American News Colloquium (recommended for certificate and minor students) 2 s.h.
130: 176 Latin American Studies Seminar (required for certificate; students, recommended for minors) 3 s.h.

APPROVED LASP COURSES

Anthropology
113:109 Literature and Anthropology (area-related) 3 s.h.
113: 114 Lowland South American Indians 3 s.h.
113: 117 The Maya 3 s.h.
113: 118 Social Anthropology of the Caribbean 3 s.h.
113: 131 Latin American Economy and Society 3 s.h.
113: 148 Special Topics in Anthropology (when topic is Latin America) 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.
113:191 Structure of Mayan Languages 3 s.h.
113: 197 Special Topics in Archaeology: Archaeology of Aztec State Development arr.

Art

III: 105 Art of Pre-Columbian America 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: 113 The Mexican Revolution 3 s.h.
16W: 116 Women in Latin America 3 s.h.
16W: 117 History of Brazil 3 s.h.

Political Science

30: 144 Latin American Government 3 s.h.
30: 145 Major States of Latin America 3 s.h.

Portuguese

38: 105 Brazilian Literature I 3 s.h.
38: 106 Brazilian Literature II 3 s.h.
38: 112 Topics in Luso-Brazilian Literature 3 s.h.
38:1 14 Culture and Civilization of the Portuguese-Speaking World 3 s.h.

Spanish

35: 116 Technical Communication 3 s.h.
35: 118 Business Spanish 3 s.h.
35: 119 Introduction to Bilingualism 3 s.h.
35: 123 Screening Latin America 3 s.h.
35: 130 Spanish American Civilization 3 s.h.
35: 131 Contemporary Spanish American Fiction 3 s.h.
35: 132 Spanish American Poetry I 3 s.h.
35: 133 Spanish American Drama 3 s.h.
35: 134 Spanish American Short Story 3 s.h.
35: 135 Contemporary Latin American Novel and Short Story 3 s.h.
35: 138 Survey of Twentieth-Century Puerto Rican Literature 3 s.h.
35: 139 Spanish American Poetry II 3 s.h.
35: 140 Mass Communication in Spanish America 3 s.h.
35: 145 Latin America Cinema 3 s.h.
35: 169 Spanish American Literature of Fantasy 3 s.h.
35: 173 Latin American Women Writers 3 s.h.
35: 175 Cultural Identity in Caribbean Literature 3 s.h.
35: 178 Culture and Language in the Andes 3 s.h.
35: 179 Testimonial Literature in Latin America 3 s.h.
35: 185 Colonial Spanish American Literature 3 s.h.
35: 187 Topics in Colonial Spanish American Literature 3 s.h.

Other

7E: 195 Multicultural/Bilingual Concepts and Educational Systems 3 s.h.
Scholarships

Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Research/Fieldwork through the Center for International and Comparative Studies (CICS). 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, CICS staff, and the LASP chair.

Special Programs

Organizations, Foreign Language House

LASP students who wish to participate in cultural exchange activities and Latin American student groups on campus have several organizations to choose from, including the Chicano/Hispanic Association for Legal Education, the Latin American Student Association (ADELA), Latinos Unidos, Los Curndetos, and the Venezuelan Association. Students who would like to live in a multicultural environment should contact the University housing office about placement in the Foreign Language House.

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, round table discussions, and lectures. Scholars, activists, musicians, professionals, and others visit the campus to participate in a variety of activities. Recent visiting speakers and guest performers have included Cuban poet, historian, and philosopher Roberto Fernandez-Retamar; Elfi Rivera Ramos, Professor of law at the University of Puerto Rico; Cuban fiction writer, José Lorenzo Fuentes; Chilean art historian and human rights activist, Cecilia Ubilla; and Elvia Alvarado, campesina activist from Honduras.

Courses

130:105 Independent Study art.

130:115 Topics in Latin American Studies art.

130:120 Contemporary Latin American News Colloquium 2 s.h.

Communication: issues at transnational, national, and grassroots levels; emphasis on political, socioeconomic themes; contemporary affairs as reported in Latin American press, other media. Same as 35:135.

130:176 Latin American Studies Seminar 3 s.h.


PROGRAMS IN LETTERS

Director: K.K. Merker

Programs in Letters is an administrative unit including several University of Iowa activities in language and literature: the Center for the Book, the International Writing Program, the Midwest Modern Language Association, and the Translation Workshop.

Center for the Book

The Center for the Book promotes a comprehensive, interdisciplinary program for scholarly research and study of the book and for creative practice of the arts and technologies of the book. The center is home to a unique configuration of creative workshops offering an environment for artistic collaboration. An academic and scholarly program, a complement to the workshops, focuses on the various histories of the book, its role in culture, and contemporary theoretical approaches to its study.

See also “Iowa Center for the Arts” in the Special Resources at Iowa section of the Catalog.

International Writing Program

See “Iowa Center for the Arts” in the Special Resources at Iowa section of the Catalog.

Translation Workshop

See “Master of Fine Arts in Translation” under “Comparative Literature” in this section of the Catalog.

Courses

108:28 Graphic Design I 2 s.h.

Basic principles, techniques, applications of graphic design, typography, composition, visual perception, creative and problem-solving aspects of graphic design. Consent of instructor required. Prerequisite: 1A:4 (Same as 1D:28).

108:100 Special Project for Undergraduates art.

Independent study.

108:110 Papermaking 3 s.h.

History, technique of making paper by hand in Asian and Western styles; evolution of methods, tools and equipment, fiber selection and preparation, pulp coloring, sizing, drying, basic paper chemistry. Same as 12:110.

108:120 Advanced Papermaking 3 s.h.

Traditional Eastern, Western sheet forming techniques; emphasis on fiber selection and preparation, paper testing, watermarking, sizing. May be repeated. Consent of instructor required. Prerequisite: 108:1 10. Same as IX:120.

108:125 Typography 3 s.h.

Principles and history; designing with type; functional, aesthetic dimensions of typography. Consent of instructor required. Prerequisites: IX:4 and ID:28 (108:28). Same as 1D:125.

108:130 Paper-works 3 s.h.

Techniques, approaches using pulp/paper as art medium; emphasis on type selection, preparation, coloring, 2D/3D techniques for image or object formation. May be repeated. Consent of instructor required. Prerequisite: 108:1 10. Same as IX:130.

108:134 Silkscreen 3 s.h.

Photographic, non-photographic stencil-making techniques for production of limited edition silkscreen prints. Prerequisite: 1A:3 or 1A:4 or equivalent. Recommended: 1L:134. Same as IL:134.

108:135 Other Productions Workshop 3 s.h.

Graphic arts techniques for production of postcards, broadsheets, visual books in small editions on a high speed offset press. Prerequisite: 1L:134 or 1L:110 or consent of instructor. Same as IL:135.

108:140 Calligraphy I 3 s.h.

Western-style letterforms produced with brush or broad-edge pen; organization of page format. Same as IV:140.

108:141 Calligraphy II 3 s.h.

Adaptation of historical Western-style letterforms to contemporary format; brush, broad edge pen. May be repeated. Consent of instructor required. Prerequisite: 108:140 or equivalent. Same as IV:141.

108:142 The Medieval Manuscript Book 3 s.h.

Relief of text, decoration, facsimile accuracy in different genres of medieval books (e.g., gospels, bibles, romances). Prerequisite: 1H:5 or 1H:116 or consent of instructor. Same as 18:142.

108:147 Literary Publishing 3 s.h.

Course coordinated with production of The Iowa Review, special projects related to editorial work of the magazine. Consent of instructor required. Same as 8:147.

108:150 Bookbinding: Non-adhesive Binding 3 s.h.

Production of seven types of non-adhesive book structures; history, terminology of bookbinding. May be repeated. Consent of instructor required. Same as IV:150.

108:151 Bookbinding: Case Binding 3 s.h.

Variations in the Casebound structure; book enclosures. May be repeated. Consent of instructor required. Same as IV:151.

108:152 Bookbinding: Advanced structures 3 s.h.

Sewing styles, spine shaping and endbanding, covering techniques, special projects may be substituted with consent of the instructor. Prerequisite: 108:150 or 108:151 or consent of instructor. Same as IV:152.

108:153 Studies in Bookbinding 3 s.h.

Representative topics include paper decoration, pop-up books, history of binding structures. Consent of instructor required. Same as IV:153.

108:154 Bookbinding: Non-Traditional Structures 3 s.h.

Unconventional binding structures; emphasis on innovative techniques. Same as IV:154.


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. Consent of instructor required. Same as 8:187.

108:200 Special Project for Graduate Students arr.

Independent study.

108:210 Individual instruction in Papermaking/Paperworks Sr.

108:240 Bibliography 3 s.h.

Information gathering in academic disciplines; scientific method, other means of knowledge construction, reading literature; reference tools used to control literature for a variety of audiences; emphasis on humanities, social sciences, or sciences. Prerequisite: 21:151. Same as 21:240.

Liberal Studies

Coordinator: Elizabeth Hill

Degree offered: B.L.S.

The Bachelor of Liberal Studies (B. L. S.) program is offered by each of the three State Board of Regents 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 program has no residence requirement.

Students may complete the degree without attending a course on campus. Credit applicable toward the degree may be earned through several types of courses, including Saturday and evening courses, correspondence courses, off-campus courses at sites throughout Iowa, televised courses, and on-campus courses during the day. 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 administered by the Division of Continuing Education. Since the B.L.S. is a general undergraduate degree with no 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. adviser, to structure a program that meets their individual needs and objectives. Many B.L.S. candidates 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 a specific career goal or advanced degree program in mind should familiarize themselves with required educational background and prerequisite course work and should include appropriate courses in their B.L.S. degree program.

Admission

Students wishing to graduate with a B.L.S. degree must apply formally for admission to the program. Interested students should consult a B.L.S. adviser before applying. To be eligible for admission to the 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 minimum grade-point average of 2.00; or at least 62 semester hours of collegiate work acceptable for credit toward graduation, with a grade-point average of 2.25 or better. (Students admitted to The University of Iowa must have a grade-point average of at least 2.00 to qualify for admission to the B.L.S. program.)

Requirements

Of the 124 semester hours of credit required for the degree, 45 must be completed in courses offered by the Iowa Regents universities, including 30 that must be earned from The University of Iowa after admission to the B.L.S. program. At least 45 semester hours must be earned at four-year colleges; these hours must be defined as upper-level at the institution where the credits were earned. At The University of Iowa, upper-level courses are numbered 100 and above. However, at the initiation of sponsoring departments and with approval of the College of Liberal Arts Office of Academic Programs, courses numbered below 100 but taught at an advanced level may be used to satisfy the 45-semester-hour upper-level requirement. Approved courses are listed in the Interdepartmental Studies section of the Catalog.

B.L.S. candidates are required to complete all the General Education Requirements except physical education (see the College of Liberal Arts introductory section of the Catalog). Students who enrolled at The University of Iowa before fall semester 1990 and who will graduate by August 1997 with a B.L.S. degree are exempt from the foreign language requirement.

Since there are no traditional majors available through the B.L.S. program, candidates must earn at least 12 semester hours of credit— including six semester hours approved for upper-level credit—in each of three of the following 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)

Credits applied to the General Education Requirements may not be used to meet the distribution area requirements, but they may be counted toward the 45 semester hours of upper-level course work required, if applicable. Graduation requires a minimum grade-point average of 2.00 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 policies regarding pass/nonpass and satisfactory/fail grading, academic standards, and so forth, apply to B.L.S. students.

Further information about the B.L.S. program is available from the Center for Credit Programs.

Courses

BLS:000 Cooperative Education Internship 0 s.h.

Library and Information Science

Director: Carl Orgren
Professor: Edward Bierbaum
Professor emerita: Velva Jeanse Osborn
Assistant professor: Sharon L. (Shay) Baker, Carl Orgren, James Rice, Padmini Srinivasan
Assistant professor emerita: Louise L. Newsome
Assistant professor Jean Donham van Deurs
Adjunct assistant professor: William Welbum
Lecturer: Ethel Bloesch
Affiliated faculty: Kay Amert (Journalism and Mass Communication), Jerry Watson (College of Education)
Graduate degree: M.A. in Library and Information Science

Library and information professionals face many challenges in serving the needs of their constituencies—children and teachers, members of academic communities, employees of enterprises, or the public at large. As individuals, organizations, and societies, these constituencies represent a spectrum from information poor to information rich. Inextricably tied to this spectrum are factors 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, multilingual, and multilingual society. Its curriculum reflects the profession’s immediate and the long-range needs, and prepares students to be leaders in the evolution of library and information science.

By promoting excellence in research, the school contributes to the base of theoretical and practical knowledge in library and information science and helps develop understanding of how to meet the varied and evolving information needs of individuals and society. It also provides public service through continuing education programs, consulting services for library and information centers, and membership in professional organizations.

The school strongly encourages its students, faculty members, and alumni to shape the future of the profession through filling key roles in organizations involved in all aspects of the information cycle.

Graduate Program

The program, accredited by the American Library Association, leads to a Master of Arts degree in library and information science. It requires 36 semester hours of graduate credit with a minimum grade-point average of 2.50, and completion of a comprehensive examination.

Students who successfully complete the degree gain a thorough understanding of:

- the historical evolution of library and information science as well as current and future trends in the field;
- professional, ethical, and philosophical issues, including intellectual freedom, privacy of information, and information literacy;
- the information cycle, from production to usage, and the roles of its participants—authors, librarians and information professionals, publishers, and brokers;
- theories, principles, and procedures for promoting effective selection, acquisition, organization, storage, retrieval, evaluation, dissemination, and use of a variety of information carriers (e.g., text, sound, image, video), in electronic and non-electronic formats;
- current management theory and practice necessary to manage personnel effectively, to plan information services, and to identify needs, set goals, analyze problems, implement
programs, and evaluate results in both traditional and innovative settings;

- current and cutting-edge technological concerns regarding design, evaluation, implementation, and management of hardware, software, telecommunication networks, and information systems;
- the discipline’s research base including historical highlights as well as current research and the synergism between library and information science and other disciplines, such as computer science, linguistics, psychology, and communications;
- the close relationship between the discipline’s research base and practice of the profession, and the application of established research principles, results, and methods to current problems;
- social, economic, and intellectual factors influencing the contexts that underlie users’ information needs and appropriate strategies to satisfy those needs.

Graduates hold positions in public, school, academic, and special libraries and information centers, serving in roles such as administrator, information consultant, subject specialist, network coordinator, cataloger, children’s librarian, school library media specialist, or conservator.

Basic Plan of Study

The program consists of a core of required courses basic to all areas of librarianship, and electives. The student’s plan of study should be developed carefully in relation to career objectives. All courses to be applied to the 36-semester-hour program must be approved by the adviser.

Required Core Courses

Required of all M.A. candidates (total of 18 semester hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>21:151</td>
<td>Reference</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:152</td>
<td>Description and Organization of Materials</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:153</td>
<td>Foundations and Collection Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:201</td>
<td>Management of Libraries and Information Centers</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:246</td>
<td>Information Science and Technology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:249</td>
<td>Research Methods</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Electives

Total of 18 semester hours

For suggested electives, see “Public Librarianship,” “Academic Librarianship,” “Special Librarianship,” “‘Information Science’ and School Library Media Centers” in this section of the Catalog.

Elective courses in other University departments must be shown to be an integral part of the student’s preparation for library and information science. Up to 9 semester hours of graduate credit earned outside the department may be applied toward the degree, subject to the approval of the student’s adviser and the director of the school. Some specializations may permit exceptions to the 9-semester-hour limit.

Thesis Option

The purpose of the thesis option is twofold: to expand research competence and to provide one means of independent study to a student with extensive preparation in library and information science.

Transfer Credit

Up to 9 semester hours 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 student’s adviser and the director of the school. Approval is given on a course-by-course basis and is determined by evaluating the course’s content, currency, and applicability to the student’s program.

Completion Time

The degree program can be completed in one calendar year (two semesters and a summer), but most students take an extra semester or two to fulfill the requirements or to have access to certain courses. In particular, students who have time-consuming responsibilities, such as family duties or half-time or greater employment, may find it difficult to carry the maximum course load. The maximum load for graduate students is 15 semester hours during regular semesters and 8 semester hours during summer sessions.

The degree program also can be completed in five summer sessions, but school media endorsement requires certain courses that are available only during fall and spring semesters.

Public Librarianship

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 often are 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 cost-effectively, and evaluating the success of their efforts.

Plan of Study

Required core courses 18 s.h.

Suggested electives 18 s.h.

Special Librarianship

Special librarianship includes careers in libraries and information centers serving both profit and not-for-profit organizations—for example, businesses and industries, law firms, museums, historical societies. The ability to design services suitable to the parent organization, the possession of such skills and competencies as indexing, abstracting, online searching, systems analysis, and organizing knowledge, and a background of substantial subject expertise are customarily required in special library work. Information brokers and entrepreneurs are also special librarians.

Special elective courses 18 s.h.

Academic Librarianship

The academic library, whether in a community college, a four-year college, or a university, provides information services in support of the teaching, research, and public service missions of the parent institution. These services include instruction in the use of the library and its resources. Management skills and subject or language competence are often required. Since librarians in this setting usually are considered academic faculty members, possession of a second master’s or other advanced degree is helpful in obtaining appointment, tenure, or promotion.

PLAN OF STUDY

Required core courses 18 s.h.

Suggested electives 18 s.h.

7H: 171 The Community College (required for Iowa endorsement for work in community colleges) 2-3 s.h.

21:232 The College and University Library 3 s.h.

21:240 Bibliography 3 s.h.

21:247 Information Storage and Retrieval 3 s.h.

21:248 Library Automation 3 s.h.

21:250 Systems Analysis and Database Design 3 s.h.

21:251 Advanced Reference 3 s.h.

21:252 Description and Organization of Materials 11 3 s.h.

21:253 Technical and Serial Services Management 3 s.h.

21:255 Government Publications 3 s.h.

21:282 Practicum in Libraries 2-3 s.h.

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Information Science

Information science, a rapidly growing multidisciplinary professional area, has been influenced by the growth in information sources, the rapid development of electronic technologies, and the need to store, retrieve, and disseminate information through the use of these technologies. Its focus is on developing skills in organizing and using information, determining and anticipating the information needs of a particular clientele, and the retrieval and delivery of information.

In addition to libraries and information centers, many organizations in the for-profit sector are finding that information is a valuable commodity in today’s competitive world; they are employing information management personnel. An information science specialization can lead to nontraditional careers.

PLAN OF STUDY

Required core courses
18 s.h.

Elective courses
18 s.h.

Two or three of these:
21 :247 Information Storage and Retrieval
3 s.h.
21 :248 Library Automation
3 s.h.
21 :250 Systems Analysis and Database Design
3 s.h.

Two or three recommended courses in other departments (a list is available upon request) 6-9 s.h.

The balance selected from these:
21 :230 Special Libraries
3 s.h.
21 :240 Bibliography
3 s.h.
21 :251 Advanced Reference
3 s.h.
21 :253 Technical and Serial Services Management
3 s.h.
21 :264 Medical Librarianship and Bibliography
3 s.h.
21 :265 Law Librarianship, Bibliography, and Research Techniques
3 s.h.
21 :282 Practicum in Libraries
2-3 s.h.
21 :293 Independent Study
1-3 s.h.

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 media specialist includes activities such as providing instruction to students in the use of media, consulting with teachers about the use of media in the instructional program, producing new materials, offering reading guidance, and providing reference service.

To qualify as school media specialists in Iowa, graduates must hold a valid teaching license and an appropriate media endorsement. The plan of study in the following section describes a program that is designed to prepare students for endorsement as Iowa school media specialists K-12.

STATE ENDORSEMENT FOR SCHOOL MEDIA SPECIALISTS

Students who complete the program below fulfill state requirements for endorsement as school media specialists K-12. To be admitted to the media endorsement program, a student must hold or be eligible for a teaching license. This program requires completion of 38-39 semester hours. Students completing the media endorsement program fulfill the requirements for the M.A. in library and information science as well. The plan of study is as follows.

7W :120 Introduction to Instructional Design and Technology
3 s.h.
7W :135 Computer Applications for Instruction
3 s.h.
21 :151 Reference
3 s.h.
21 :152 Description and Organization of Materials
3 s.h.
21 :153 Foundations and Collection Development
3 s.h.
21 :201 Management of Libraries and Information Centers
3 s.h.
21 :233 School Library Media Center Administration
3 s.h.
21 :244 Library Materials for Children
3 s.h.
21 :245 Library Materials for Adolescents
3 s.h.
21 :262 School Library Media Center Practicum
3 s.h.
7P :220 Educational Research Methodology
3 s.h.
or 21 :249 Research Methods
3 s.h.
21 :246 Information Science and Technology
3 s.h.
or 21 :248 Library Automation
3 s.h.
7W :105 Design and Production of Media for Instruction
2 s.h.
or 21 :222 Multimedia and Interactive Technologies
3 s.h.

Students who complete 29 of the above semester hours in a designated sequence are eligible for single-level endorsement, that is, elementary school media specialist (K-6) or secondary school media specialist (7-12). The single-level endorsement does not require a master’s degree.

Iowa Community College Certification

The school offers a state-approved program for librarian/learning resource specialist in an area vocational school or community college. Students receive this endorsement upon completion of the M.A. with the program listed under “Academic Librarianship” in this section of the Catalog and 7H: 171 The Community College.

Joint Degree Programs

Joint degree programs between the School of Library and Information Science and other University units have as their primary goal the integration of the two areas of study, allowing the student to contribute to one discipline the insights and experience gained in the other.

The school has established formal programs with the Colleges of Law and Business Administration. A student enrolled in a joint program works with an adviser in the School of Library and Information Science to ensure the benefits of integration.

Objectives of a joint program must be consistent with the goals stated above, and since they vary from student to student, they are a matter of advising. For instance, a student who seeks a career in a law or business library requires a different sequence of courses from one attempting to study the legal basis of librarianship or the management of the library as a complex organization. Yet another student may choose to seek the benefits a joint program could offer in records management and management information systems.

To enroll in a joint program, students must apply to and be accepted by the School of Library and Information Science and the other unit chosen. Up to 6 semester hours of such study may be applied toward the M.A. in library and information science and up to 9 semester hours toward the M.B.A. or 12 semester hours 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.

In no case may a student receive two degrees with fewer than 60 semester hours of graduate work, and joint programs usually require substantially more than this.

Undergraduate Study

Although there is no undergraduate major in library science, juniors and seniors may enroll in the introductory library science courses (100 level). No courses numbered 100 or above may be taken by freshmen or sophomores. No courses numbered 200 or above may be taken by undergraduates.

Facilities and Resources

The School of Library and Information Science is located conveniently in the south wing of the University’s Main Library, providing facilities for the varied instructional and research activities of the school.

Computer Facilities

Students are encouraged to gain practical experience with computer technology and to develop competence in library technology across the curriculum. In various courses, students learn to do online searching, database management, library automation, instructional materials development, and statistical operations. They also develop skills in searching remote catalogs and databases, downloading software and data, and using electronic mail, bulletin boards, and subscriber lists.

A technology laboratory provides access to a variety of software, CD-ROM databases, online services, and bibliographic utilities. A representative selection of microcomputer platforms and other devices is available. Students also have easy access to a wide variety of local and international networks.
Cataloging Lab

The school maintains a reference collection of cataloging tools used in description and organization courses. The collection also is available to students who need the materials for research or for other course work. In addition to traditional print cataloging resources, the laboratory offers access to bibliographic utilities and the latest in automated cataloging technology.

Statewide Reference Service

The school serves as one unit of a statewide electronic network of libraries. In cooperation with the State Library of Iowa, students provide back-up reference service to libraries throughout the state, using newly acquired skills to perform bibliographic verification and to answer reference questions. The service helps students reinforce and integrate classroom instruction and gain reference experience.

University Libraries

All of the resources of the University Libraries are available to students and faculty of the school. The system contains more than three million volumes in the Main Library and 11 departmental libraries.

The online catalog and information system, OASIS, contains records for more than 65 percent of the collection as well as databases containing journal indexes and the records of the Center for Research Libraries in Chicago. Information resources are available in CD-ROM format, as is remote access to more than 500 online catalog libraries.

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.

Several of the school’s classes meet in the Information Arcade’s electronic classroom, which contains a network of 24 Macintosh platforms and two instructor’s stations (Mac and IBM). This allows a group of students to use software and multimedia applications together, to interact with each other, or to view the instructor’s projected demonstrations.

The third floor of the Main Library houses the government publications, map, and special collections rooms as well as bound periodicals. The location of the School of Library and Information Science on this floor allows quick access to these frequently used collections.

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 and Cedar Rapids public and school libraries; the Augustana, Coe, Cornell, and Grinnell college libraries; and the Herbert Hoover Presidential Library in West Branch. The Iowa City Public Library, located 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.

Other Resources

Lindquist Center, located across the street from the Main Library, houses the Learning Resources Center of the College of Education and Weeg Computing Center. The resource center consists of the Video Lab, Computer Resource Lab, Audiovisual Production Lab, and Curriculum Resources Lab. The Curriculum Resources Lab 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.

Weeg Computing Center 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. Each graduate student is provided with a small funded account by the Graduate College.

Faculty Advising

Each graduate student is assigned an adviser upon admission. Students are encouraged to discuss career objectives and problems with other faculty members as well. The relatively small size of the school allows faculty members to get to know students individually and to take an interest in their professional development.

All courses to be applied to the 36-semester-hour program must be approved by the adviser.

Student Activities

Students have a variety of activities available to aid in their academic and professional development. Conferences, short courses, workshops, seminars, field trips, and teleconference calls provide frequent exposure to contemporary developments in library and information science, as well as an opportunity to meet with practicing librarians from across the state and nation.

The Library and Information Science Student Organization (LISSO) is composed of all students accepted into the M.A. program. The Executive Committee of LISSO (ECL) serves as a liaison between students and faculty/administration in matters of common concern, and as a planning group for student seminars and other activities. ECL sends a representative to faculty meetings. There is also an active student chapter of the Special Libraries Association.

Placement

The school provides active placement assistance to its graduates through bulletin board announcements, seminars on resume 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.

Iowa graduates find positions in all types of libraries. The placement distribution for the past three years was: academic libraries, 32 percent; public libraries, 31 percent; special libraries, 21 percent; and school libraries, 16 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

Academic requirements for admission to the M.A. program include:

- a baccalaureate degree from an accredited college or university, with a minimum grade-point average of 2.50 on a 4.00 scale, and at least 85 semester hours of study in the liberal arts and sciences;
- a combined verbal/quantitative score of 1050 or a combined verbal/analytical score of 1050 on the Graduate Record Examination (GRE) General Test.

Personal qualifications and professional potential are assessed by means of letters of recommendation, a written statement of purpose and goals, and an on-campus interview with the school director and other members of the faculty. Telephone interviews are arranged when distance makes it difficult for an applicant to come to Iowa City. The school does not accept every applicant who meets the minimum admission requirements; an admissions committee selects each class on a competitive basis.

Foreign students whose native or official language is not English are required to achieve a score of 560 or higher on the Test of English as a Foreign Language (TOEFL).

Applicants are asked to write to the School of Library and Information Science for a preliminary information form. If the information provided on the form indicates that the applicant satisfies the basic admission requirements, the school will schedule a personal interview.

Prospective students are urged to begin application procedures early enough to complete all requirements by the following deadlines. Applicants must allow more time if they have not taken the Graduate Record Examination (GRE) General Test.

Completed applications should be received by the school by March 1 for fall semester consideration, October 1 for the spring semester, or February 1 for the summer session. Decisions of the admissions committee are announced two to three weeks after each deadline. Late applications are considered if places are still available. Financial aid, however, is often not available for late applicants.

Financial Aid

The School of Library and Information Science awards partial-tuition scholarships as well as one-quarter-time graduate assistantships. To be considered for a departmental grant, an
Courses

21:000 Cooperative Education Internship
0 s.h.

21:126 Literature and Storytelling for Children
3 s.h.
Reading, storytelling, selecting stories for sharing with young people; comparison and evaluation of various tales in folklore, audiovisual versions; selecting stories for audiences of different ages; planning story programs; performance techniques. Same as 78:126.

21:151 Reference
3 s.h.
Landmark bibliographic and reference works common to most libraries; dictionaries, encyclopedias, biographical works, book catalogs, indexes and guides to periodical literature, yearbooks, handbooks; experience in verification for interlibrary loan. Junior standing and consent of instructor required.

21:152 Description and Organization of Materials
1 s.h.
How library and museum materials are described in catalogs and are organized for effective retrieval; AACR2 descriptive principles; Dewey and library of Congress classifications; Sears and LC subject headings; cataloging aids and services, including OCLC. Junior standing and consent of instructor required. Same as 24:146.

21:153 Foundations and Collectors Development
3 s.h.
Introduction to library and information professions; philosophic issues and principles as well as the methods and tools used to develop and manage collections of library materials, resources. Junior standing and consent of instructor required.

21:201 Management of Libraries and Information Centers
3 s.h.
Principles of organizational design, employee motivation, communication, personnel management, planning, fiscal management, evaluation.

21:222 Multimedia and Interactive Technologies
3 s.h.
Presentation of information, using multimedia and interactive technologies in the library environment; learning theory; policy and theory; social issues relating to technologies.

21:223 History of the Book
3 s.h.
Technological, social, cultural dimensions of the printed book through major texts in the field. Same as 19:251, 8:203.

21:230 Special Libraries
3 s.h.
Management, organizational structures, selection, clear services in special libraries; visits to a variety of special libraries, information centers; projects that apply theoretical principles. Prerequisites: 21:151, 21:152, 21:153, and 21:201; or consent of instructor.

21:231 The Public Library
3 s.h.
Nature, scope of today’s public library services; analyzing use needs of community residents, choosing roles of the library to meet those needs, developing a comprehensive plan to provide services and resources consistent with these roles. Prerequisites: 21:151, 21:152, 21:153, and 21:201; or consent of instructor.

21:232 The College and University Library
3 s.h.
Objectives, function, organization, services, administration of universities; selection, acquisition, cataloging, classification, instruction of library; library specialist courses: 21:151, 153 and 21:201; or consent of instructor.

21:233 School Library Media Center Administration
3 s.h.
Organization, administration of library media programs; development of philosophy, analysis of functions, program planning and evaluation; emphasis on curricular and instructional roles of media specialist; pre- or co-requisites: 21:151, 153 and 21:201.

21:240 Bibliography
3 s.h.
Information retrieval in academic disciplines; scientific literature; other means of knowledge construction, resulting literature; reference tools used to control literature for a variety of audiences; emphasis on humanities, social sciences, or sciences. Prerequisite: 21:151. Same as 108:240.

21:243 Library Materials for Adults
3 s.h.
Qualitative and popular materials for adults; evaluation and selection of fiction, nonfiction in audiovisual and print formats; tools, techniques for matching material to needs of adults. Prerequisite: 21:152.

21:244 Library Materials for Children
3 s.h.
Materials intended for preadolescent children; evaluation and selection of fiction, nonfiction in audiovisual and print formats; tools, techniques for matching material to needs of children. Prerequisite: 21:152.

21:245 Library Materials for Adolescents
3 s.h.
Materials intended for adolescents; evaluation and selection of fiction, nonfiction in audiovisual and print formats; tools, techniques for matching material to needs of adolescents. Prerequisite: 21:152.

21:246 Information Science and Technology
3 s.h.
Scientific and technological context of processes; information: creation, storage, dissemination, transformation, usage; emphasis on models, methods, technologies, policies influencing these processes.

21:247 Information Storage and Retrieval
3 s.h.
Theory, techniques, procedures used to create, maintain, evaluate, access electronic databases. Prerequisite: 21:246.

21:248 Library Automation
3 s.h.
Options for automating library operations; introduction to systems analysis; design specifications, selecting library automation systems; variety of library types and sizes; hands on experience and demonstrations of specific systems. Prerequisite: 21:246.

21:249 Research Methods
3 s.h.
Concepts, techniques of research in library and information sciences; emphasis on conducting and analyzing research projects.

21:250 Systems Analysis and Database Design
3 s.h.
Methodologies for investigating problems, selecting and implementing solutions; theories, models for database design, implementation. Prerequisite: 21:246.

21:251 Advanced Reference
3 s.h.
Concepts in reference service: philosophy, communication, bibliographic instruction, evaluation; students staff statewide reference service; emphasis on sources in law, business, statistics. Prerequisite: 21:151.

21:252 Description and Organization of Materials I
3 s.h.
Special problems in description of materials; authority work; file structures, serials, other nonmonographic materials; Library of Congress, other classification systems; subject retrieval; reclassification; other administrative issues; internorma bibliographic criteria; online cataloging experience. Prerequisite: 21:252.

21:253 Technical and Serials Services Management
3 s.h.
Management techniques in provider of bibliographic and physical access to materials in libraries, information centers; site research, extensive consideration of serials. Prerequisite: 21:152.

21:255 Government Publications
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: 21:151.

21:262 School Library Media Center Practicum
3 s.h.
Supervised field experience in a library media center at elementary, secondary school levels. Open only to students who hold standard teaching credential. Prerequisite: 21:233.

21:264 Medical Librarianship
3 s.h.
Types of medical libraries, characteristics of medical literature, selection, organization of library materials, evaluation, use of reference and bibliographic tools; current awareness services. Prerequisites: 21:151 and 21:201, or consent of instructor.

21:265 Law Librarianship
3 s.h.
Types of law libraries; characteristics of legal literature, selection, organization of legal materials, use of reference, bibliographic tools, research techniques via clinical approach. Prerequisites: 21:151 and 21:201, or consent of instructor.

21:272 Current Topics in Librarianship
3 s.h.
Contemporary issues, problems.

21:278 Workshop in Library Science
1-3 s.h.
Short-term intensive study of selected topic or problem.

21:282 Practicum in Libraries
2-3 s.h.
Supervised field experience in selected libraries and information centers. Consent of instructor. Required Prerequisite: 21 semester hours in library and information science.

21:293 Independent Study
1-3 s.h.
Formal contract between student, faculty member. Consent of instructor and formal proposal required.

21:2W Thesis
6 s.h.
Consent of director; required Prerequisite: 21:249.

LINGUISTICS

Chair: William Davies
Professors: Nora C. Englund, Catherine O. Ringen, Jerzy Rubach, Robert S. Wachal
Associate professors: William D. Davies, Alice L. Davison
Assistant professors: Robert A. Charney, Christopher Culy, Iman Kaplan

Undergraduate degree: B.A. in Linguistics; minor in Linguistics
Graduate degrees: M.A., Ph.D. in Linguistics

Linguistics is the scientific study of human language. Linguists study languages to produce accurate and complete descriptions of them and to obtain information about the nature and internal organization of language in general. They examine word structure (morphology), speech sounds (phonetics), sound systems (phonology), sentence structure (syntax), and meaning (semantics).

Linguists also investigate how children and adults acquire language; how languages change; how damage to the brain affects language abilities; and how language varies according to region, social class, race, and gender.

Linguistics is not limited to scientific research for its own sake. 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 Americans or intelligence and achievement tests that avoid discrimination against subjects who are not middle-class white Americans. Linguists also work in law, in the computer industry, and in foreign language translation.

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 linguists students should consider pursuing their studies either through the M.A. in linguistics with a professional focus or through the doctorate; or they should take a second major. Appropriate companion fields include foreign languages, English, anthropology, social policy, 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
meantings) and phonology (sound patterns). Elective courses in a variety of subspecialties enable students to tailor the program to their own interests.

The major in linguistics requires 24 semester hours of course work. Majors must take an introductory linguistics course (103: 100); courses in phonetics (103:110), phonology (103:1 11), and syntax (103:1 12); and a course in language history. The last requirement can be satisfied by taking a course in the history of some language or language family (e.g., 103:131, 103:139), or in a course in an old language (e.g., classical Greek, Latin, Sanskrit, Old English). Remaining electives are chosen with the undergraduate adviser.

Honors

 Members of the University Honors Program (3.2 grade-point average) may graduate with honors in linguistics by completing the major course work plus an honors thesis. The thesis must be prepared in consultation with the student’s academic adviser.

Minor

 The undergraduate minor in linguistics requires 15 semester hours of linguistics courses, at least 12 of which must be in University of Iowa courses, including an introduction to Linguistics (103:100), and none of which maybe taken pass/no pass.

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 and comprehensive examinations in phonology and syntax. The required core courses are: 103:1 10 Articulator and Acoustic Phonetics 103:1 11 Syntactic Analysis 103: 112 Phonological Theory and Analysis 103:120 Historical and Comparative Linguistics 103:121 Syntactic Theory 103:122 Phonological Theory 103: 113 Linguistic Field Methods or 103:2 10 Linguistic Structures or 103: 217 Language Universals and Linguistic Typology

Students who write a thesis take at least 9 semester hours of elective courses, exclusive of thesis hours, and receive up to 6 semester hours of thesis credit.

Students who take a degree without thesis complete a focus area consisting of 12 semester hours of course work plus at least 6 semester hours of elective courses. The focus may be designed in advance by the student (subject to department approval) or maybe one of a set of predesigned options (e.g., teaching English as a second language).

All electives must be approved by the student’s adviser or chosen from a department list. Students who write a thesis should take at least 30 semester hours of course work; those who choose the nonthesis option must take at least 36 semester hours. All students must have a minimum of 30 semester hours 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 requirement includes two upper-level syntax courses, two upper-level phonology courses, and at least two seminars, for a total of 18 semester hours. An approved specialty area of 18 semester hours also is required, and students must achieve proficiency in a foreign language, as specified by department regulations.

Comprehensive examinations cover phonological theory, syntactic theory, theory of language change (historical linguistics and sociolinguistics), and the specialty area. 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

To be considered for admission to the graduate program in linguistics, prospective students 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 also must submit TOEFL scores. Applications for admission should be submitted as early as possible for the following academic year.

Financial Aid

Fellowships, teaching assistantships, and research assistantships are available to qualified graduate students. Applications are due no later than March 15, but earlier submission is strongly encouraged.

The University of Iowa Fellowships are available to exceptionally well-qualified applicants. Those interested in being nominated for a University of Iowa Fellowship should submit all application materials by January 15.

Applications for all awards are considered only for students whose application for admission is complete.

English as a Second Language

ESL instruction is offered in three distinct, but related, programs: the ESL credit support courses, the Iowa Intensive English Program (IIEP), and the Teaching Assistant Preparation in English Program (TAPE). These programs meet the needs of students whose native 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 prepares students to teach in American classrooms.

ESL Credit Support Courses

These courses bridge the gap between full-time language instruction and full-time academic work, serving students whose TOEFL scores range from 530 to 599. ESL courses are offered to increase proficiency in five skill areas: reading, writing, speaking, pronunciation, and grammar. Each course grants three semester hours of credit, which count toward graduation. Courses are taught by ESL professional staff members and by teaching assistants pursuing advanced degrees in linguistics. Courses taken to meet the College of Liberal Arts English proficiency requirement may not be taken P/N. ESL courses may not be taken S/U.

Iowa Intensive English Program (IIEP)

The HEP primarily serves students who have conditional admission or who have not yet been admitted to the University and whose TOEFL scores are below 530. 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, pronunciation, and speaking are taught each day at all levels—beginning, intermediate, and advanced.

Each student receives twenty 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.

Students admitted to the IIEP receive a certificate of eligibility (Form 1-20), which enables them to obtain a student visa at the nearest U.S. consulate. Application materials are available from the ESL Programs Office.

Teaching Assistant Preparation in English (TAPE)

The TAPE program is designed for graduate students whose first language is not English, who need additional work on English communication and classroom presentation techniques, and who will hold teaching assistantships while at The University of Iowa. Only students who need the program and who
have a sufficient competence in English to profit from it are eligible. TAPE courses are open to graduate students who have had the TA certification evaluation and to others if space is available. Instruction is by full-time professional ESL instructors.

Facilities

The Department of Linguistics has limited audioscopic equipment consisting of a sound spectrograph, a studio-type tape recorder, and an audiometric chamber. A remote terminal and personal computers are also available to students.

The departmental reading room 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

103:000 Cooperative Education Internship 0 s.h.

103:11 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. GER: social sciences.

103:13 Language and Formal Reasoning 3 s.h. Natural language semantics, with emphasis on formal study of linguistic meaning through logical analysis; meaning in linguistics, logical analysis of predication and quantification, argumentation. GER: quantitative or formal reasoning.

103:15 Elementary Swahili I 4 s.h. Development of speaking, listening, reading, and writing skills. GER: foreign language. Same as 129:15, 141:15.

103:16 Elementary Swahili U 4 s.h. Continuation of 103:15. GER: foreign language. Prerequisite: 103:15 or equivalent. Same as 129:16, 141:16.

103:17 Intermediate Swahili I 4 s.h. GER: foreign language. Prerequisite: 103:16 or equivalent. Same as 129:17, 141:17.

103:18 Intermediate Swahili II 4 s.h. Continuation of 103:17. GER: foreign language. Prerequisite: 103:17 or equivalent. Same as 129:18, 141:18.

103:25 Elementary Yoruba I 4 s.h. Development of speaking, listening, reading, and writing skills. GER: foreign language. Same as 129:25, 141:25.

103:26 Elementary Yoruba II 4 s.h. Continuation of 103:25. GER: foreign language. Prerequisite: 103:25 or equivalent. Same as 129:26, 141:26.

103:27 Intermediate Yoruba I 4 s.h. Further development of speaking, listening, reading, and writing skills; systematic review and expansion of grammar. GER: foreign language. Prerequisite: 103:26 or equivalent. Same as 129:27, 141:27.

103:28 Intermediate Yoruba II 4 s.h. GER: foreign language. Prerequisite: 103:27 or equivalent Same as 129:28, 141:28.

103:98 Topics in Linguistics 3 s.h. Undergraduate Seminar. Consent of instructor required. Maybe repeated.

103:99 Special Project 3 s.h. Independent research.

For Undergraduates and Graduates

103:100 Introduction to Linguistics 3 s.h. Variety of topics in general linguistics. Same as RL: 100.

103:104 Varieties of English: Present and Past 3 s.h. Telecourse broadcasts of “The Story of English” examine English as spoken in this country and around the world, origins of English, histories of its different varieties. In cooperation with Iowa Public Television. Same as RL: 104.

103:107 Practicum in Teaching English as a Second Language 3 s.h. Practical experience under supervision. Consent of instructor required. Prerequisite 103:145.

103:110 Articulatory and Acoustic Phonetics 3 s.h. Introduction to articulatory and acoustic phonetics; intensive practice in phonetic transcription.

103:111 Syntactic Analysis 3 s.h. Introduction to syntax; basic syntactic concepts applied to English and other languages.

103:112 Phonological Theory and Analysis 3 s.h. Introduction to phonology; solution to problems, using data from a variety of languages. Prerequisite: 103:110.

103:113 Linguistic Field Methods 3 s.h. Gathering and collation of language data in the field; theory and practical problems, extensive practice in eliciting data from an informant. Prerequisites: 103:110, 103:111, and 103:112.

103:115 Language Processing 3 s.h. Same as 31:1 15.

103:119 Topics in Portuguese Linguistics 3 s.h. Same as 38:1 19.

103:120 Historical and Comparative Linguistics 3 s.h. Principles of linguistic change; comparative method and genetic classification of languages; internal reconstruction and language typology. Prerequisite: 103:12. Same as RL:120.

103:121 Syntactic Theory 3 s.h. Examination of current generative theory and linguistic argumentation; critical analysis of research. Prerequisite: 103:11.

103:122 Phonological Theory 3 s.h. Basic issues in generative phonological theory. Prerequisite: 103:12.

103:125 Elementary Swahili I for Graduates 3 s.h. Same as 129:145, 141:125.

103:126 Elementary Swahili II for Graduates 3 s.h. Same as 129:146, 141:126.

103:137 Intermediate Swahili I for Graduates 3 s.h. Same as 129:147, 141:127.


103:139 Chinese Historical Phonology 3 s.h. Views of traditional grammarians compared with contemporary approaches; views on English usage. Same as RL: 142.

103:144 Introduction to Chinese Linguistics 3 s.h. Same as 39:144.

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, test evaluation, and demonstrations of innovative approaches of the last decade; materials. Prerequisites: 103:110 and 103:141.

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. Same as 131:147, 133:173.

103:151 Formalisms 3 s.h. Basic tools for analyzing argumentation in linguistics (validity, soundness, necessary conditions, sufficient conditions, proof construction); basic mathematics and logic for the analysis of natural languages (propositional and predicate calculus, set theory, axiomatic method, functions, relations, basic automata theory).

103:153 Sociolinguistics 3 s.h. Theory and methodology of sociolinguistic variation; relationship between language use and socioeconomic class, sex, ethnicity, geography. Prerequisite: 103:100.

103:163 philosophy of Language 3 s.h. Consent of instructor required. Same as 26:189.

103:170 Language and Culture 3 s.h. Prerequisites: 113:3, and 113:171 or 103:100 or consent of instructor. Same as 113:172.

103:171 Anthropological Linguistics 3 s.h. Same as 113:171.

103:172 Psychology of Language 3 s.h. Same as 3:117.

103:173 Applied linguistics 3 s.h. Theory of second language acquisition and second language teaching. Prerequisite: 103:100 equivalent.

103:175 Introduction to Semantics 3 s.h. Overview of meaning in natural language mapped onto lexical and syntactic structures (formal and logical) and set theory, description of truth conditions, compositionality, presupposition, definiteness, quantification in natural language. Prerequisite: 103:111 or equivalent.

103:176 Language Development 1-3 s.h. Prerequisite: 103:172 or 103:100 or consent of instructor. Same as 3:118.

103:177 Basic Neuro Science for Speech and Hearing 3 s.h. Same as 3:116.

103:191 structure of Mayan Languages 3 s.h. Grammatical structure; may include historical, social, cultural perspectives. Consent of instructor required. Same as 113:191.

103:199 special Projects 3 s.h. Theoretical and applied topics.

Primarily for Graduates

103:200 Practicum in Linguistics 1 s.h. Core areas of linguistic analysis (phonology, morphology, syntax, semantics) demonstrating common theoretical base of modern approaches to natural language.

103:210 Linguistic Structures 3 s.h. Grammatical and/or phonological structure of a selected language or language family. May be repeated with different language. Consent of instructor required.

103:212 Advanced Syntactic Theory 3 s.h. Recent developments in syntax; nature of linguistic data, argumentation, assumptions. May be repeated. Prerequisite 103:121.

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. Consent of instructor required. Prerequisite: 103:100 or equivalent.

103:218 Psycholinguistics 3 s.h. Prerequisite: 3:1 17 or consent of instructor. Same as 3:218.

103:230 Speeds Perception

3 s.h.

Classical, contemporary theories. Perception in auditory, visual, and other modalities. Offered fall semesters of even years. Prerequisites: background in phonetics, speech science, and hearing science; or consent of instructor. Same as 3:230.

103:231 History of the German Language

3 s.h.

Same as 3:247.

103:232 History of the Scandinavian Languages

3 s.h.

Same as 3:248.

103:251 Old Norse

3-4 s.h.

Same as 3:190.

103:252 Middle High German

3 s.h.

Same as 3:243.

103:262 Topics in Comparative Romance Linguistics

3 s.h.

Prerequisite: 3:304 or equivalent. May be repeated. Same as 20:201, 35:202.

103:275 Learning, Memory, and Cognition

3 s.h.

Same as 3:225.

103:276 Acoustics and Biomechanics of Speech

5 s.h.

Prerequisites: 3:112 and 3:219, or consent of instructor. Same as 3:250.

103:277 Physiology of Speech Production

5 s.h.

Prerequisites: 3:112 and 3:219, or consent of instructor. Same as 3:252.

103:300 seminar: Spanish linguistics

Same as 35:300.

103:312 seminar: Problems in Linguistics

3 s.h.

Intensive study of theoretical and practical problems. May be repeated.

103:320 Seminar: Psycholinguistics

2 s.h.

Consent of instructor required. Same as 3:533.

103:370 Seminar: Speech Science

2 s.h.

May be repeated. Consent of instructor required. Same as 3:532.

103:400 Master’s Thesis

arr.

103:450 Ph.D. Thesis

arr.

Special English Courses

For students whose first language is not English. Courses taken to meet the College of Liberal Arts English proficiency requirement may not be taken P/N. ESL courses may not be taken S/U.

103:1 Iowa Intensive English: Communication Skills

0 s.h.

Accounting comprehension, spoken English; American attitudes, values, and customs; information exchange, talking with Americans; cultural differences; beginning, intermediate, advanced. Consent of ESL coordinator required.

103:2 Survival English I

3 s.h.

Language skills for everyday life in the United States; common vocabulary, basic grammar in conversation and listening; for persons whose English is basic. Offered only through Saturday and Evening Class Program. Consent of ESL coordinator required.

103:3 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. Consent of ESL coordinator required.

103:4 Iowa Intensive English: Grammar

0 s.h.

Coarse structure of English grammatical structures; extensive practice to achieve competence in English communication. Beginning, intermediate, advanced. Consent of ESL coordinator required.

103:5 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. Consent of ESL coordinator required.

103:6 TA Preparation in English: Fluency Building

0 s.h.

Pronunciation, conversational fluency, knowledge of American culture. Consent of ESL coordinator required.

103:7 TA Preparation in English: pronunciation

0 s.h.

Intensive work toward maximum intelligibility; emphasis on stress, timing, intonation. Consent of ESL coordinator required.

103:8 TA Preparation in English: Presentation skills

0 s.h.

Intelligibility of speech and clarity of expression in presenting and responding, practice in videotaped lectures; student expectations and classroom management in an American university. Consent of ESL coordinator required.

103:9 TA Preparation in English: Orientation

0 s.h.

Student expectations, typical class dynamics, behavior, and rules; basic classroom management in an American university. Consent of ESL coordinator required.

103:10 Spring English I

3 s.h.

Continuation of 103:2. Offered only through Saturday and Evening Class Program. Signature of ESL coordinator required.

103:148 English as a Second Language:

Conversation Skills

3 s.h.

Speaking skills for the American academic setting and American society. Consent of ESL coordinator required.

103:185 English as a Second Language:

Pronunciation and Oral Skills

3 s.h.

Development of skills appropriate to formal speaking; diagnostic and correction of persistent pronunciation problems; correct stress, intonation, TOEFL score of 530 or consent of ESL coordinator required.

103:186 English as a Second Language:

Grammar

3 s.h.

English structure; troublesome grammar patterns. TOEFL score of 530 or consent of ESL coordinator required.

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, analysis methods used in academic writing. TOEFL score of 530 or consent of ESL coordinator required.

103:188 English as a Second Language: Listening Comprehension

3 s.h.

103:189 English as a Second Language: Reading skills

3 s.h.

Increasing reading speed and comprehension of university level writing and vocabulary; specific discussion, and note taking assignments to develop critical analysis skills. TOEFL score of 530 or consent of ESL coordinator required.

Literature, Science, and the Arts

The Interdisciplinary Program in Literature, Science, and the Arts (LSA) is designed to provide elective courses for all upper-level students. The Bachelor of Arts major in LSA offers a liberal education broader than that permitted by the requirements for a major in a single subject area; it emphasizes skills in writing, analytical thinking, and discussion while requiring coordination of courses across the disciplines of the liberal arts.

The LSA major is a general liberal arts bachelor’s degree. Students completing the major with careful selection of courses may find that it prepares them for graduate study in the professions, or in the humanities or social sciences.

LSA courses are open to juniors, seniors, and graduate students from any department or college. Sophomore students occasionally may be admitted by approval of the instructors. One course, 33:50 Making Choices: Interdisciplinary Perspectives, is open to sophomores and freshmen who have completed the rhetoric requirement.

Courses are small group-round table discussions led by two or more faculty representing different departments and disciplinary perspectives. The topics of these courses engage the special contributions of particular disciplines, while focusing on important problems of value and judgment in our times. Reading lists are chosen from outstanding works of the past and present.

Specific requirements—beyond the general education courses for the B.A. in Literature, Science, and the Arts are as follows.

LSA courses

12 s.h.

Natural social sciences

12 s.h.

Philosophy, religion, history

12 s.h.

Literature

12 s.h.

Fine arts

3 s.h.

Foreign language: one semester beyond second year

3 s.h.

(Foreign literature courses in the original language may also be used to satisfy the requirement in literature.)

Students considering an LSA major should consult with the program chair before the end of their sophomore year.

Hons

Superior students who undertake a further program of independent study may earn the Bachelor of Arts with honors. To be admitted as candidates for honors, students must have the endorsement of the chair of the Interdisciplinary Program in Literature, Science, and the Arts and meet requirements for the University Honors Program. Honors students submit an honors project to a faculty committee.

Courses

33:50 Making Choices: Interdisciplinary Perspectives

3 s.h.

Interdisciplinary consideration of what we know, value, hope, should do; focus on case studies of private, professional decision making.

33:111 Myth and Reason

2-4 s.h.

Theories of reason and rationality, presumed to govern knowledge producing disciplines, in relation to myths as stories and explanations; Western and non Western examples; readings from Sophocles, Euripides Plato, Vico Nietzsche.
33:121 The Good Society 2-4 s.h.
Life in society and the potentials of human life in society, as seen in works by authors such as Plato, Machiavelli, Shakespeare, Locke, Gibbon, Marx; recent fiction, nonfiction. GER: humanities.

33:122 The Experience of Politics 2-4 s.h.
Political experience as presented in biographical and autobiographical works.

33:125 Crimes and Punishments 2-4 s.h.
Society’s varying reactions to crime and punishment as reflected in history, literature, social, political theory.

33:131 The Family in Law and Society 24 s.h.
Family viewed from multiple perspectives; emphasis on legal and social definitions and functions, historical and cultural varieties of families, imaginative representations in literature.

33:140 Evolution Ethics 24 s.h.
Concepts, and extensions of evolution, from Darwin to present, in relation to language, philosophy, science, cultural values.

33:144 Mind and Behavior 3 s.h.
Theories of what it is to act and to know, and of what intelligence might be in animals, humans, machines in light of philosophy and psychology. Junior or senior standing or consent of instructor required.

33:145 Literature, Music, and Aesthetics 2-4 s.h.
Interdisciplinary connections between literature and music; attention to specific cultural, ideological contexts. Same as 9:145, 25:137.

33:151 Individuals and Institutions 2-4 s.h.
Relationships between individuals and institutions through outstanding works of literature, social science, and law by authors such as Plato, Sophocles, Burke, de Tocqueville, Nietzsche, Alexander Berkov.

33:152 Values in the Contemporary World 24 s.h.
Modern problems in definition and choice of values; writings of contemporary ethical theorists, novelists. Same as 32:149.

33:153 Hard Cases: Science Policy and Values 3 s.h.
Major issues in ethical conflicts through difficult case studies in fields such as science, business, politics; readings from classic authors, such as Plato, Aristotle, Kant, Mill; recent contributions from several disciplines.

33:154 Human Nature and the Impact of Science 2-4 s.h.
Relationship of scientific humanistic social, religious thought. GER: humanities.

33:155 Risk Technology and the Public 2-4 s.h.
Place and criticism of risks in society; quantitative risk assessment and public comprehension of them, roles of experts, public interests, readings from literature, policy, science, social science; case studies. Same as 91:343.

33:156 Law, Medicine, and Society 2 s.h.
Works of literature that provoke questions at the intersection of contemporary medicine, law, ethics.

33:157 Democracy and the Rule of Law 3 s.h.
Development of legal systems, with particular attention to place of law in democratic theory; readings from politics, philosophy, comparative law, and other cultural documents, representing at least two distinct geographical areas.

33:161 Form and Milieu in the Arts 2-4 s.h.
Interplay between art forms and other cultural patterns, institutions, rituals; close examination of creative and theoretical writings, specific works of music, graphic art; discussions with artists and directors of on-campus performances. GER: humanities.

33:163 Images of Business in American Literature 24 s.h.
Representations of business and the lives of people in relation to business economies by nineteenth and twentieth century writers; emphasis on ethical dilemmas, competing economic and other human values.

33:164 Roots of Modern Culture 2-4 s.h.
Study of contempary understandings of modernity in historical and cultural perspectives.

33:165 Culture and Consciousness 24 s.h.
Normal and abnormal states of consciousness in a variety of cultures, from perspectives of anthropology, philosophy, psychology; religious experience, psychotherapy, dreams, trance, altered states.

33:166 Narratives of Detection 2-4 s.h.
How fictional and scientific narratives illuminate and demonstrate by focusing on select details within established verbal structure; stones, plays, essays; scientific reports, articles, speculations.

33:172 Poetry and Song 2-4 s.h.
Survey of literature and music across several centuries; comparison of literary and musical forms, historical and cultural contexts of a work's composition and of its performance style; and evaluation; use and value of the arts.

33:188 special projects
art.

33:191 Independent Study for Honors 2-4 s.h.

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**DIVISION OF MATHEMATICAL SCIENCES**

The Division of Mathematical Sciences is composed of the Program in Applied Mathematical and Computational Sciences and the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science. For information about these programs, see the appropriate departmental sections.

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**MATHEMATICS**

Chair: Richard Randell


Professor emerita: Marilyn Zwing

Associate professors: Olivier Deftereos, Ozgur Durumeric, Charles Frohman, Michael A. Geraghty, Margaret Kleinfeld, John P. Lediav, David Manderscheid, Walter Seaman, Gerhard Strohmer, Ezio Venturino, Lihe Wang, Yangbo Ye

Assistant professors: Richard Baker, Weimin Han, Kathleen O'Hara, Tong Li, Ying-Qing Wu, Rose Zhiek

Assistant professor emerita: Matilde Macagno

Undergraduate degrees: B. A., B.S. in Mathematics; minor in Mathematics

Graduate degrees: M. S., Ph.D. in Mathematics

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.

**Undergraduate Programs**

The major in mathematics is designed around a core requirement of courses in calculus, linear algebra, and basic analysis and group theory. Other courses applicable to the major include higher-level courses in pure or applied mathematics as well as specific courses in statistics or computer science. Students are encouraged to pursue interests in the many fields in which mathematics is useful, including natural and social sciences and business.

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 industrial

and governmental positions and for college and university teaching and research.

Handbooks for majors are available in the mathematics department office. They contain useful, detailed information about schedule planning and career options.

**Bachelor of Arts**

Students seeking a B.A. in mathematics must satisfy the requirements of either program A or program B. Program A is intended for students who foresee working in industry, government, or business or who plan to pursue graduate study in mathematics. Program B is primarily for students seeking secondary school teaching licensure. Some restrictions apply in both programs.

**Program A Requirements**

22 M:25-26 Calculus 1-11 8 s.h.
or
22M:35-36 Engineering Calculus 1-11 8 s.h.
or
22M:45-46 Accelerated Calculus I-II 8 s.h.

(Advanced placement credit is accepted for all or part of the calculus requirement.)

22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus III 4 s.h.
22M:100 Introduction to Ordinary Differential Equations 3 s.h.
22M:50 Elements of Group Theory 3 s.h.
22M:55 Fundamental Properties of Spaces and Functions 3 s.h.

Higher-level courses may be substituted for the above, if approved by the Department of Mathematics.


(The computer laboratory sequence 22M:30-32 may count as one of these courses. The following course science and statistics courses also may be used to fulfill this requirement.)

22C: 16 Introduction to Programming with Pascal 4 s.h.
22C:17 Programming Techniques and Data Structures 3 s.h.
22C:21 Algorithms and Data Structures 3 s.h.
22C: 135 Introduction to Computation Theory 3 s.h.
22C:153 Design and Analysis of Algorithms I 3 s.h.
22 S:120 Probability and Statistics 4 s.h.
22 S:133 Quality Control and Engineering Statistics 3 s.h.
22S: 152 Regression and Design 3 s.h.
22S:153 Mathematical Statistics I 3 s.h.
22 S:154 Mathematical Statistics II 3 s.h.
22 S:155 Regression Analysis 3 s.h.
22S: 156 Applied Time Series Analysis 3 s.h.
22 S:164 Introduction to Discrete Probability Models 3 s.h.
22S: 167 Introduction to Stochastic Processes 3 s.h.
22S: 180 Mathematics of Finance 3 s.h.
22S: 181 Life Contingencies I 3 s.h.

Total 37-38 s.h.
Restrictions
The program must include a two-semester sequence from Group I, or any two courses chosen from one of the clusters listed in Group II.

Group I
22M:100/140 Introduction to Ordinary Differential Equations/Continuous Mathematical Models
22M:100/142 Introduction to Ordinary Differential Equations/Intermediate Differential Equations
22M:100144 Introduction to Ordinary Differential Equations/Introduction to Partial Differential Equations I
22M:115/116 Introduction to Analysis 1-11
22M:118/119 Complex Variables/Complex Theory/Foundations of Logic
22M:123/124 Foundations of Set Theory/Foundations of Logic
22M:28/160 Calculus I/Introduction to Differential Geometry I
22M:18119 Complex Variables/Complex Variables: Applications
22M:50/120 Elements of Group Theory/Abstract Algebra I
22M:70/198 Foundations of Geometry/Undergraduate Seminar
22S:153/154 Mathematical Statistics I-11
22S:155/156 Mathematical Statistics I-11

Group II
22M:27/127 Introduction to Linear Algebra/Matrix Theory
22M:123/124 Foundations of Set Theory/Foundations of Logic
22M:38/160 Calculus I/Introduction to Differential Geometry I
22M:181/19 Complex Variables/Complex Variables: Applications
22M:50/120 Elements of Group Theory/Abstract Algebra I
22M:70/198 Foundations of Geometry/Undergraduate Seminar
22S:153/154 Mathematical Statistics I-11
22S:155/156 Mathematical Statistics I-11

Program B Requirements
Program B requirements for the B.S. are the same as those for the B.A. program B, except that two additional courses in mathematics numbered 22M:107 or higher, excluding 22M:109, are required. The statistics and computer science courses listed in the program A requirements for the B.S. also may be used to fulfill this requirement.

General Education Requirements
Candidates must satisfy the College of Liberal Arts General Education Requirements and are encouraged to select GER courses that use mathematics.

Other Requirements
Additional degree requirements concerning transfer credit, grade-point average, and so forth, are discussed in the College of Liberal Arts section of the Catalog.

At least 15 semester hours of post-calculus courses applied toward the major requirements must be taken at The University of Iowa.

Double Major in the Division of Mathematical Sciences
Students wishing to combine a degree in mathematics with one in computer science, statistics, or actuarial science must satisfy the requirements of program A or program B. Both degrees must be the same-B.A. or B.S. The College of Liberal Arts requires that students seeking a mathematics double major must earn a minimum of 56 semester hours in courses taken outside the division.

Honors
Any undergraduate student with a cumulative grade-point average of 3.20 or higher may join the University Honors Program; interested students should contact the honors office in the Shambaugh House Honors Center. In order to graduate with honors in mathematics, a student must be a member of the College of Liberal Arts Honors Program, must complete the regular requirements for an undergraduate major in mathematics with a grade-point average of at least 3.40, and must complete either an honors project or suitable approved advanced course work. A student planning to do an honors project is responsible for finding a faculty member willing to supervise the project. Students typically register for 22M:197 for at least 3 semester hours. For more information, contact the mathematics department honors adviser.

Minor
The minor in mathematics requires:
A minimum of 15 semester hours credit earned in Department of Mathematics courses; at least 12 of these 15 semester hours must be taken at The University of
Graduate Programs

Master of Science

Students earn the M.S. through courses and comprehensive examinations. There is no M.S. thesis. There are four programs leading to an M.S. in mathematics. The requirements (courses and comprehensive examination areas) may be modified with the consent of the department.

Program I

This program prepares students for further study of pure and applied mathematics and for employment in government and industry. Students must take a two-semester sequence in analysis (either 22M: 115-116 or 22 M:210-211); a course in topology (22M: 132); and a two-semester sequence in abstract algebra (either 22M:120-121 or 22M:205-206). The student must take two comprehensive examinations, one on the analysis and topology sequence and the other on the algebra sequence.

The program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours in the following.

Mathematics

Any courses numbered 22M:110 or higher, or equivalent.

Computer Science

22C: 122 Advanced Computer Organization and Architecture
22C:123 Programming Language Foundations
22C: 135 Introduction to Computation Theory
22C: 145 Artificial Intelligence I

Any courses numbered 22 C:200 or higher

Statistics

22 S:153 Mathematical Statistics I
22 S:154 Mathematical Statistics II
22 S:167 Introduction to Stochastic Processes

Any courses having any of the above three courses as prerequisites

Any course numbered 22 S:200 or higher

Program II

This program is designed for secondary school teachers. The requirements are the same as those in program I or 111, except that two mathematics education courses are required. All mathematics courses numbered 22M:100 or higher may be used to satisfy the 24-semester-hour requirement. Students are encouraged to consult with mathematics education faculty when planning their courses of study.

Program III

This program focuses on applied mathematics. It requires several courses and two comprehensive examinations, one on differential equations (22M:144, 22M:142) and one on numerical analysis optimization (22M:170, 22M:171, 22M:174). The required courses are:

22M:144 Introduction to Partial Differential Equations
22M:142 Intermediate Differential Equations
22M: 140 Continuous Mathematical Models
22M:151 Discrete Mathematical Models
22M:174 Optimization Techniques
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory
22M:171 Numerical Analysis: Differential Equations and Linear Algebra

Two additional courses from the following:

22M:118 Complex Variables
22M:127 Matrix Theory
22M:140 Continuous Mathematical Models
22M:151 Discrete Mathematical Models
22M:152 Theory of Graphs
22C:116 Advanced Operating Systems
22C:153 Design and Analysis of Algorithms I
22S:153 Mathematical Statistics I
22 S:154 Mathematical Statistics II
22 S:167 Introduction to Stochastic Processes

The program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours of credit, in the Division of Mathematical Sciences. Students who have courses or experience equivalent to the required courses may request substitute electives.

Program IV

This program is designed for nondepartmental students working toward Ph.D. degrees in areas that require mathematical knowledge. The program has no 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 in mathematics if they have maintained a minimum grade-point average of 3.00 in W mathematics courses taken for the master’s in mathematics and have successfully completed the Ph.D. comprehensive examination in the chosen area.

Students in program IV are assigned a mathematics adviser, who works with them and their major adviser to plan an appropriate curriculum for the master’s in mathematics. A suitable program of study should be approved by a mathematics adviser 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.

Admissions

Admission to an M.S. program (1-111) is based on a combination of undergraduate course work and grades, letters of recommendation, and GRE General Test scores (also TOEFL scores for foreign students). The following guidelines are current although exceptions may be made. Numerical standards are reset every year or two.

Students must have completed work in an undergraduate mathematics program equivalent to the bachelor’s degree offered by the mathematics department. Students whose preparation does not meet this requirement may be admitted conditionally and are asked to take specific courses that cover the deficiency.

Students must have an undergraduate grade-point average 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 A grades.

Students must submit three letters of recommendation to support their applications.

Students must score at least 650 on the quantitative section of the GRE General Test. Applicants are encouraged to submit scores for the mathematics area examination as well—particularly students who need financial support whose credentials may show weak areas.

Foreign students are required to demonstrate their competence in English. Normally this is done by scoring at least 550 on the 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 Sciences.

A Ph.D. student in mathematics must satisfy the following requirements for course work (credits and breadth), examinations, foreign language, and the Ph.D. thesis.

At least 72 semester hours of graduate credit is required and at least three years of graduate residence, including at least one year at The University of Iowa. While there are no individual required courses, several are designated as preparatory for the Ph.D. comprehensive examination (see below). Students should give these high priority.

To further encourage mathematical breadth, students must earn at least 18 semester hours of graduate credit in regular courses equivalent to or more advanced than the Ph.D. comprehensive examination preparatory courses. The department maintains a list of 200- and 300-level courses that are accepted as well as rules to ensure proper distribution.

The Ph.D. comprehensive examination consists of three parts, each a three-hour written exam. The three areas are chosen by the student from the department’s list of comprehensive examination areas, as follows: at least two of algebra, analysis, logic, and topology; and either
one more of the preceding or partial differential equations.

For each comprehensive area, there is a two-semester, 200-level course sequence designated as preparatory, although exams may differ from course content. The three parts may be taken concurrently (all three over a two-week period) or separately (over two or three different semesters). In the first case, one grade (pass, fail, conditional pass) is given on the whole three-part examination by a committee consisting of six faculty members, two from each area. When the exams are taken separately, the following rules apply: the student receives a grade of pass or fail in each area; a passing grade from each examiner in each area is needed to receive a pass in the Ph.D. comprehensive exam; and a maximum of one failure is allowed in each area.

Candidates also take an oral final examination on their dissertation material.

Candidates 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 mathematics department graduate committee. The demonstration of language competence must take place after the student has enrolled in graduate school.

The most distinctive aspect of a Ph.D. is the thesis. The department expects this to be an original mathematical work comparable in content and writing quality to that found in standard first-rate research journals. The thesis is written under the supervision of a member of the department’s faculty 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, and Graduate Record Examination scores (also TOEFL scores for foreign students). See the information on admission for the master’s programs in this section of the Catalog. The department generally requires stronger grades and scores for doctoral admission: undergraduate or graduate grade-point average of at least 3.40, GRE General Test quantitative score of at least 700, TOEFL score of at least 575. Often new graduate students are admitted as master’s candidates even if they intend to go on for a Ph.D.

Courses

Undergraduate: Lower Division

These courses are not open to graduate students except by special arrangement with the department chair.

22M000 Cooperative Education Internship 0 s.h.
Undergraduate: Upper Division

22M:101 Introduction to Ordinary Differential Equations 3 s.h.
First order ordinary differential equations; second-order linear differential equations; higher-order linear and matrix differential equations; existence and uniqueness theorems. Prerequisites: 22M:27 and 22M:28, or consent of instructor.

22M:104 Introduction to Matrix Theory 3 s.h.
Matrices, linear transformations, determinants, Hermitian form, characteristic roots, applications. Prerequisite: graduate standing or consent of instructor.

22M:107 History of Mathematics 3 s.h.
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-Bernays), category theory, other viable foundations of mathematics; relationship between mathematics, science. Prerequisites: two semesters of calculus and 22M:27, 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, Stokes' theorem. Graduate standing or consent of instructor required. Prerequisite: one year of calculus.

22M:115 Introduction to Analysis I 3 s.h.
Sets and functions, sequences and series of real numbers; limits, metric spaces, continuous functions, connectedness, completeness, compactness. Prerequisite: 22M:55 or graduate standing or consent of instructor.

22M:116 Introduction to Analysis II 3 s.h.
Riemann integral, fundamental theorems of calculus, elementary functions, Taylor series, sequences and series of functions, uniform convergence, Picard fixed-point theorem, existence of solutions to differential equations, implicit function theorem. Prerequisite: 22M:115.

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:28 or consent of instructor.

22M:119 Complex Variables: Applications 3 s.h.
Conformal mapping and integral transforms (Fourier, Laplace, Mellin, Hankel, and related transforms); applications to ordinary, partial differential equations. Prerequisite: 22M:118 or consent of instructor.

22M:120 Abstract Algebra I 3 s.h.
Rings and linear algebra; groups with operators, endomorphism rings, polynomial rings, rings with chain conditions, unique factorization domains, similarity of matrices, determinants, canonical forms. Prerequisite: 22M:50 or consent of instructor.

22M:121 Abstract Algebra II 3 s.h.
Continuation of 22M:120, which is prerequisite.

22M:123 Foundations of Set Theory 3 s.h.
Sets theory as used in abstract mathematics; equivalent forms of axiom of choice, cardinal numbers and their arithmetic, ordinal numbers and transfinite induction. Prerequisite: 22M:50 or 22M:55 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:50 or 22M:55 or graduate standing or consent of instructor.

22M:126 Elementary Theory of Numbers 3 s.h.
Factorization, congruence, Diophantine equations, law of quadratic reciprocity. Prerequisite: 22M:50 or equivalent.

22M:127 Matrix Theory 3 s.h.
Vector spaces, linear transformations, matrices, equivalence of matrices, eigenvalues and eigenvectors, canonical similarity, orthogonal transformations, bilinear and quadratic forms. Prerequisite: 22M:27 or 22M:40 or 22M:104.

22M:130 Elementary Topology I 3 s.h.
Introduction to topology; Euclidean spaces and manifolds; emphasis on basic facts (disks, spheres, annuli, Cantor sets) in dimensions 1, 2, 3; continuous maps, homomorphisms and embedding; connectedness and path; convergence and compactness; manifolds; homotopy; contractible spaces. Brower fixed-point theorem, covering spaces. Prerequisite: 22M:55 or consent of instructor.

22M:132 General Topology 3 s.h.
Basic concepts of general topological spaces and continuous functions: topological structures defined via bases, subbases, products, quotients, spaces of functions; compactness, connectedness, countability, separation properties. Urysohn's Lemma, applications to metrication and extensions of maps; uniform products and Tychonoff theorem; complete metric spaces; nets of filters, nets of structures. Prerequisite: 22M:115 or 22M:130 or graduate standing.

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 consent of instructor.

22M:142 Intermediate Differential Equations 3 s.h.

22M:144 Introduction to Partial Differential Equations I 2-3 s.h.
Basic concepts, elementary solution methods; first-order equations; linear second-order equations of elliptic, parabolic, hyperbolic type; separation of variables, Fourier series. Prerequisite: 22M:100 or equivalent.

22M:145 Introduction to Partial Differential Equations II 3 s.h.
Explicit techniques, topics such as Fourier series and expansions, Sturm-Liouville theory, complex variable methods, Laplace transforms, approximation methods. Prerequisite: 22M:144 or consent of instructor.

22M:146 Numerical Analysis: Differential Equations II 3 s.h.
Scientific Computing 3 s.h.
Propositional calculus, Boolean algebras, introduction to axiomatic theories. Prerequisite: 22M:50 or 22M:55 or graduate standing or consent of instructor.

22M:147 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.

22M:175 Finite Difference Method for Partial Differential Equations 3 s.h.
Introduction of finite difference schemes, iteration methods, splitting methods; stability, convergence, error estimates; numerical solution of partial differential equations of elliptic, parabolic, hyperbolic, or mixed type. Prerequisite: 22M:170 and 22M:171, or consent of instructor.

22M:176 Finite Element Method for Partial Differential Equations 3 s.h.
Variational principles, finite element subspaces, h-, p-, and equivalent versions, convergence analysis; shape functions, computation of stiffness matrices and load vectors; the effect of numerical integrations, point, line, or error control, adaptivity, applications. Prerequisite: 22M:170 and 22M:171, or consent of instructor.

22M:178 Parallel and Vector Algorithms in Scientific Computing 3 s.h.
Current implementations of basic linear algebra techniques on parallel and/or vector machines with applications to numerical solution of (partial) differential equations; programming experience on Encore/Express, Alliant FX/8 machines at High Speed Computing Facility. Prerequisites: course in parallel programming and 22M:171, or consent of instructor.

22M:195 Current Issues in Mathematics Education 2-3 s.h.
Philosophy and objectives, curricular problems, review and evaluation of current literature, special methods. Consent of instructor required. Same as 7E:335, 7S:235.

22M:196 Topics in Mathematics 2-3 s.h.
Consent of instructor required.

22M:197 Individual Study and Honors in Mathematics 2-3 s.h.
Consent of advisor required.

22M:198 Undergraduate Seminar 2-3 s.h.
Senior standing, major in mathematics, and consent of instructor required.

22M:199 Readings in Mathematics 2-3 s.h.
Consent of department chair required.

Core Graduate Courses

22M:200 Introduction to Differential Topology 3 s.h.
Manifolds, functions: tangent bundles, transversality, submanifolds, tubular neighborhoods, normal bundles, vector fields, degree and intersection theory, fixed-point theory, Morse theory. Prerequisite: 22M:132 or equivalent.

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.

22M:202 Topology of Manifolds 3 s.h.
Embedding, knotting, immersion; isotopy, homotopy, regular neighborhoods, engulfing, surgery, cobordism; three-, four-, and higher dimensional manifolds. Prerequisite: 22M:200 and 22M:201, 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 consent of instructor.

22M:206 Introduction to Algebra II 3 s.h.
Continuation of 22M:205, which is prerequisite.

22M:210 Analysis I 3 s.h.
Lebesgue measure and integral, fundamental theorem of calculus, abstract measure and integration, Fubini's theorem, Radon-Nikodym theorem, Riesz representation theorem, L-p spaces. Prerequisite: 22M:116 or equivalent.

22M:211 Analysis II 3 s.h.
Abstract analysis: semigroups, groups, rings, integral domains, polynomial rings, division rings, fields, vector spaces, matrices, modules over rings, lattices, categories. Prerequisite: 22M:120 or consent of instructor.

22M:212 Analysis III 3 s.h.
Scientific Computing 3 s.h.
Lebesgue measure and integral, fundamental theorem of calculus, abstract measure and integration, Fubini's theorem, Radon-Nikodym theorem, Riesz representation theorem, L-p spaces. Prerequisite: 22M:116 or equivalent.

22M:212 Analysis III 3 s.h.
Scientific Computing 3 s.h.
Lebesgue measure and integral, fundamental theorem of calculus, abstract measure and integration, Fubini's theorem, Radon-Nikodym theorem, Riesz representation theorem, L-p spaces. Prerequisite: 22M:116 or equivalent.
Primarily for Graduates

22M:226 Algebraic Topology
3 s.h.

22M:260 Differential Geometry I
3 s.h.
Continuation of 22 M:260. Prerequisite: 22M:260 or consent of instructor.

22M:270 Abstract Numerical Analysis
3 s.h.
Abstract framework for numerical analysis of integral, differential equations; Banach, Hilbert spaces, linear, nonlinear operators; Galerkin collocation, other numerical procedures for solving linear, nonlinear equations. Prerequisites: 22M:115.6 or 22M:170.111, or consent of instructor.

22M:303 Topics in Analysis
2-3 s.h.
Measure theory, integration, general topology. Maybe repeated. Consent of instructor required.

22M:305 Topics in Topology
2-3 s.h.
May include homotopy theory, topology of 3-manifolds, 4-manifolds, or higher-dimensional manifolds, knotting and embedding problems, fiber bundles and characteristic classes. (K-thory, Poincare duality, dimension, manifolds may be repeated. Consent of instructor required.

22M:313 Functional Analysis I
3 s.h.
Locally convex topological vector spaces, duality, tensor products and nuclear spaces; Krein-Milman theorem, Choquet's theory; geometry of Banach spaces, nonlinear functional analysis, operators on Hilbert spaces, spectral theorem, algebras of operators. Prerequisites: 22M:211 or equivalent.

22M:314 Functional Analysis II
3 s.h.
Continuation of 22M:313. Prerequisite: 22M:313 or equivalent.

22M:320 Topics in Ordinary Differential Equations
2-3 s.h.
Prerequisite: 22M:213 or consent of instructor.

22M:321 Topics in Applied Mathematics
3 s.h.
Application of mathematics to other disciplines. Consent of instructor required.

22M:324 Topics in Partial Differential Equations 2-3 s.h.
Consent of instructor required.

22M:328 Topics in Logic
3 s.h.
Theory of models, recursive functions, sets, deductions. Prerequisite: 22M:231 or consent of instructor.

22M:330 Topics in Algebra
2-3 s.h.
Algebraic number theory, groups, representation rings, algebras, ideal theory, lattice theory. Prerequisite: 22M:206 or consent of instructor.

22M:335 Topics in Ring Theory
3 s.h.
Theory of commutative and noncommutative rings and their categories of modules. Prerequisite: 22M:206 or consent of instructor.

22M:340 Homological Algebra
3 s.h.
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.

22M:352 Theory of probability I
3 s.h.
Martingale theory, weak convergence of probability measures, applications to stochastic processes and statistics. Prerequisite: 22 M:204. Same as 22 M:204.

22M:360 Topics in Differential Geometry
3 s.h.
Hodge decomposition theorem for elliptic operators on vector bundles over manifolds, the heat equation in this setting; applications to global geometry and topology. May include additional topics in global Riemannian geometry, index theory. Consent of instructor required.

22M:371 Topics in Numerical Analysis
3 s.h.
Prerequisite: 22M:107.11 or consent of instructor.

22M:386 Seminar in Undergraduate Mathematics Education
Art.
Topics in teaching, learning, curriculum; philosophy, objectives, strategies, methods; use of technology, group learning, project, discovery method, multiple approaches, other current issues. May be repeated. Consent of instructor required.

22M:387 Seminar: Differential Geometry
Consent of instructor required.

22M:388 Seminar in Nonassociative Rings
Consent of instructor required.

22M:389 Seminar: Algebra
Consent of instructor required.

22M:390 Seminar: Operator Theory
Consent of instructor required.

22M:391 Seminar: Logic and Foundations of Mathematics
Consent of instructor required.

22M:392 Seminar: Topology
Consent of instructor required.

22M:393 Seminar: Mathematical Physics
Consent of instructor required.

22M:394 Seminar: Mathematical Biology
Consent of instructor required.

22M:395 Seminar: Analysis
Consent of instructor required.

22M:396 Seminar: Functional Analysis
Consent of instructor required.

22M:397 Seminar: Partial Differential Equations
Consent of instructor required.

22M:398 Seminar: Numerical Analysis
Consent of instructor required.

22M:399 Reading Research
Consent of instructor required.

Microbiology — Liberal Arts 179

Head: Michael A. Apicella
Professors: Michael A. Apicella, Robert F. Ashman (Internal Medicine), Steven Clegg, John E. Butler, John Cazin, Jr., Charles D. Cox, Lisa Daniels, Michael G. Feiss, Rudolph P. Galask (Obstetrics and Gynecology), David T. Gibson (Biocatalysis Professor), E. Peter Greenberg, Charles Gross (Pediatrics), Louis G. Hofmann, William Johnson, John D. Kemp (Pathology), David M. Lubaroff (Urology), Richard G. Lynch (Pathology), Allen J. Markovetz, Stanley Perlman (Pediatrics), Eric W. South, Donald P. Stahly, George V. Steauffer, Mark F. Stinski, C. Martin Stoltzoff
Associate professors: Gail A. Bishop (Internal Medicine), Morris O. Dailey (Pathology), Caroline S. Harwood, Jose E. Rodriguez, Mary E. Wilson (Internal Medicine)
Associate professors emeriti: Robert L. Richardson, Donald H. Walker, Jr.
than 2 semester hours of 61:161, 61:171, or 61:172, and 1 semester hour of 61:163 may be counted. Students may count 61:218 and 61:220 toward this requirement only once.

Students who want to apply for certification by the National Registry of Microbiologists are required to earn 30 semester hours of credit in biological sciences, 20 of which must be in microbiology. Certification is required for employment or advancement in some areas, primarily in diagnostic microbiology.

Students may take microbiology courses more advanced than 61:157 General Microbiology only if they receive a grade of C or above in 61:157. Mathematics and science courses required by the department for the B.S. degree must be taken for letter grades.

Microbiology Seminar (61:163) should be taken for credit only once during the senior year.

Students are encouraged to take the course for O semester hours credit during other semesters after they have taken 61:157.

Microbiology majors must take the following courses in addition to required microbiology courses.

- 4:13 Principles of Chemistry I 3 s.h.
- 4:14 Principles of Chemistry II 3 s.h.
- 4:16 Principles of Chemistry Lab I 2 s.h.
- 4:121 Organic Chemistry I 3 s.h.
- 4:122 Organic Chemistry II 3 s.h.
- 4:141 Organic Chemistry Laboratory 3 s.h.
- 99:120 Biochemistry and Molecular Biology I 4 s.h.
- 99:130 Biochemistry and Molecular Biology II 4 s.h.

22M:16 Calculus for the Biological Sciences 4 s.h.
or 22M:25 Calculus I 4 s.h.
or 22M:35 Engineering Calculus I 4 s.h.

* 2:10-11 Principles of Biology 1-II 8 s.h.
  29:11-12 College Physics 8 s.h.
*Students who completed 2:3 Principles of Animal Biology may use that class instead of 2:10-11 if they declare a microbiology major by the first day of class fall 1990.

Recommended courses include the following.

- 8W: 100 Nonfiction Writing 3 s.h.
or 8W: 112 Writing for the Sciences 3 s.h.
- 22C:7 Introduction to Computing with FORTRAN 3 s.h.
or 22C:16 Introduction to Programming with Pascal 4 s.h.
  and 22C:17 Programming Techniques and Data Structures 3 s.h.

**Honors**

The honors program is open to juniors and seniors who have a grade-point average of at least 3.20 overall and 3.20 in microbiology courses. The program requires 25 semester hours of course work in microbiology, including 6 semester hours in 61:171-172 Honors Microbiology. These two courses constitute an introduction to experimental research. At the end of the research, students present a written report. Students who successfully complete these requirements receive the B.S. degree with honors.

**Minor**

An undergraduate minor in microbiology requires at least 15 semester hours of credit in microbiology courses with a minimum grade-point average of 2.00. Of these 15 semester hours, at least 12 must be taken at The University of Iowa in courses numbered 61:103 and above.

**Graduate Programs**

The College of Medicine administers graduate programs in microbiology; graduate degrees are granted through the Graduate College. See the College of Medicine introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

The objectives of the graduate programs in microbiology are to help students become highly qualified in research and in teaching of microbiology.

Five areas are included in the program: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, and animal virology. Several of these specialized areas involve interdisciplinary training both within and outside of the department, so students receive broad experience during their course of study. An interdisciplinary Ph.D. program in Immunology is also available.

Students working for the Ph.D. may obtain an M.S. during their graduate work or proceed directly toward the Ph.D.

All students admitted as candidates for advanced degrees are expected to assist in departmental teaching.

Incoming students choose a research supervisor who serves as chair of their advisory committee. This committee assists students in planning a program of study and, from time to time, reviews students' progress.

The department cooperates with other departments in the various colleges on campus, affording ample opportunity for students to avail themselves of diverse course offerings, seminars, and research programs. For example, courses and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, biocatalysis/biotechnology, and electron microscopy are taught on an interdepartmental basis.

**Master of Science**

Candidates for the M.S. are required to take a minimum of 12 semester hours of microbiology courses in three of the five different subdiscipline available in microbiology. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the M.S. committee. Additional course requirements or selections 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.

**Doctor of Philosophy**

The minimum course requirements for the Ph.D. are one course in each of four subdiscipline (of the five subdiscipline available in microbiology) or 15 semester hours of course work in two different areas. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the Ph.D. committee. Students also must pass a comprehensive examination and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

**Admission**

Prospective graduate students should become familiar with the general admission requirements of the Graduate College. Departmental requirements include a review and formal vote by the faculty before students are admitted. Before beginning graduate work, students must have completed courses in biological sciences, chemistry (inorganic and organic), mathematics including calculus, and physics. Students admitted without the above course work must take it during the first year of graduate school. Students should have at least a 2.70 grade-point average to be admitted to the graduate program in microbiology. Preference is given to students applying for the Ph.D. program.

**Facilities**

The department shares the Bowen Science Building with the Departments of Anatomy, Biochemistry, Pharmacology, and Physiology and Biophysics. Laboratory space and modern equipment are available for teaching and research.

**Courses**

61:000 Cooperative Education Internship 0 s.h.

61:103 Medical Microbiology

Prerequisites: Methods essential to study of microorganisms, their isolation and identification; microorganisms involved in infectious diseases; current concepts of immunology. Open only to College of Medicine students or to others with consent of course director.

61:112 Health sciences Microbiology 4 s.h.

Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Open only to dental, physician assistant, and pharmacy students.

61:147 Survey of Immunology 4 s.h.

Fundamentals of cellular and molecular immunology, their application to clinical problems; participation by faculty from microbiology, internal medicine, pathology, urology. Prerequisite: 61:157 with a grade of C or higher or an introduction course in biochemistry. Same as 78:251.

61:157 General Microbiology 5 s.h.

Principles of microbial diversity, microbial genetics, physiology and metabolism, pathogenic microbiology, virology, immunology, industrial and environmental microbiology.

61:201 Introduction to Programming 3 s.h.

Prerequisite: 2:10 or 2:11. Corequisite: 4:121.
61:159 Pathogenic Bacteriology 5 s.h.
Pathogenic bacteria, with emphasis on mechanisms of pathogenicity. Laboratory methods for isolation, identification, and characterization of pathogenic bacteria. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:160 Microbial Physiology 3 s.h.
Microbial cell structure and function, growth, energy metabolism, biosynthesis, laboratory supplement in 61:180. Prerequisites: 61:157 with a grade of C or higher and a Stoichiometry course.

61:161 Problems in Microbiology 4 s.h.
Research under faculty supervision. Undergraduate major and consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:163 Seminar: Microbiology 1 s.h.
Current topics in microbiology. Consent of instructor. Prerequisite: 61:157 with a grade of C or higher.

61:164 Microbiology 4 s.h.
Emphasis on medical microbiology, principles of immunology. Sophomore pre nursing standing or consent of instructor required.

61:165 Clinical Laboratory Microbiology 3 s.h.
Fundamentals, practical training in isolating, identifying bacteria and fungi from clinical materials. Consent of instructor required. Prerequisite: 61:159.

61:166 Clinical Laboratory Virology 3 s.h.
Fundamentals, practical training in viral isolation, laboratory diagnosis of viral infections. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:167 Advanced Immunology 3 s.h.
Integration of concepts in cellular and molecular immunology, with emphasis on the molecular mechanisms of viral, bacterial, fungal and parasitic infections. Consent of instructor required. Prerequisites: 61:157 with a grade of C or higher.

61:168 Introduction to Animal Viruses 4 s.h.
Laboratory and lecture course designed for undergraduate students majoring in a biological science. Basic physical chemical, biological properties of animal viruses, their association with human disease; laboratory emphasis on methods in basic animal laboratory virology. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:169 Medical Mycology 4 s.h.
Same as 2:137.

61:170 Microbial Genetics 3 s.h.
Genetics of bacteria, bacteriophages, laboratory supplement in 61:175. Prerequisites: 61:157 with a grade of C or higher or consent of instructor.

61:171 Honors Microbiology 3 s.h.
Experimentation research. Junior or senior standing and 3.20 grade point average or above required.

61:172 Honors Microbiology 3 s.h.
Prerequisite: 61:171.

61:175 Microbial Genetics Laboratory 2 s.h.

61:179 Bacterial Diversity 4 s.h.
Isolation, cultivation of bacteria from a variety of habitats; physiological, genetic characteristics of bacterial groups. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:180 Microbial Physiology Laboratory 2 s.h.
Techniques for isolation and growth of microorganisms and study of nutrient transport and metabolism. Laboratory supplement. Consent of instructor required. Prerequisite: 61:160.

61:207 Advanced Topical in Immunology 2 s.h.
Literature review. Consent of instructor required. Prerequisites: 61:147 or equivalent.

61:215 Genetics Seminar 0-2 s.h.

61:217 Immunology Research Seminar 1 s.h.
Current concepts of immunology.

61:218 Electron Microscopy Techniques 3 s.h.
Methods of tissue preparation for transmission; scanning electron microscopy; fixation, embedding, ultra thin sectioning and imaging. Consent of instructor required. Prerequisite: one course in a biological science and permission of instructor.

61:220 Advanced Electron Microscopy 3 s.h.
Individually designed projects, library searches, seminar and workshop participation. Consent of instructor required. Prerequisite: completion of introductory EM course. Same as 2:220.

61:250 Molecular Biology of Bacterial Pathogens 2 s.h.
Molecular mechanisms of virulence factors, including genetic regulation, genetic basis of bacterial disease production, control of virulence gene expression. Consent of instructor required. Prerequisite: 61:170 or 142:210 or a bacterial genetics course.

61:261 Research: Microbiology 1 s.h.
Open only to advanced degree candidates in microbiology. Consent of instructor required.

61:263 Graduate Student Research Seminar 1 s.h.
Presentation of thesis work in progress. Open only to microbiology graduate students.

61:2X3 Molecular Biology of Animal Viruses 3 s.h.
Molecular biology of animal DNA and RNA viruses, interaction of these viruses with eukaryotic cells; mechanisms of viral latency, persistence, cellular transformation, oncogenesis. Major emphasis on the biological science required. Prerequisite: 61:170 or equivalent, or a course in biochemistry.

61:275 Perspectives in Biocatalysis 1 s.h.

**Military Science (Army ROTC)**

**Head:** Lt. Col. David E. Malott  
**Professor:** Lt. Col. David E. Malott  
**Assistant professor:** Maj. Kevin J. Finkenegg  
**Instructor:** Capt. Joseph R. Sullivan  

The Military Science Department is a nondegree-granting academic department that administers the Army ROTC program. The department provides students with education in the role of the military and instruction in personnel leadership, while providing those students who desire to serve in the armed forces, on an active or reserve status, an opportunity to earn a commission as an Army officer.

The department also administers financial assistance and merit scholarships from the U.S. government to qualified students.

Courses are open to all students. Course credit that may be applied toward graduation varies.

In the College of Liberal Arts, up to 20 semester hours may be applied toward graduation.

### Undergraduate Program

**BASIC COURSE**

The ROTC basic course is designed primarily for freshmen and sophomores. It provides the fundamentals of leadership and management and introduces the roles of the military as affected 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.

23:91 The Profession of Arms 1 s.h.
23:92 The Military in a Modern Society 1 s.h.
23:93 Military Survival Skills 2 s.h.
23:94 Principles of Modern Warfare 2 s.h.

The basic course requirements may be taken over a one-year period or during a six-week paid camp during the summer. Students with prior military training may be exempt from the basic course requirements.

### ADVANCED COURSE

The ROTC advanced course, though open to any student who meets the prerequisites, is designed primarily for students 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 students in the advanced course incur an obligation with the military that can be satisfied in the Active Army, Army Reserve, or Army National Guard.

A grant of $100 per month is provided to students who agree to serve in the armed forces. Additional financial assistance may be provided through participation in training with an Army Reserve or National Guard unit.

To enter the advanced course, students must satisfy the basic course requirements, be academic juniors, and have a grade-point average of at least 2.00. A six-week paid camp, normally completed the summer before the senior year, is required for all students wishing to become Army officers. The following courses are the academic requirements for completion of the advanced course.

23:95 Advanced Military Fitness Training (corequisite: 23:1 17) 1 s.h.
23:116 Challenges of Leadership 3 s.h.
23:117 Small Unit Tactics 3 s.h.
23:118 Military Management 3 s.h.
23:119 Introduction to American Politics 3 s.h.
23:120 Introduction to Ethics 3 s.h.
23:121 Elementary Psychology 3 s.h.
31:1 Elementary Psychology 3 s.h.
31:2 Religion and Society 3 s.h.
34:1 Introduction to Sociology: Principles 3 s.h.
45:1 American Values . 3 s.h.
113:3 Introduction to the Study of Culture and Society 4 s.h.
113:10 Anthropology and Contemporary World Problems 3 s.h.

**Math Reasoning**

7P:25 Elementary Statistics and Inference 3 s.h.
22M:1 Basic Algebra I (no degree credit) 3 s.h.
22M:2 Basic Algebra II (no degree credit) 3 s.h.
22M:3 Basic Geometry (no degree credit) 3 s.h.
22M:10 Finite Mathematics 4 s.h.
22M:11 Introduction to Calculus with Applications 4 s.h.
22M:17 Quantitative Methods I 4 s.h.
22M:25 Calculus I 4 s.h.
22S:2 Statistics and Society 3 s.h.
22S:8 Quantitative Methods II 4 s.h.
26:36 Principles of Reasoning 3 s.h.
36C:40 Theory and Practice of Argument 4 s.h.
103:13 Language and Formal Reasoning 3 s.h.

Military History
16:11 Issues in Human History: The Vietnam War in Historical Perspective 3 s.h.
16:14 Issues in Human History: European Conquest and Colonization, 1000-1800 3 s.h.
16:16 Issues in Human History: The Cold War 3 s.h.
16:143 War and Society 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 United States 1940-Present 3 s.h.
16W:182 The Vietnam War in Historical Perspective 3 s.h.

Computer Literacy
6K:70 Computer Analysis 3 s.h.
7W:92 Introduction to Microcomputing for Teachers 1 s.h.
22C:1 Survey of Computing 3 s.h.
22C:3 Problem Solving and Computing 3 s.h.
22C:7 Introduction to Computing with FORTRAN 3 s.h.
22C:9 Programming with COBOL 3 s.h.
22C:16 Introduction to Programming with Pascal 4 s.h.
57:5 Engineering I 3 s.h.
96:90 Professional Nursing: An Overview 3 s.h.

Financial Aid
The Military Science Department offers two-, three-, and four-year merit scholarships for students who wish to enter the ROTC program. These scholarships provide payment of tuition at The University of Iowa, $450 for books and supplies each year, all mandatory fees, and a tax-free subsistence allowance of $100 per month during the academic year. Scholarships also are available for nursing students who wish to become Army nurses. Additional financial assistance may be provided through participation in training with an Army Reserve or National Guard unit.

Courses
23:90 Leadership Laboratory 0 s.h.
Military skills and application of leadership; focus on improving cadets’ abilities to perform as officers.
23:91 The Profession of Arms 1 s.h.
Offered in the military as a profession; organization of the military basic customs, traditions; officer branches of the Army. Offered fall and spring semesters.
23:92 The Military in a Modern Society 1 s.h.
The military and how its global involvement affects foreign policy; NATO and U.N. organizations; role of strategic balance in ensuring national security; fundamental leadership principles. Offered spring semesters.
23:93 Military Survival Skills 2 s.h.
Practical fieldcraft skills including land navigation, basic survival techniques, first aid, communication procedures. Offered fall and spring semesters.
23:94 Principles of Modern Warfare 2 s.h.
Practices of modern warfare and peacekeeping; current issues affecting military operations worldwide, the role of the military, and principles of warfare; leadership assessment and examination of leadership characteristics. Offered spring semesters. Prerequisite: 23:93 or consent of instructor.
23:95 Advanced Military Fitness Training 1 s.h.
Aerobics and running muscular strength and endurance, flexibility, balance, and coordination; exercise and classroom instruction; developed around Army physical fitness training program. Offered fall and spring semesters.
23:116 Challenges of Leadership 3 s.h.
Organizational leadership; emphasis on measuring performance, motivation, delegation of authority, and responsibility; decision in professional ethics, counseling techniques. Offered fall semesters. Consent of instructor required. Prerequisite: completion of basic course requirement.
23:117 Small Unit Tactics 3 s.h.
Detailed fundamentals of military planning and preparation of military operations, orders, and tactics; instruction in land navigation, drill and ceremonies, radio communications, and physical training; includes field exercises during weekends. Offered spring semesters. Prerequisite: 23:116 or consent of instructor.
23:118 Military Management 3 s.h.
Leadership and management in large organizations; analysis of military personnel, logistics, and training systems; military justice system. Offered fall semesters. Prerequisite: 23:117 or consent of instructor.
23:119 Service Orientation 3 s.h.
Culminating course that integrates all previous leadership instruction in preparation for role as Army officer; logistics, personnel administration, training, and professional development. Offered spring semesters. Prerequisite: 23:118 or consent of instructor.
23:121 Readings in Contemporary Military Issues 3-3 s.h.
Independent study to meet specific program requirements; topics based on student’s needs; semester hours based on research required. May be repeated. Consent of instructor required.

Molecular Biology
Graduate degree: Ph.D. in Molecular Biology

The Molecular Biology Ph.D. Program is an interdepartmental program involving members of the Departments of Biochemistry, Biological Sciences, Internal Medicine, Microbiology, Pathology, Pediatrics, Pharmacology, and Physiology and Biophysics. See “Molecular Biology” in the College of Medicine section of the Catalog for a list of participating faculty members, degree requirements, and courses.

Museum Studies

Museum Facilities
The museum studies program is centrally located on The University of Iowa campus and has access to several excellent museum facilities. The Museum of Natural History in MacBride Hall was founded in 1858 and 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 Museum of Natural History shares its collections, galleries, and exhibit production facilities with the museum studies program. Students can gain first-hand experience through participation in its programs.

The University of Iowa Museum of Art houses significant collections of more than 7,000 works, including the Stanley Collection of African art, the Mauricio Lasansky print collection, and the Elliott Collection of...
pre-Columbian and nineteenth- and twenty-first-century art. The historic building that was Iowa's first territorial and state capitol from 1842 to 1857 has become the Old Capitol Museum. The University Hospitals and Clinics houses the Medical Museum, with artifacts and displays on the history of medicine. Not only are these resources important to the museum student, they enrich campus life by providing added dimension to the learning experience.

Courses

24:000 Cooperative Education Internship 0 s.h.
24:102 Introduction to Museology 3 s.h.
History, philosophy, organization programs of various kinds of museums and related cultural institutions, emphasis on American museums. GER: Humanities. Same as 28: 102, 97: 115, 113: 103, 7c:12.
24:104 Principles of Exhibit Design 2 s.h.
Conceptual design and execution of museum exhibits and galleries, including planning and drafting; uses of space, objects, composition, color, graphics, lighting, typography; evaluation strategies. Prerequisite: 24: 102 or consent of instructor.
24:106 Museum Laboratory Methods 2 s.h.
Techniques used in preparation of classroom teaching materials and museum exhibit accessories; instruction in various casting molds and making and modeling procedures used in replication or presentation of artifacts or historical, geological, or biological materials. May be repeated.
24:113 Introduction to Conservation of Museums Objects 2 s.h.
Theory and methods of museum conservation of collections, handling exhibition, conservation, preservation, emphasis on composition of museum objects and how objects react with their environment and storage environment.
24:120 Collection Care and Management 2 s.h.
Relationship of a museum's management policy to its administrative, legal, and ethical obligation to its collections; acquisitions, deaccessions, collection size, data standards, storage environment, health, safety, documentation. Same as 12:120.
24:146 Description and Organization of Material 3 s.h.
Same as 21:152.
24:150 Directed Studies and Projects 3 s.h.
Advanced readings in relevant development, educational philosophy, programs, and operations of museums; directed study individual projects coordinated with programs, exhibits, or collections of campus and area museums. May be repeated. Prerequisites: 24:102 and 24:104.
24:151 Directed Studies and Projects 3 s.h.
Continuation of 24:150, but may be taken as independent unit. May be repeated. Prerequisites: 24:102 and 24:104.
24:180 Museum Internship 3 s.h.
Practical working experience designed to introduce the intern to the functions, departments, programs of sponsoring museums and to relate the experience to the museum's overall mission and to the museum field in general. Consent of museum studies faculty and sponsoring museum required.

Music

Director: David Nelson
Associate directors: Don Coffman, Delbert Disselhorst, John Hill
Adjunct professor: Roger Mather

Associate professors: Elizabeth Aubrey, Richard J. Bloesch, Thomas Christensen, Katherine Eberle, Michael Eckert, Diana Gannett, David K. Gompper, Don R. Haines, George Krem, Scott McCoy, Maurit Murphy Mead, Kenneth Phillips, John Rapson, Kristin Thelander, Carol Thomas, Uriel Teacher, Robert Yeats
Assistant professors: Don Colman, David Henning, Rene Lecuona, Daniel Shapiro, Mark Weiger
Assistant professor: Darlene Lawrence
Adjunct instructor: Barbara Dean

Graduate degrees: B.A. in Music; B. M.; minor in Music
A primary degree in a fine arts community of international repute, The University of Iowa School of Music 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 500 students majoring in music 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. Faculty ensembles in residence include the Stradivari String Quartet, the Iowa Woodwind Quintet, and the Iowa Brass Quintet. 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 non-majors, the opportunity for further study of music. The graduate curricula are designed primarily as preparation for teaching in secondary schools, colleges, and universities and for careers in performance.

The school is a charter member of the National Association of Schools of Music.

Undergraduate Programs

The school offers Bachelor of Arts and Bachelor of Music degrees. Candidates for the B.M. degree may count more than 50 semester hours of course work in music toward the 124 semester hours required for graduation; candidates for the B.A. may not. Areas of concentration for the B.M. degree are composition, jazz studies, music therapy, and performance. B.A. program concentrations are composition, music history, and performance. Teacher licensure may be earned in music education (B.A. or B.M.) and music therapy (B.M.) programs.

All undergraduate enrollments require School of Music approval. Entering freshmen and transfer students who plan to major in music are expected to audition either in person or by tape recording in advance of registration. Students seeking admission to the composition program should submit examples of creative work. Transfer students must consult with a representative from the theory area to determine their level of competence in that area.

Bachelor of Music

GENERAL COURSE REQUIREMENTS

All baccalaureate candidates in music must satisfy the College of Liberal Arts General Education Requirements, except that B.M. candidates may waive the historical perspectives requirement. The following School of Music course requirements also must be met.

25:5 Fundamentals of Music for Majors, or the successful completion of the undergraduate theory examination 3 s.h.
25:15 Musicianship and Theory I-V 16 s.h.
25:71-72 Group Instruction in Piano I-II or the successful completion of proficiency exams I and II 2 s.h.

(Registration in Group Instruction in Piano I-11 is corequisite with 25:2-3 Musicianship and Theory I and II, unless exempted by proficiency exam, which students must take while enrolled in 25:1-2. Transfer students should complete this requirement in their first year of residence, unless exempted by proficiency exam.)

25:74 Recital Attendance 7 s.h.

(Seven semesters are required for all candidates for the B.M. degree, 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.)

25:107 Techniques of Conducting 2 s.h.
25:144 History of Music I 3 s.h.
25:146 History of Music II 3 s.h.
25:154 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” in this section of the Catalog. Music therapy students may complete either a senior recital or a senior research project. Composition and music history majors substitute 25:99 Bachelor's Thesis for the senior recital.)

At least four semester hours of electives from the following. (The combination of courses 25:145 and 25:147 or more than one course chosen from 25:101, 25:102, 25:243, and 25:244 does not fulfill this requirement.)

25:117 Arranging for Band 2 s.h.
25:18 Jazz Composition and Arranging I 2 s.h.
25:155 Composition 2 s.h.
25:145 Counterpoint before 1600 3 s.h.
or 25:147 Counterpoint after 1600 3 s.h.
25:148 Analysis of Music Literature 1600-1750 3 s.h.
25:149 Analysis of Music Literature 1750-1825 3 s.h.
25:150 Analysis of Music Literature 1825-1900 3 s.h.
25:151 Analysis of Music Literature 1890-Present 3 s.h.
25:152 Analysis of Music Literature Special Topics 3 s.h.
25:153 Keyboard Harmony 2 s.h.
25:157 Orchestration 2 s.h.
25:212 Gregorian Chant 3 s.h.
25:101 Jazz Improvisation I 2 s.h.
or
25:102 Jazz Improvisation II 2 s.h.
or
25:243 Jazz Improvisation 111 2 s.h.
or
25:244 Jazz Improvisation IV 2 s.h.

APPLIED MUSIC
Four years of applied music are required. Instruction is separated into two levels, lower and upper. Students must achieve upper-level status before they can give the senior recital. Determination of readiness for upper-level applied music is determined in the student’s areas of instruction. Students are allowed a maximum of 6 semesters (not including summer) in the lower level applied instruction. Those who want to continue lessons beyond the maximum allowable lower-level registration must do so under the nonmajor category.

ENSEMBLE PARTICIPATION
Students also must participate in a major ensemble each semester of residence. Those enrolled in summer session must be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher and ensemble director. String majors participate in University Orchestra and/or Chamber Orchestra. Wind and percussion majors participate in the Symphony Band/Concert Band/University Band. Keyboard majors may substitute accompanying for major ensemble participation for two semesters during their junior and or senior years, with the consent of their advisers. Composition and music history majors may, with their adviser’s permission, substitute other ensembles.

Any requests for adjustment of this requirement should be submitted in writing to a review committee consisting of the ensemble directors involved, the adviser, the major teacher, and a representative from the director’s office. The committee meets regularly at the end of each early registration period.

Major ensembles are:
25: 142 Camerata Singers 0-1 s.h.
25: 181 University Choir 0-1 s.h.
25: 194 Symphony Band/Concert Band/University Band 0-1 s.h.
25: 191 University Chorale 0-1 s.h.
25: 185 Kantorei 0-1 s.h.
25: 192 Orchestra 0-1 s.h.

ELECTIVES
Students may take advanced electives in performance (including chamber music and piano accompanying), theory, composition, music education, music history, music literature, orchestration, and conducting.

Performance Major
Performance majors are available in each of the orchestral areas—strings, brass, woodwinds, and percussion—and in voice and keyboard. Students must take at least 17 additional semester hours beyond the School of Music general course requirements, to be chosen from a list of electives unique to each performance major area. Course listings for each of the respective areas are available from the music office.

Jazz Studies Emphasis
Students are admitted to this program only by audition, which occurs after they complete the freshman year. When admitted, they are assigned a jazz studies adviser in addition to their regular faculty adviser.

Senior recital and recital attendance requirements are the same as those for the B.M. degree. Course requirements are the same as those for the B.M. degree plus an additional 27 semester hours of jazz courses for performance majors, or an additional 17 semester hours for those in the music education certification program. Students in the jazz studies emphasis program must attend a weekly jazz seminar.

Music Therapy
Admission to the program in music therapy is based on successful completion (grade of C+ or better) of 25:114 Orientation to Music Therapy. In addition to the core courses in music therapy listed below, specific courses are required in biological sciences, sociology, abnormal psychology, social psychology, and music.

A six-month internship in an approved off-campus clinical facility is required before the completion of the degree. Following successful completion of the internship, students may apply for registration with the National Association for Music Therapy and are qualified to sit for the board certification examination. To increase their job opportunities in the education sector, students are encouraged to complete music therapy licensure requirements. Complete information on the program is available in the music education office.

Course requirements for the major in music therapy are as follows.
7E: 144 Psychology of Music 2 s.h.
7E: 149 Behavioral Research in Music 2 s.h.
25:74 Recital Attendance (4 semesters required) 4 s.h.
25:94 Music Therapy Practicum (three semesters, for 1, 2, and 2 semester hours, respectively) 5 s.h.
25:96 Music Techniques in Special Education and Recreation 3 s.h.
25:114 Orientation to Music Therapy 2 s.h.
25:138 Music Therapy Techniques: Atypical Children 3 s.h.
25:139 Music Therapy Techniques: Adult Clients 3 s.h.
25:140 Internship in Music Therapy 2 s.h.
25:94 Music Therapy Practicum (senior research project) 1 s.h.
or
25: 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 semester hours of ensemble participation. Those who elect the senior research project option must take three years of applied music and 6 semester hours of ensemble.

Composition Major
Applicants should submit examples of creative work for evaluation by the composition faculty. Upon admission to the program, students are assigned a faculty adviser. Accomplished students may gain admission as entering freshmen; in such cases the approval of submitted work waives the necessity of a performance audition. If the composition faculty advises postponement of admission until further study has been undertaken, the entering freshman or transfer student must audition to be admitted to the school.

Students fulfill the general requirements of the Bachelor of Music degree as stated earlier in this section of the Catalog. Beyond these requirements, composition majors must complete additional course work in composition, music theory, and electives. An appropriate plan of study is designed by students in consultation with their advisers.

The Bachelor’s Thesis (25:99) replaces the recital required of applied music majors. It consists of one or more compositions, approved by a committee of three faculty members and performed on regularly scheduled School of Music recitals.

Bachelor of Arts
The B.A., with its 50 semester hours of allowable music credit, is offered for all performance majors listed under the B.M. degree as well as music history and composition. The B.A. is not available in the music therapy or jazz emphasis programs. Students may earn teacher licensure if they complete the curriculum listed for the appropriate licensure program (e.g., strings; brass, woodwind, and percussion; vocal and keyboard; see “Teacher Licensure (Music Specialist).”)

Specific course requirements vary for each of the available majors under the B.A. degree, although all College of Liberal Arts General Education Requirements must be met for each. Students should check with their advisers, the area head, or the music office for specific program requirements.

Teacher Licensure (Music Specialist)
Areas of concentration in music education are instrumental music or vocal music. In addition to the B.A. or B.M. requirements in music and liberal arts, licensure to teach music in Iowa schools requires satisfactory completion of specific requirements in the area of concentration. Requirements in the instrumental and vocal areas are listed below. The general requirements are listed under “Curriculum and Instruction” in the College of Education section of the Catalog.

STRING MAJORS
Instruction in performance (violin and viola majors take one year of 25:23 Cello, cello and bass majors take one year of 25:21 Violin) 2 s.h.
25:100 Class Strings (violinists take viola and bass; violists take violin and bass; cellists take viola and bass; bassists take viola and cello) 2 s.h.
7E: 144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
Vocal and keyboard majors preparing for music teacher licensure must pass the proficiency examinations of 25:71-72 Group Instruction in Piano I-II.

BRASS, WOODWIND, AND PERCUSSION MAJORS

Brass, woodwind, and percussion majors in music education participate in a concert band each semester and in marching band for two fall semesters during the first two years in residence at the University. Exceptions to this policy must be approved by the music education adviser and the director of bands.

The following courses are required.

7E: 144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
7E: 192 Special Area Student Teaching Vocal Music 6 s.h.
7S: 96 Introduction and Practicum: Piano 2 s.h.
7S: 138 Practicum: Band Instrument Care and Repair 1 s.h.
7S: 140 Band Methods and Materials 3 s.h.
7S: 143 Instrumental Techniques 8 s.h.
7S: 145/25:108 Instrumental Conducting 2 s.h.
7S: 187 Seminar: Curriculum and Student Teaching 1 s.h.
7S: 191 Observation and Laboratory Practice in the Secondary School 6 s.h.
25: 182 Marching Band Techniques 1 s.h.
25: 196 Jazz Band Techniques 1 s.h.

Students preparing for music teacher licensure must pass the proficiency examinations of 25:71-72 Group Instruction in Piano I-II.

VOCAL AND KEYBOARD MAJORS

Vocal performance majors should consult the music office for recommendations.

7E: 145 Methods and Materials: Elementary School General Music 3 s.h.
7E: 192 Special Area Student Teaching Vocal Music 6 s.h.
7S: 96 Introduction and Practicum: Music 2 s.h.
7S: 139 Child and Adolescent Voice Production 2 s.h.
7S: 142 Methods and Materials: Secondary School General Music 3 s.h.
7S: 147 Choral Methods 3 s.h.
7S: 148 Choral Conducting and Literature 3 s.h.
7S: 187 Seminar: Curriculum and Student Teaching 1 s.h.
7S: 191 Observation and Laboratory Practice in the Secondary School Vocal and Choral Music 6 s.h.
25: 115-116 Diction for Singers I-II 4 s.h.

Vocal and keyboard majors preparing for music teacher licensure must pass the proficiency examination of 25:71-72 Group Instruction in Piano I-II. In addition, keyboard majors should register for 25: 17 Secondary Performance-Voice for two semesters. Vocal majors should register for 25: 18 Secondary Performance-Piano for two semesters.

KEYBOARD MAJORS (NONVOCAL)

Keyboard majors who elect to teach in the nonvocal area must complete the requirements in either the brass-woodwind-percussion or string areas and pass the proficiency examination of 25:71-72 Group Instruction in Piano I-II.

Honors

Freshman and sophomore music majors with an interest in scholarship and a grade-point average of at least 3.20 are invited to become members of the College of Liberal Arts Honors Program (see College of Liberal Arts introductory section of the Catalog). They also may take part in the honors program of the School of Music. Some entering freshmen are invited to join on the basis of their high school record and ACT scores.

Throughout undergraduate residence, honors music students may take advantage of enrollment in honors sections of courses in the school and in the college, and may seek honors designation for any course with consent of the instructor.

Honors students with junior or senior standing may undertake work leading to the bachelor’s degree (B.M. or B.A.) with honors. Graduation “with honors” is awarded after completion of 6-8 semester hours of honors work; a minimum of 3 semester hours of such work must be in 25:97 Honors in Music. Honors projects for which credit is given in 25:97 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., 24:154 Senior Recital).

Honors students in music are encouraged to take graduate-level courses. Advanced course work in music history, music theory, and languages is particularly recommended. An honors committee appointed by the honors adviser and the student’s faculty sponsor evaluates the student’s work.

Consult the music honors adviser for more information.

Minor

Students may minor in music by completing 15 semester hours in the School of Music, 12 of which must be in advanced courses. A complete list of advanced courses is available at the music office.

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

Students may work toward a Master of Arts, Master of Fine Arts, Doctor of Philosophy, or Doctor of Musical Arts. The school also offers a theory pedagogy minor.

Before applicants can be considered for admission to any of the graduate programs, they must submit supporting materials in their indicated area of concentration. Information about specific admission and curricular requirements for each area is available from the academic office of the School of Music.

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. These examinations are given at the beginning of fall and spring semesters and summer sessions on the two days (except Sunday) immediately preceding the opening of classes. A leaflet describing the general content of these tests is available from the School of Music office. General graduate admission, degree, and examination requirements are stated in the Graduate College section of the Catalog.

Students whose scores on the music theory advisory examination indicate deficiencies in music theory must pass 25: 11 Review Theory (offered fall and summer) by the end of their first year of graduate study. Students who are unable to meet this requirement must retake and pass 25: 11 before registering for any other graduate course in music theory. (Review Theory is not accepted for graduate credits.)

Master of Arts

The Master of Arts is offered in performance including conducting, and in composition, music theory, musicology, and music education. Performance majors present a public recital in lieu of a written thesis. The Master of Arts without thesis is offered in music education. Both thesis/recital and nonthesis degrees require a minimum of 30-33 postbaccalaureate semester hours. All M.A. programs must include the following requirements.

25:321 Introduction to Graduate Study in Music 2 s.h.
25:410 Introduction to Contemporary Analysis and Theory 3 s.h.

One elective chosen from the following:

25:145 Counterpoint before 1600 3 s.h.
25:147 Counterpoint after 1600 3 s.h.
25:148 Analysis of Music Literature 1600-1750 3 s.h.
25:149 Analysis of Music Literature 1750-1825 3 s.h.
25:150 Analysis of Music Literature 1825-1900 3 s.h.
25:151 Analysis of Music Literature 1890-present 3 s.h.
25:152 Analysis of Music Literature Special Topics 3 s.h.
25:212 Gregorian Chant 3 s.h.
25:241 History of Music Theory I 2 s.h.
25:242 History of Music Theory II 2 s.h.
Six semester hours of music history:

25:301 Advanced History and Literature of Music I 3 s.h.
25:302 Advanced History and Literature of Music II 3 s.h.

If excused from 25:301 and/or 25:302 as a result of the advisory examination in music history, students elect another course from the music history sequence, and may elect other musicology courses.

25:303 Medieval Music 3 s.h.
25:304 Renaissance Music 3 s.h.
25:305 Seventeenth-Century Music 3 s.h.
25:306 Eighteenth-Century Music 3 s.h.
25:307 Nineteenth-Century Music 3 s.h.
25:308 Twentieth-Century Music 3 s.h.
25:309 American music 3 s.h.
25:311 Major Composers 3 s.h.
25:312 Genres of Music 3 s.h.
25:319 Historical Musical Notations I 3 s.h.
25:320 Historical Musical Notations II 3 s.h.
25:321 Seminar in Musicology 3 s.h.
25:331 Performance Practices I: Medieval and Renaissance Music 3 s.h.
25:332 Performance Practices II: Seventeenth- and Eighteenth Century Music 3 s.h.

ENSEMBLE PARTICIPATION

Students participate in a major ensemble each semester of residence (see list of major ensembles in this section of the Catalog). During the summer session, students must be available for ensemble participation as needed. Ensemble assignments are made by the major teacher and the ensemble director. Keyboard majors may substitute accompaniment for participation in a major ensemble, at their adviser’s discretion. Theory, composition, musicology, and music education majors may, with their adviser’s permission, substitute other ensembles. Requests for adjustment of this requirement must be submitted in writing to the associate director of graduate studies in the School of Music.

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 postbaccalaureate semester hours, to include at least two full-length recitals or programs (25:401 M.F.A. Thesis), for a maximum of 8 semester hours 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 the Graduate College section of the Catalog.)

Doctoral Degrees

All doctoral study in music includes:


Proficiency in one or more foreign languages is required in some areas; a list of area requirements is available from the academic office of the School of Music. Ensemble requirements are the same as described under “Master of Arts” above, unless waived by the student’s adviser.

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 academic office of the School of Music.

Doctor of Musical Arts

Requirements for the D.M.A. degree in performance and pedagogy are the same as the general doctoral requirements of the school, except that the D.M.A. dissertation consists of three full-length recitals or two recitals and a concerto performance with orchestra or other appropriate ensemble. Singers may substitute the execution of one or more major roles in a large-scale work for one of their recitals. Conductors present two programs. D.M.A. candidates also must complete a scholarly investigation of limited scope in a written essay or thesis.

Theory Pedagogy Minor

Any student admitted to a graduate degree program in the School of Music may take this minor by completing the required courses. Students whose advisory examination places them in Review Theory must successfully complete that course before being admitted to the minor.

REQUIRED COURSES

25:145 Counterpoint before 1600 3 s.h.
or 25:147 Counterpoint after 1600 3 s.h.
25:236 Methods and Techniques of Teaching Basic Theory 3 s.h.
25:237 Seminar: Music Theory Research 0-1 s.h.
25:242 History of Music Theory 11 2 s.h.
Six semester hours from the following:

25:148 Analysis of Music Literature 1600-1750 3 s.h.
25:149 Analysis of Music Literature 1750-1825 3 s.h.
25:150 Analysis of Music Literature 1825-1900 3 s.h.
25:151 Analysis of Music Literature 1890-Present 3 s.h.
25:152 Analysis of Music Literature Special Topics 3 s.h.
25:212 Gregorian Chant 3 s.h.
25:241 History of Music Theory I 2 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 particularly recommended for interested students who are not majoring in music include the following.

25:10 Fundamentals of Music
25:13-14 Masterpieces of Music
25:64 Recital Attendance for Non-Majors
25:103-104 World Music I-11, for students interested in non-Western music
25:159 Survey of Music Masterpieces I
25:160 Survey of Music Masterpieces II

Beginning Folk Guitar (25:78) and Group Piano I: Non-Music (25:82) are 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” in this section of the Catalog). Applied music instruction is offered to nonmajors as instructors are available. Nonmajors interested in performance should consult music advisers regarding appropriate courses in applied music.

Center for New Music

The Center for New Music (CNM) is a vital component of the School of Music’s composition program. Since its founding in 1966, CNM has been both laboratory and showcase for late twentieth-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, and it commissions and produces new works. Audition, rehearsal, and programming information is available on request.

Facilities

The Iowa Center for the Arts has one of the nation’s finest facilities for teaching and performance in music. In addition to class and seminar rooms, the Music Building includes 55 teaching studios, 73 practice rooms, a library, two electronic music laboratories, ear training and listening facilities with 50 listening posts, four large rehearsal halls, ample solo and ensemble practice facilities, professional recording facilities, a fine arts computer studio with two terminals and eleven microcomputers with MIDI equipment and music-related software, seven practice and recital organs, the
Courses

General
25:000 Cooperative Education Internship 0 s.h.
25:13 Masterpieces of Music I 3-4 s.h.
Major composers from late eighteenth through nineteenth centuries. GER: Humanities.
25:14 Masterpieces of Music II 3-4 s.h.
Major composers of early eighteenth century, and from 1890s to present. GER: Humanities.

Theory and Composition
25:1 Fundamentals of Music for Majors 3 s.h.
Music fundamentals through writing, hearing, performance; notation of pitch and rhythm; intervals, scales, triads; harmonic organization; elements of tonality, key signatures, major and minor modes; sight-singing; dictation. Corequisite: 25:71 or successful completion of piano proficiency exam.
25:2 Musicianship and Theory I 4 s.h.
Principles of harmony; emphasis on aural skills, theoretical concepts, notation. Offered fall semesters. Prerequisite: 25:1 or equivalent, or successful completion of music fundamentals exam. Corequisite: 25:71 or successful completion of piano proficiency examination.
25:3 Musicianship and Theory II 4 s.h.
Continuation of 25:2. Offered spring semesters. Corequisite: 25:72 or successful completion of piano proficiency exam.
25:4 Musicianship and Theory III 4 s.h.
Continuation of 25:3. Focus on common practice repertory. Offered fall semesters.
25:5 Musicianship and Theory IV 4 s.h.
Continuation of 25:2-4; focus on twentieth century repertory. Offered spring semesters.
25:10 Fundamentals of Music 3 s.h.
Foundations of musical phenomena from wide range of historical, cultural repertories; fundamentals of tone, form, elements of organization; composition, aesthetics. Open only to nonmajors.
25:11 Review Theory 1 s.h.
Open only to graduate students. Not accepted for graduate credit.
25:64 Rectal Attendance for Non-Majors 1 s.h.
Musical experience through student faculty rectals.
25:74 Rectal Attendance for Majors 1 s.h.
25:99 Bachelor's Thesis 0-1 s.h.
Consent of instructor required.
25:145 Countpoint before 1600 3 s.h.
Writing, analysis. Prerequisite: 25:4 or equivalent.
25:147 Countpoint after 1600 3 s.h.
Writing, analysis. Prerequisite: 25:5 or 25:1 I or equivalent.

Historical Surveys and Musicology
25:103 World Music I 3 s.h.
GER: foreign civilization and culture, humanities.
25:104 World Music II 3 s.h.
GER: humanities.
25:106 History of Black Music 3 s.h.
Same as 129:136.
25:137 Literature, Music, and Aesthetics 2-4 s.h.
Interdisciplinary connections between literature and music with attention to specific cultural, ideological contexts. Same as 9:145, 33:145.
25:144 History Of Music I 3 s.h.
GER: historical perspectives. Prerequisites: 25:3 and 25:4 or equivalents for majors; consent of instructor for nonmajors.
25:146 History of Music II 3 s.h.
GER: historical perspectives. Prerequisites: 25:3 and 25:4 or equivalents for majors; consent of instructor for nonmajors.
25:159 Survey of Music Masterpieces 1 3-4 s.h.
GER: humanities.
25:160 Survey of Music Masterpieces II 3-4 s.h.
GER: humanities.
25:164 Literature and Music same as 8:168.
25:189 Organ Literature Survey 2 s.h.
Fifteenth century to present. Open only to advanced undergraduate, graduate students. May be repeated.
25:198 Organ Pedagogy 1-2 s.h.
History, theory, practice from Renaissance to present. Methods, literature appropriate for various levels. May be repeated.
25:216 Interpretation of German Art Song arr.
Focus on Schubert, Schumann, Brahms, Wolf, Strauss, Mahler; diction, style.
25:217 Interpretation of Non-German Art Song arr.
Focus on English, French, Italian, Spanish, diction, style.
25:238 Musicology Colloquium 0 s.h.
25:301 Advanced History and Literature of Music 1 3 s.h.
Style in Western music.
25:302 Advanced History and Literature of Music II 3 s.h.
Continuation of 25:301.
Note: 25:303-25:309 and 25:313-25:314 deal with periods and special topics in music history; they are not offered every year.
25:303 Medieval Music 3 s.h.
25:304 Renaissance Music 3 s.h.
25:305 Seventeenth-Century Music 3 s.h.
25:306 Eighteenth-Century Music 3 s.h.
25:307 Nineteenth-Century Music 3 s.h.
25:308 Twentieth-Century Music 3 s.h.
25:309 American Music 3 s.h.
25:313 Major Composers 3 s.h.
25:314 Genres of Music 3 s.h.
25:316 The History of Musical Instruments 3 s.h.
25:317 Principles of Construction and Maintenance of Keyboard Instruments 3 s.h.
25:320 Introduction to Musicology 3 s.h.
Methods, materials for research in historical musicology; field of musicology.
25:321 Introduction to Graduate Study in Music 2 s.h.
Music library, reference materials, bibliography, research problems, methods; writing research papers.
25:322 Advanced Bibliography and Reference Materials 4 s.h.
Emphasis on materials in student's major concentration. Prerequisite: 25:321 or consent of instructor.
25:323 Historical Music Notations I 3 s.h.
Renaissance white notation, keyboard tablatures, musical paleography; transcription of early vocal, instrumental notations; editorial problems.
25:324 Historical Music Notations II 3 s.h.
Chant neumes, medieval black notation, musical and textual paleography; transcription of early vocal and instrumental notations; editorial problems.
25:330 Seminar in Musicology 3 s.h.
Concentrated study of one or more selected areas of music history, involving written papers and oral reports. May be repeated.
25:331 Performance Practices I: Medieval and Renaissance Music 3 s.h.
Practical approaches to interpreting music before 1600, including use of instruments, vocal production, music flu, and ornamentation.
25:332 Performance Practices II: Seventeenth- and Eighteenth-Century Music 3 s.h.
Interpretation aspects of music of Baroque and Classical periods.
25:351 Survey of Song Literature 1 3 s.h.
   25:352 Survey of Song Literature 11 3 s.h.
   25:353 Survey of Song Literature 111 3 s.h.
   25:354 Survey of Song Literature IV 3 s.h.
   25:361 Special Studies Piano Literature arr.
   25:362 Advanced Piano Pedagogy Seminar 1-2 s.h.

Research and literature

25:143 Seminar: Percussion Methods, Materials, and Performance Practice 1-2 s.h.
   Contemporary percussion literature and current styles, notation, techniques of performance and composition. Consent of instructor required.
   25:154 Senior Recital 1 s.h.
   25:199 Special Studies 1 s.h.
   25:226 History of Organ Building and Design 2.3 s.h.
   Development of organ design from Middle Ages to present, basic concepts of construction and maintenance. May be repeated.
   25:229 Organ Literature special Topics 2 s.h.
   Specialized study in selected areas of organ literature. Open only to graduate students with consent of instructor. May be repeated.

Sacred music

25:227 Liturgies 1 1-2 s.h.
   History of liturgies and survey of current music from Judaism to present.
   25:228 Service Playing and Improvisation 1 s.h.
   Hymn playing, accompanying, and basic improvisation techniques. May be repeated. Open to organ majors and others by consent of instructor.
   25:252 Musicology 1-2 s.h.
   Survey of historic or contemporary music from ancient times to the present. May be repeated.
   Individualized study in selected areas of church music: litanies, hymns, church choral repertory, religion, and the arts of sacred music.

Jazz Studies

25:101 Jazz Improvisation I 2 s.h.
   Prerequisite: 25:102 or consent of instructor.
   25:102 Jazz Improvisation II 2 s.h.
   Prerequisite: 25:101 or consent of instructor.
   25:118 Jazz Composition and Arranging I 2 s.h.
   Prerequisite: 25:104.
   25:141 History of Jazz 2 s.h.
   Prerequisite: 25:4 or equivalent.
   25:196 Jazz Band Techniques and Pedagogy 1 s.h.
   25:231 Jazz Composition and Arranging I 2 s.h.
   Prerequisite: 25:118.
   25:243 Jazz Improvisation I 1 s.h.
   Prerequisite: 25:102 or consent of instructor.
   25:244 Jazz Improvisation IV 2 s.h.
   Prerequisite: 25:243 or consent of instructor.

Music and Technology

See also 25:250, 254 and 254 Experimental Studio, 11, and 111 under “Composition.”

25:213 Fundamentals of Piano Technology 1 s.h.
   25:214 Recording Techniques 3 s.h.
   Consent of instructor required.
   25:218 Art and Technology 1 3 s.h.
   Consent of instructor required.
   25:219 Art and Technology II 3 s.h.
   Consent of instructor required.
   25:230 Seminar in Audio Recording 2 s.h.
   Offered summer sessions.
   25:295 Musical Acoustics 3 s.h.
   Same as 29:112.

Music Education

Other music education courses are offered by the Division of Curriculum and Instruction in the College of Education. See that section of the Catalog for listings and descriptions. Where dual numbers are indicated, students preparing for music teacher licensure should register under the education number.

25:71 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; study includes development of skills in sight reading, technique, harmonization, transposition, improvisation, simple literature. Open only to music majors. Corequisite: 25:2.
   25:72 Group Instruction in Piano U 1 s.h.
   Elementary to early intermediate instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; continuation of skills introduced in 25:71; introduction of easy solo and ensemble literature. Prerequisite: 25:71 or successful completion of proficiency examination. Corequisite: 25:3.
   25:73 Group Instruction in Piano 111 1 s.h.
   Intermediate instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; continuation of skills introduced in 25:72; study of intermediate solo and ensemble literature; modern chording. Prerequisite: 25:72 or successful completion of proficiency examination II.
   25:78 Beginning Folk Guitar 2 s.h.
   Development of guitar and basic skills. Consent of instructor required. Same as 7S:78.
   25:82 Group Piano I: Non-Music 1 s.h.
   Designed for beginning students; no previous background necessary; includes reading, technical study, chordal playing, playing by ear, and improvisation. Not open to music students. GER: humanities.
   25:83 Piano Group II: Non-Music 1 s.h.
   25:94 Music Therapy Practicum 1-3 s.h.
   Supervised practical training with adult clients and children in a variety of health care settings. Students take Utree semesters of practicum for 1, 2, and 2. Open only to music therapy majors. Prerequisite: 25: 115: 114.
   25:96 Music Techniques in Special Education and Recreation 2-3 s.h.
   Music methods and materials appropriate for the disabled students in special education and recreational settings; overview of individualized educational planning for students with disabilities. Open to music therapy and music education students, open to other students with consent of instructor.
   25:100 Class Setting 2 s.h.
   Open only to strings major for study of a secondary string instrument.
   25:105 Instrumental Techniques 1-3 s.h.
   Fundamental skills in wind, percussion instruments. Same as 7S:134.
   25:107 Techniques of Conducting 2 s.h.
   Major elements, score analysis.
   25:108 Instrumental ConduUing 2 s.h.
   Advanced skills, score analysis, rehearsal techniques, literature selection. Same as 7S:145. Prerequisite: 25:107.
   25:109 Choral Methods 3 s.h.
   Effective choral music programs for all ages. Same as 7S:147.
   25:110 Choral Conducting and Literature 2 s.h.
   Prerequisite: 25:107. Same as 7S:148.
   25:111 1 Child and Adolescent Voice Production 2 s.h.
   Teaching children to sing; emphasis on principles, techniques of voice production, pedagogy. Same as 7S:139.
   25:112 Wing Methods and Materials 2-4 s.h.
   Same as 7S:150.
   25:113 Methods of Teaching Piano 2-4 s.h.
   Methods, materials, teaching techniques for preschool, elementary, intermediate, advanced preschool, adult students. May be repeated.
   25:114 Orientation to Music Therapy 2 s.h.
   Theory, practice, typical clients, places of employment.
   25:115 Diction for Singers 2 s.h.
   French and English, theory of correct pronunciation for singing. No previous background necessary.
   25:116 Diction for Singers II 2 s.h.
   German and Italian; theory of correct pronunciation for singing. No previous background necessary.
   25:17 Arranging for Band 2 s.h.
   Scoring techniques for concert, marching bands. Offered spring semesters.
Continuing Education Program

25:80 The Composer-Improvisor in You 3 s.h.

Applied Music Major Field

Instruction consists of individual and or class lessons, at instructor’s option, for a minimum of one hour per week. Students may register for 1-4 semester hours as recommended by their advisers. Majors are required to attend related applied music seminars. Offered on a fee-per-semester basis, in addition to tuition.

UNDERGRADUATE MAJOR

Lower Level

25:40 Lower Level Voice
25:41 Lower Level Piano
25:42 Lower Level Organ
25:44 Lower Level Violin
25:45 Lower Level Viola
25:46 Lower Level Cello
25:47 Lower Level String Bass
25:48 Lower Level Flute
25:49 Lower Level Oboe
25:50 Lower Level Clarinet
25:51 Lower Level Bassoon
25:52 Lower Level Saxophone
25:53 Lower Level Horn
25:54 Lower Level Trumpet
25:55 Lower Level Euphonium
25:56 Lower Level Trombone
25:57 Lower Level Tuba
25:58 Lower Level Percussion

Upper Level

25:119 Upper Level Voice
25:120 Upper Level Piano
25:121 Upper Level Organ
25:122 Upper Level Violin
25:123 Upper Level Viola
25:124 Upper Level Cello
25:125 Upper Level String Bass
25:126 Upper Level Flute
25:127 Upper Level Oboe
25:128 Upper Level Clarinet
25:129 Upper Level Bassoon
25:130 Upper Level Saxophone
25:131 Upper Level Horn
25:132 Upper Level Trumpet
25:133 Upper Level Euphonium
25:134 Upper Level Trombone
25:135 Upper Level Tuba
25:136 Upper Level Percussion

GRADUATE MAJOR

25:263 Major Voice
25:264 Major piano
25:265 Major Harpsichord

Applied Music-Minor Field

Instruction consists of one half-hour lesson or two hours of class instruction weekly, at instructor’s option. Offered on a fee-per-semester basis, in addition to tuition.

25:17 Secondary Performance-Voice 1 s.h.
25:18 Secondary Performance-piano 1 s.h.
25:21 Secondary Performance-Organ 1 s.h.
25:22 Secondary Performance-Violin 1 s.h.
25:23 Secondary Performance-Viola 1 s.h.
25:24 Secondary Performance-Cello 1 s.h.
25:25 Secondary Performance-String Bass 1 s.h.
25:26 Secondary Performance-Flute 1 s.h.
25:27 Secondary Performance-Violin 1 s.h.
25:27 Secondary Performance-Clarinet 1 s.h.
25:28 Secondary Performance-Bassoon 1 s.h.
25:29 Secondary Performance-Saxophone 1 s.h.
25:30 Secondary Performance-Horn 1 s.h.
25:31 Secondary performance – Trumpet 1 s.h.
25:32 Secondary Performance-Euphonium 1 s.h.
25:33 Secondary Performance-Trombone 1 s.h.
25:34 Secondary Performance-Tuba 1 s.h.
25:35 Secondary Performance-Percussion 1 s.h.

Applied Music -Nonmajor

Instruction consists of a half-hour lesson or two hours of class instruction weekly, at instructor’s option. Offered on a fee-per-semester basis, in addition to tuition. Intended for both undergraduate and graduate students.

25:59 Performance Instruction for Non-Majors 1 s.h.

Ensemble participation

No fee is charged; courses may be repeated; consent of instructor required.
they guide conduct by regulating opportunities, prescribing behavior, and influencing beliefs and attitudes. The goal of the PEOPLE program is to help students both understand and evaluate these complex relationships by examining them from a variety of perspectives.

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. Students must complete a 36-semester-hour course of study with a minimum grade-point average of 2.00 to earn the PEOPLE certificate.

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 pursuing a major or minor in one or more of the program’s three primary departments-economics, philosophy, and political science—may be eligible to join the PEOPLE program. Students whose primary interest lies outside all three can qualify for the program by completing a minor in one of them. Pre-law students may find PEOPLE especially attractive.

Students interested in enrolling in the PEOPLE program should contact the program director. Because of the program’s multiple requirements, students are encouraged to begin the program as freshmen 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 have already taken several courses that satisfy PEOPLE requirements. This is not uncommon, since many courses satisfy multiple requirements.

Foundation
Each PEOPLE student must complete a major or minor in economics, philosophy, or political science. Within the chosen discipline, the student takes courses that provide basic familiarity with issues and methods of the discipline and that emphasize either the interplay of causes, reasons and values or the interdependence of individuals and institutions. These courses are the foundation of the PEOPLE program. Select one of the following:

ECONOMICS
Students must choose either the macroeconomics or the microeconomics track.

Macroeconomics Track
- 6E: 1 Principles of Macroeconomics 3-4 s.h.
- 6E: 104 Macroeconomic Theory 3 s.h.
- 6E: 179 History of Economic Thought 2-3 s.h.

One of the following:
- 6E: 111 Labor Economics 3 s.h.
- 6E: 113 Health Economics 3 s.h.
- 6E: 133 Environmental and Natural Resource Economics 3 s.h.
- 6E: 135 Regional and Urban Economics 3 s.h.
- 6E: 141 Economics of American Industries 3 s.h.
- 6E: 145 Introduction to the Economics of Transportation 3 s.h.

One of the following:
- 6E: 127 Law and Economics 3 s.h.
- 6E: 177 Industrial Organization 3 s.h.

POLITICAL SCIENCE
One introductory course on theories of politics chosen from:
- 30: 30 Introduction to Political Thought and Political Action 3 s.h.

Three advanced courses on theories of politics chosen from:
- 30: 118 Law and Social Change 3 s.h.
- 30: 132 Modern Political Theory 3 s.h.
- 30: 133 Postmodern Political Theory 3 s.h.
- 30: 135 Introduction to Positive Political Theory 3 s.h.
- 30: 136 Game Theory for Political Scientists 3 s.h.
- 30: 138 Current Political Theory 3 s.h.
- 30: 139 Political Issues 3 s.h.
- 30: 172 Political Communication and Cognition 3 s.h.
- 30: 182 Honors Seminar on Political Theory 3 s.h.
Fields

Students must pass three courses (total of 9 semester hours) in each of two of the following four fields: economics, ethics, politics, and law.

**ECONOMICS**
Students should choose either the macroeconomics track or the microeconomics track. Students using economics as their foundation may not select this field.

**Macroeconomics Track**
- 6E:1 Principles of Macroeconomics 3-4 s.h.
- 6E:104 Macroeconomic Theory 3 s.h.
- 6E:179 History of Economic Thought 2-3 s.h.

**Microeconomics Track**
- 6E:2 Principles of Macroeconomics 3-4 s.h.
- 6E:105 Microeconomics 3 s.h.
- 6E:179 History of Economic Thought 2-3 s.h.

**ETHICS**
Students using philosophy as their foundation may not select this field.

- 26:102 Introduction to Ethics 3 s.h.
- One of the following:
  - 26:34 Philosophy and the Just Society 3 s.h.
  - 26:132 Introduction to Political Philosophy 3 s.h.
  - 26:182 History of Ethics 3 s.h.
- One of the following:
  - 14:107 Ancient Views of Justice 3 s.h.
  - 26:180 Analytic Ethics 3 s.h.
  - 26:184 Moore, Prichard and Ross 3 s.h.
  - 26:185 Political Philosophy 3 s.h.
  - 32:158 Religious Ethics: Moral Character and Religious Faith 3 s.h.
  - 32:161 History of Religious Ethics 3 s.h.
  - 32:163 Introduction to Biomedical Ethics 3 s.h.

**POLITICS**
Students using political science as their foundation may not select this field.

- One introductory course on theories of politics chosen from:
  - 30:10 Introduction to Political Thought and Political Action 3 s.h.
  - 30:70 Introduction to Political Communication 3 s.h.
- Two advanced courses on theories of politics chosen from:
  - 30:118 Law and Social Change 3 s.h.
  - 30:132 Modern Political Theory 3 s.h.
  - 30:133 Postmodern Political Theory 3 s.h.
  - 30:135 Introduction to Positive Political Theory 3 s.h.
  - 30:136 Game Theory for Political Scientists 3 s.h.
  - 30:138 Current Political Theory 3 s.h.
  - 30:139 Political Issues 3 s.h.
  - 30:172 Political Communication and Cognition 3 s.h.
  - 30:182 Honors Seminar on Political Theory 3 s.h.

**LAW**
Liberal Arts undergraduates typically are not permitted to register for courses in the College of Law (prefix 91). PEOPLE program students may register for law courses if they register under a cross-listed liberal arts number, obtain prior approval from the director of the PEOPLE program, and obtain consent of instructor.

- Students may count the credit toward a liberal arts degree but not toward any subsequent University of Iowa law degree. The requirements are as follows:
  - One course on principles of legal theory, chosen from:
    - 144:201 Jurisprudence 2-3 s.h.
    - 144:203 Litigation, Social Science, and Social Change 3 s.h.
    - 144:205 Legal Reasoning 3 s.h.
  - One course on the history of legal theory, chosen from:
    - 16A:110 Law in American History I 3 s.h.
    - 16A:111 Law in American History II 3 s.h.
    - 16E:114 Foundations of Anglo-American Law 3 s.h.
    - 30:116 American Constitutional Law and Politics 3 s.h.
    - 144:207 Modern Constitutional History 3 s.h.

**Courses**

- **144:144 Seminar: Reasons, Causes, and Values** 3 s.h.
  - Interdisciplinary topics that cross boundaries between philosophy, politics, and science. Law, economics.

- **144:201 Jurisprudence** 2-3 s.h.
  - Selected philosophies, emphasis on legal positivism, natural law; may include nature of unjustified reasoning between law and morality; authority; normativity; justification; nature of law, politics, obligation. Same as 91.288.

- **144:203 Litigation, Social Science, and Social Change** 3 s.h.
  - Empirical research in a wide variety of legal areas; how law can be obtained, evaluate, and use such information, skill development in methodology, statistics, use of such knowledge to improve advocacy. Same as 91.557.

- **144:205 Legal Reasoning** arr.
  - Recent theories, philosophies underpinning recent philosophy, legal construction, knowledge, language, objectivity, morality. Same as 91:13, 17.

- **144:207 Modern Constitutional History** in Civil rights and liberties in American legal, cultural history from World War II to 1960; Pre or corequisite: 91.232 or consent of instructor. Same as 91.667.

- **144:21 Native American law** 3 s.h.
  - Specialized body of law that has grown up around Native American and tribal self-government; tribal land, jurisdiction, property tenure, hunting and fishing, federal Indian policy. Same as 91.319.

**Philosophy**

Chair: Richard Fumerton
Professors: Laird Addis, Panayot Butchvarov, Phillip Cummins, James Duerlinger, Richard Fumerton
Associate professors: Evan Fales, Gregory Landini, Scott MacDonald, David Stern, Guenter Zoeller
Assistant professor: Diane Jeske

Undergraduate degree: B.A. in Philosophy; minor in Philosophy
Graduate degrees: M.A., Ph.D. in Philosophy

**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 B.A. degree requires at least 27 semester hours of credit in courses numbered from 26:61 through 26:198 and must include 26:103 Introduction to Symbolic Logic, 26:111 Ancient Philosophy, and either 26:114 Seventeenth Century Philosophy or 26:116 Eighteenth-Century Philosophy.

The final 12 semester hours of philosophy courses used to complete the departmental requirement must be taken at The University of Iowa.

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. The director of undergraduate studies can provide more information.
Honors

The department administers an honor 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 and must have taken and passed at least three philosophy courses for the major. In order to graduate with honors in philosophy, the student must complete the regular requirements for art undergraduate major in philosophy with a grade-point average 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. The honors adviser must provide more information.

Minor

In order to achieve a minor in philosophy, a student must complete a minimum of 15 semester hours in philosophy courses with a 2.00 minimum grade-point average. Of these, a minimum of 12 semester hours must be in courses that are numbered above 100 and are taught in the Department of Philosophy at The University of Iowa. The director of undergraduate studies can provide 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, ethics, logic, and philosophy of science.

Master of Arts

The M.A. degree requires a minimum of 30 semester hours and may be taken without thesis. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. An oral final examination also is required. There is no foreign language requirement. The director of graduate studies can provide more information.

Doctor of Philosophy

The Ph.D. degree requires a minimum of 72 semester hours of graduate credit by the time the dissertation is completed. 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 and epistemology, history of philosophy, logic and philosophy of science, and ethics. A written comprehensive examination covering the student’s area of specialization and a prospectus of the dissertation also are required. The comprehensive examination may be taken only after the student has shown competence in an approved foreign language. The director of graduate studies can provide more information.

Courses

More detailed descriptions of undergraduate and graduate courses offered during a given semester or summer session are available in the Department of Philosophy main office shortly before early registration.

For Undergraduates Only

26:3 Problems of More Reasoning 3 s.h.
Ethical thought, with emphasis on its implications for contemporary moral controversies; philosophical introduction.

26:33 Philosophy and Human Nature 3 s.h.
Human nature and its relation to society, knowledge, religion, science, and freedom; philosophical and historical examination of theories of the twentieth century; GER: historical perspectives.

26:34 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 nineteenth century; GER: historical perspectives.

26:36 Principles of Reasoning 3 s.h.
Logic and its applications; GER: quantitative or critical reasoning.

26:61 Introduction to Philosophy 3 s.h.
Issues and arguments; topics may include rational belief, evidence, the self, causation, and the presuppositions of religion. GER: humanities.

For Undergraduates and Graduates

Not open to freshmen.

26:102 Introduction to Biblical Analysis and historical introduction to ethical theories about issues such as the nature of goodness and the nature of right conduct. GER: humanities.

26:103 Introduction to Symbolic Logic 3 s.h.
Main ideas and basic techniques of modern symbolic logic.

26:104 Introduction to Philosophy of Science 3 s.h.
Main issues in contemporary philosophy of science.

26:111 Ancient Philosophy 3 s.h.
Main trends and major figures such as Plato and Aristotle.

26:112 Medieval Philosophy 3 s.h.
Main trends and major figures such as Augustine and Aquinas.

26:114 Seventeenth-century Philosophy 3 s.h.
Main trends, central arguments and major positions from Bacon and Descartes to Leibniz and Locke.

26:116 Eighteenth-century Philosophy 3 s.h.
Main trends, central arguments, and major positions from Berkeley to Kant.

26:117 Nineteenth-century Philosophy 3 s.h.
Main trends and major figures of nineteenth-century philosophy.

26:118 Twentieth-century Philosophy 3 s.h.
Main trends and major figures of twentieth-century analysis philosophy.

26:125 American Philosophy 3 s.h.
Important ideas in American philosophy, including those of the three leading programs: Pierce, James, and Dewey.

26:131 Aesthetics 3 s.h.
Major problems in philosophy of the arts.

26:133 Introduction to Political Philosophy 3 s.h.
Major problems in political philosophy.

26:133 Philosophy of History 3 s.h.
Major problems in philosophy of history.

26:134 Philosophy of Religion 3 s.h.
Major problems in philosophy of religion. Same as 32:146.

243:136 Philosophy of Literature 3 s.h.
Philosophical dimensions of literature and literary criticism. Same as 48B: 136.

24:138 Philosophical Problems of Artificial Intelligence 3 s.h.
Major problems of artificial intelligence.

26:141 Existentialist Philosophy 3 s.h.
Major ideas of existentialism, stressing Kierkegaard, Nietzsche, Heidegger, and Sartre.

26:143 Philosophy East and West 3 s.h.
Comparative analysis of ideas in Eastern and Western philosophy.

26:144 Indian Philosophy 3 s.h.
Main ideas and major texts.

26:145 Buddhist Philosophy 3 s.h.
Introduction to the main ideas of Buddhist philosophy.

26:148 Readings in Philosophy 3 s.h.
For honors students. May be repeated.

26:149 Undergraduate Seminar in Philosophy 3 s.h.
Intensive individual discussion of selected philosophical problems. Consent of instructor required.

26:151 Topics in Ancient Philosophy 3 s.h.
In-depth study of a single ancient philosopher or philosophical problem. Consent of instructor required.

26:152 Plato 3 s.h.
Analysis of main ideas and major texts. Consent of instructor required.

26:153 Aristotle 3 s.h.
Analysis of main ideas and major texts. Consent of instructor required.

26:155 Aquinas, Scotus, Ockham 3 s.h.
Philosophical views of one or more of these and possibly other important philosophers of the Middle Ages; general philosophical trends of the period. Consent of instructor required.

26:156 Descartes 3 s.h.
Major works, such as the Discourse on Method, as well as lesser known works, such as The World. Consent of instructor required.

26:160 Spinoza and Leibniz 3 s.h.
Analysis of main ideas and major texts. Consent of instructor required.

26:162 Locke 3 s.h.
In-depth study of Locke’s metaphysical and epistemological views in their historical context. Consent of instructor required.

26:163 Berkeley 3 s.h.
Institutionalism and its development. Consent of instructor required.

26:164 Hume I 3 s.h.
Hume’s epistemology and metaphysics as developed in A Treatise of Human Nature (book 1) and An Enquiry Concerning Human Understanding. Consent of instructor required.

26:165 Hume II 3 s.h.
Hume’s ethics, political theory, and philosophy of religion; A Treatise of Human Nature (books 2 and 3); An Enquiry Concerning the Principles of Morals; Dialogues Concerning Nature and Religion. Consent of instructor required.

26:166 Kant I 3 s.h.
Analysis of main ideas and major texts of Kant’s metaphysics and epistemology. Consent of instructor required.

26:167 Kant II 3 s.h.
Analysis of main ideas and major texts of Kant’s ethics and aesthetics. Consent of instructor required.

26:168 Hume and Kant 3 s.h.
Analysis of main ideas and major texts. Consent of instructor required.

26:172 Kant 3 s.h.
Analysis of main ideas and major texts. Consent of instructor required.

26:173 Heidegger 3 s.h.
Critical analysis of Heidegger’s major writings in their relation to the metaphysical and epistemological tradition. Consent of instructor required.

26:174 Sartre 3 s.h.
Phenomenological and existentialist works. Consent of instructor required.

26:177 Analysis of main ideas and major texts. Consent of instructor required.
Primarily for Graduates

All may be repeated except 26:220.

26:220 Seminar: Philosophy of Language 3 s.h.
26:221 Seminar: Metaphysics 3 s.h.
26:222 Seminar: Epistemology 3 s.h.
26:223 Seminar: Philosophical Analysis 3 s.h.
26:224 Seminar: Philosophy of science 3 s.h.
26:225 Seminar: Philosophy of Religion 3 s.h.
26:226 Seminar: Ethics 3 s.h.
26:227 Seminar: Ancient Philosophy 3 s.h.
26:228 Seminar: Medieval philosophy 3 s.h.
26:229 Seminar: Modern Philosophy 3 s.h.
26:245 Research: Vshae Theory arr.
26:247 Research: Metaphysics and Epistemology arr.
26:249 Research: Logic and philosophy of Science SST.
26:251 Research: History of Philosophy n.s.
26:253 Thesis arr.

PHYSICS AND ASTRONOMY

Chair: Gerald L. Payne

Students n as: Richard R. Carlson, Edward B. Nelson, James A. Van Allen

Associate professors: Amritav Bhattacharjee, John A. Gore, Charles R. Newsom

Assistant professors: Yannick Meunce, Laurence A. Molnar, Mary H. Reno, Vincent G. Rodgers

Undergraduate degrees: B.A., B.S. in Physics, Astronomy minor in Physics, Astronomy Graduation degrees: M.S. in Astronomy, Physics; Ph.D. in Physics (including specialization in Astronomy)

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 for individual scholarly work at an advanced level in selected specialties.

Total departmental enrollment is approximately 2,000 each semester of the academic year and 200 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 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 75 undergraduate majors-one-quarter of whom are honors students-and 80 graduate students in physics or astronomy.

About 50 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 M.S. or Ph.D. degrees in physics or astronomy have opportunities for employment in universities, colleges, and research laboratories in government and industry.

Undergraduate Programs

The department offers the following programs in physics: Bachelor of Science and Bachelor of Arts and an undergraduate minor. It offers the same programs in astronomy. In addition, a double major in physics and astronomy is offered. Each program is described below.

Bachelor of Science in Physics

The B.S. program provides preparation for graduate study in physics and related sciences, or for employment in research laboratories.

Required Courses

The following courses or their equivalents are required for the Bachelor of Science with a major in physics. Students must select Group 1 or Group 2.

Group 1

22M:25-26 Calculus I-II 8 s.h.
22M:45-46 Accelerated Calculus I-II 8 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus 111 4 s.h.

Group 2

22M:35-36 Engineering Calculus 1-11 8 s.h.
or
22M:45-46 Accelerated Calculus 1-11 8 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
22M:41 Differential Equations for Engineers 3 s.h.
22M:42 Vector Calculus for Engineers 3 s.h.

Other Required Courses

Students also must take the following.
29:27-28 Physics I-11 (Students who completed 29:17-18 before August 1994 may use those courses instead.) 8 s.h.
29:17-18 Introductory Physics I-11 8 s.h.
29:29 Physics 111 4 s.h.
29:15 Intermediate Mechanics 3 s.h.
29:118 Statistical Physics 3 s.h.
29:129-130 Electricity and Magnetism 6 s.h.
29:132 Intermediate Laboratory (two semesters) 4 s.h.
29:140 Introduction to Quantum Mechanics I 3 s.h.
29:141 Introduction to Quantum Mechanics II 3 s.h.

One additional course selected from:
29:117 Optics 3 s.h.
Bachelor of Arts in Physics

The B.A. program is designed for students who wish to gain a knowledge of physics but do not plan a research-oriented career in physics. This degree program is appropriate for those planning careers in medicine, law, science-related administration, business, technical writing, or careers in medicine, law, science-related administration (see “Science Education” in this section and the College of Education section of the Catalog). The B.A. program requires fewer courses in physics and mathematics than the B.S. program, and thus provides a wider choice of electives.

Undergraduate majors who plan to pursue graduate study are advised to go as far beyond the minimum requirements stated above as feasible, including further work in mathematics. However, only 50 semester hours of 29-prefix courses count toward a single-major bachelor’s degree.

The following courses or their equivalents are required for the Bachelor of Arts with a major in physics.

22M:25-26 Calculus I-II 8 s.h.
22M:45-46 Accelerated Calculus I-II 8 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus II 4 s.h.

Group 2
22M:35-36 Engineering Calculus I-II 8 s.h.
or
22M:45-46 Accelerated Calculus I-II 8 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
22M:41 Differential Equations for Engineers 3 s.h.
22M:42 Vector Calculus for Engineers 3 s.h.

Other Required Courses
Students also must take the following.
29:27-28 Physics I-II (Students who completed 29:17-18 before August 1994 may use those courses instead.) 8 s.h.
29:29 Physics III 4 s.h.
29:61-62 General Astronomy 8 s.h.
29:115 Intermediate Mechanics 3 s.h.
29:119-120 Introduction to Astrophysics I-II 6 s.h.
29:129-130 Electricity and Magnetism 6 s.h.
29:132 Intermediate Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.
29:140 Introduction to Quantum Mechanics I 3 s.h.
29:141 Introduction to Quantum Mechanics II 3 s.h.
or
29:194 Plasma Physics 3 s.h.

Undergraduate majors who plan to pursue graduate study are advised to go as far beyond the minimum requirements listed above as feasible, by taking one or more of the courses listed below. However, only 50 semester hours of 29-prefix courses can count toward a single-major bachelor’s degree.

29:17 Optics 3 s.h.
29:118 Statistical Physics 3 s.h.
29:137 Astronomical Laboratory (additional semester) 2 s.h.
29:141 Introduction to Quantum Mechanics II 3 s.h.
29:171-172 Mathematical Methods of Physics 6 s.h.
29:194-195 Plasma Physics 6 s.h.
29:196 Fluid Mechanics 3 s.h.

Bachelor of Arts in Astronomy

The B.A. program is designed for students who wish to gain considerable knowledge of astronomy but who do not plan a research-oriented career in astronomy. This degree program is appropriate for those planning careers in secondary school science teaching or science-related administration (see “Science Education” in this section and the College of Education section of the Catalog). It also is appropriate for those preparing for professional school. The B.A. program requires fewer courses in physics and mathematics than the B.S. program, and thus provides for a wider choice of electives.

The following courses or their equivalents are required for the B.A. with a major in astronomy.

22M:25-26 Calculus I-II 8 s.h.
or
22M:35-36 Engineering Calculus I-II 8 s.h.
29:11-12 College Physics 8 s.h.
29:27-28 Physics I-II (Students who completed 29:17-18 before August 1994 may use those courses instead.) 8 s.h.
29:29 Physics III 4 s.h.
29:61-62 General Astronomy 8 s.h.
29:115 Intermediate Mechanics 3 s.h.
29:117 Optics 3 s.h.
or
29:118 Statistical Physics 3 s.h.
29:119-120 Introduction to Astrophysics I-II 6 s.h.
29:128 Electronics 4 s.h.
or
29:129 Electricity and Magnetism 3 s.h.
29:132 Intermediate Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.

Double Major in Physics and Astronomy

Students who wish to obtain a double major in physics and astronomy must earn a minimum of 56 semester hours outside physics and astronomy. Those interested in such a combination should consult with their adviser. For general requirements of the College of Liberal Arts, see the College of Liberal Arts section of the Catalog.

Honors

Junior and senior majors who are members of the University Honors Program may take 6-8 semester hours of 29:99 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 or astronomy. They must present a written research report (honors thesis) and describe the results of the research at a departmental seminar.

Minor in Physics

A minor in physics requires 15 semester hours with a minimum grade-point average of 2.00. Those 15 hours must include 12 semester hours of upper-level physics courses taken at The University of Iowa, including 29:29 (prerequisites: 29:27 and 29:28 or 29:17 and 29:18) and all 100-level physics courses.

Bachelor of Arts in Physics

A balanced and integrated program of astronomy, mathematics, and physics courses is required for the B.S. degree in astronomy. This program prepares students for advanced study in astronomy or astrophysics, or serves as an interesting choice of major for a liberal arts education.

The following courses or their equivalents are required for the Bachelor of Science with a major in astronomy. Students must select Group 1 or Group 2.

Required Courses

Group 1
22M:25-26 Calculus I-II 8 s.h.
or
22M:45-46 Accelerated Calculus I-II 8 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus II 4 s.h.

Group 2
22M:35-36 Engineering Calculus I-II 8 s.h.
or
22M:45-46 Accelerated Calculus I-II 8 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
22M:41 Differential Equations for Engineers 3 s.h.
22M:42 Vector Calculus for Engineers 3 s.h.

Bachelor of Science in Astronomy

A balanced and integrated program of astronomy, mathematics, and physics courses is required for the B.S. degree in astronomy. This program prepares students for advanced study in astronomy or astrophysics, or serves as an interesting choice of major for a liberal arts education.

The following courses or their equivalents are required for the Bachelor of Science with a major in astronomy. Students must select Group 1 or Group 2.

Required Courses

Group 1
22M:25-26 Calculus I-II 8 s.h.
or
22M:45-46 Accelerated Calculus I-II 8 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus II 4 s.h.

Group 2
22M:35-36 Engineering Calculus I-II 8 s.h.
or
22M:45-46 Accelerated Calculus I-II 8 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
22M:41 Differential Equations for Engineers 3 s.h.
22M:42 Vector Calculus for Engineers 3 s.h.

Other Required Courses
Students also must take the following.
29:27-28 Physics I-II (Students who completed 29:17-18 before August 1994 may use those courses instead.) 8 s.h.
29:29 Physics III 4 s.h.
29:61-62 General Astronomy 8 s.h.
29:115 Intermediate Mechanics 3 s.h.
29:119-120 Introduction to Astrophysics I-II 6 s.h.
29:129-130 Electricity and Magnetism 6 s.h.
29:132 Intermediate Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.
29:140 Introduction to Quantum Mechanics I 3 s.h.
29:141 Introduction to Quantum Mechanics II 3 s.h.
or
29:194 Plasma Physics 3 s.h.

Undergraduate majors who plan to pursue graduate study are advised to go as far beyond the minimum requirements listed above as feasible, by taking one or more of the courses listed below. However, only 50 semester hours of 29-prefix courses can count toward a single-major bachelor’s degree.

29:17 Optics 3 s.h.
29:118 Statistical Physics 3 s.h.
29:137 Astronomical Laboratory (additional semester) 2 s.h.
29:141 Introduction to Quantum Mechanics II 3 s.h.
29:171-172 Mathematical Methods of Physics 6 s.h.
29:194-195 Plasma Physics 6 s.h.
29:196 Fluid Mechanics 3 s.h.
Minor in Astronomy

A minor in astronomy requires 15 semester hours of credit in astronomy courses with a minimum grade-point average of 2.00; 12 semester hours must be taken at The University of Iowa. The 15 semester hours should include 6 semester hours selected from the following:

- 29:119-120 Introduction to Astrophysics
- 29:137 Astronomical Laboratory

An additional 6 semester hours of these courses or of 100-level physics courses may be included.

Graduate Programs

Two advanced degrees are offered in physics: the Master of Science—with either thesis or critical essay—and the Doctor of Philosophy. One is offered in astronomy: the Master of Science—with either thesis or critical essay. Candidates for either a Master's or a Ph.D. degree must have satisfactorily completed the following courses or their equivalents as undergraduates or graduates.

Master of Science in Physics

The M.S. in physics is offered with either thesis or critical essay. The degree may be terminal or may be a prerequisite to a Ph.D. The M.S. in physics is not prerequisite to the Ph.D. The M.S. in astronomy is offered with either thesis or critical essay and the Doctor of Philosophy. Two additional courses selected from:

- 29:192 Elementary Particles and Nuclear Physics
- 29:193 Introductory Solid State Physics
- 29:194 Plasma Physics

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 M.S. in astronomy is offered with either thesis or critical essay. The general requirements are the same as those for the M.S. in physics (see above). Course requirements or their equivalents for undergraduates or graduates are as follows.

- 29:1 15 Intermediate Mechanics 3 s.h.
- 29:117 Optics 3 s.h.
- 29:1 18 Statistical Physics 3 s.h.
- 29:1 19-120 Introduction to Astrophysics I-II 6 s.h.
- 29:129-130 Electricity and Magnetism 6 s.h.
- 29:133 Advanced Laboratory 2 s.h.
- 29:137 Astronomical Laboratory 2 s.h.
- 29:140-141 Introduction to Quantum Mechanics I and II 6 s.h.
- 29:151-152 Advanced Laboratory (two semesters) 4 s.h.
- 29:1 95 Plasma Physics 3 s.h.
- 29:232-233 Theoretical Astrophysics 6 s.h.
- 29:234 Stellar Structure and Evolution 3 s.h.
- 29:235 Special Topics in Astrophysics 1-3 s.h.

Doctor of Philosophy in Physics

The program of study for the Ph.D. with a major in physics includes thorough course work in both classical and quantum theoretical physics for all candidates, whether their specialized research is to be in an experimental or a theoretical area. All candidates 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.

They also must take at least 27 semester hours of 200-level courses in the department, excluding 29:220, 29:281, 29:282, and seminars. The following minimum program is recommended as preparation for the comprehensive examinations:

- 29:141 Introduction to Quantum Mechanics I 3 s.h.
- 29:192 Elementary Particles and Nuclear Physics 3 s.h.
- 29:193 Introductory Solid State Physics 3 s.h.
- 29:205 Classical Mechanics 3 s.h.
- 29:213 Classical Electrodynamics 3 s.h.
- 29:245-246 Quantum Mechanics I-II 6 s.h.
- 29:212 Statistical Mechanics I 3 s.h.
- 29:213-214 Classical Electrodynamics 6 s.h.
- 29:245-246 Quantum Mechanics I-II 6 s.h.

Advanced mathematics, such as complex variables and tensor analysis, is used freely in these courses. An introduction to these fields is given in 29:171-172 Mathematical Methods of Physics. The selection of less advanced courses will depend on the adequacy of the students’ preparation for graduate work; the students’ choice of more advanced and specialized courses will depend on the direction in which their interests develop. No more than 30 of the minimum 72 semester hours may be in research and seminars.

Candidates for the Ph.D. degree 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 adviser, to a widely distributed, refereed scientific journal.

Financial Aid

Students qualified for graduate study are encouraged to apply for fellowships and assistantships. Inquiries should be directed to the department chair.

Research and Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories. A VAX computer as well as numerous UNIX workstations are available in the department, and the associated facilities of
the University’s Weeg Computing Center are available for research by students and staff. National supercomputers are accessed via internet. The central machine shop is fully equipped and staffed with skilled instrument makers and machinists, and there are several electronics and machine shops for the use of advanced students and the research staff.

Experimental research is conducted in astronomy (optical and radio), atomic and molecular physics, elementary particle physics, laser physics, nuclear physics, plasma physics, solid state physics, and space physics. Extensive facilities are available for construction of specialized research equipment and for processing and analysis of data.

A versatile 6.0-MV Van de Graaff accelerator is used in studies of nuclear reactions induced by hydrogens, helium, lithium, and beryllium nuclei with beam energies up to 1.4 MeV. Experiments requiring higher energies and heavier ions are done using large national accelerators in the United States and Europe.

Experiments on fundamental thermal, electrical, and magnetic properties of metals, alloys, compounds, and high-temperature superconductors are included in the experimental solid state program, as are surface studies of metals and semiconductors.

Several devices are available for basic studies in plasma physics, including two Q machines, two triple plasma devices, several multipolar plasma devices, and a parallel plate magneton device. These devices are used to investigate linear and nonlinear plasma waves, dusty plasmas, and double layers.

State-of-the-art laser systems are available for high resolution spectroscopic measurement and ultrastable pump-probe studies of molecular structure, collisional relaxation and non-linear optical effects in atomic and molecular systems and semiconductor materials, and for plasma diagnostics.

Experimental research in elementary particle physics is carried out at Fermi National Accelerator Laboratory, Los Alamos National 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 in observational astronomy. The primary optical instrument, a 24-inch reflector with a CCD camera, is used for stellar, planetary, and cometary studies. The department also maintains a fully automated 14-inch telescope with CCD cameras and a 4.5-meter radio telescope on campus for instructional use and undergraduate research.

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 ten miles north of campus. Current long-term research activities include studies of extragalactic radio sources, red giant stars, radiowave scattering in the interstellar medium, and interacting binary stars. Students and faculty also conduct research programs using the Kitt Peak National Observatory, the Arecibo Observatory, the Infrared Telescope Facility, and the International Ultraviolet Explorer.

Active theoretical research is carried on in astrophysics; atomic, molecular, and optical physics; elementary particle physics; laser physics; mathematical physics; nuclear physics; plasma physics; solid-state physics; and space physics. An active mathematical physics seminar fosters the exchange of ideas between mathematicians and physicists.

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-planet interactions. Facilities are available for designing and constructing spacecraft 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, and Galileo.

Courses

Prerequisites and corequisites are specified as guides and may be waived by the instructor. Students may not repeat an elementary course for credit or grade points if they already have completed a higher level course for which the elementary course, or its equivalent, is a prerequisite. Courses 29:5-9, 29:11-12, 29:17-18, 29:27-28, 29:50-51, and 29:61-62 are accepted toward the College of Liberal Arts General Education Requirement in the natural sciences.

Physics—Primarily for Undergraduates

29:00 Cooperative Education 0 in

29:5 Chemistry and Physics of the Environment 3 s.h.

Chemistry and physics of the ecology of our planet: air, earth, water, and noise pollution; return of pollutants to man; chemistry and physics of the balance of nature; for conscience students. GER: natural sciences.

29:11x Physics 3-4 s.h.

Quantitative treatment of mechanics, electricity, heat, liquids, gases, absorption, atomic, nuclear, and elementary particle physics; GER: natural sciences. Not open to students who have received credit for 29:11. Prerequisite: 22M:5 or equivalent.

29:9 Directions in Modern Physics 3 s.h.

Introduction to recent progress in experimental and theoretical physics; chaotic dynamical systems, existence of turbulence, space plasma, superconductivity, symmetries in particle physics, cosmology. GER: natural sciences. Prerequisites: 22M:5 or equivalent.

29:11 College Physics 4 s.h.

Mechanics, waves, thermodynamics, special relativity, GER: natural sciences. Prerequisite: 22M:5.

29:12 College Physics 4 s.h.

Continuation of 29:11, which is prerequisite; electricity, magnetism, light, modern physics. GER: natural sciences.

29:17 Introductory Physics 1 3-4 s.h.


29:18 Introductory Physics 11 3 s.h.

Continuation of 29:17; electricity, magnetism, light. GER: natural sciences.

29:27 Physics I 4 s.h.

Mechanics, waves, thermodynamics. Open only to physics and astronomy majors. Offered fall semesters. GER: natural sciences. Corequisites: 22M:23 or 22M:35 or 22M:45.

29:28 Physics II 4 s.h.

Continuation of 29:27; electricity, magnetism, optics. Offered only to physics and astronomy majors. Offered spring semesters. GER: natural sciences.

29:29 Physics III 3 s.h.

Wave mechanics, hydrogen atom, and molecular structure; nuclear physics, elementary particles; primarily for engineering students. Prerequisite: 29:18 or 29:28.

29:93 Reading in Physics arr.

29:98 Undergraduate Seminar arr.

Selected topic in physics or astronomy. May be repeated.

29:99 Honors Seminar arr.

Supervised original research leading to written report, oral defense. Open only to seniors and senior honors candidates in physics or astronomy.

Physics—For Undergraduates and Graduates

29:103 Reading in Physics arr.

29:1/12 Modern Acoustics 3 s.h.

Same as 29:209.

29:15 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:26 or 22M:36, and 29:11 or 29:17 or 29:27.

29:17 Optics 3 s.h.

Geometrical and physical optics; properties of lenses and simple optical instruments; phenomena of propagation, interference, diffraction, polarization of light, modern optics.

29:18 Statistical Physics 3 s.h.

Integrated introduction to subjects of thermodynamics, statistical mechanics, kinetic theory; emphasis on applications. Prerequisites: 29:29 and 29:15.

29:128 Electronics 4 s.h.

Characteristics of bipolar and FET transistors and integrated circuit devices such as operational amplifiers and digital logic. Circuits introduction to microprocessors; design and study of analog and digital circuits; and instrumentation, with emphasis on laboratory work. Prerequisites: 29:12 or 29:18 or 29:28.

29:129 Electricity and Magnetism 3 s.h.

Electromagnetic fields; introduction to Maxwell’s equations. Prerequisite: 22M:28 or 22M:40-42.

29:130 Electricity and Magnetism 3 s.h.

Continuation of 29:129, which is prerequisite; magnetism, electromagnetic waves, A.C. circuits, examples of Maxwell’s equations to wave guides, antennas, optics, plasma physics, other topics.

29:131 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. May be repeated. Offered only through Saturday and Monday Evening Class Program.

29:132 Intermediate Laboratory 2 s.h.

Electricity, electronics, magnetism, optics, atomic, nuclear, solid state physics; techniques in data analysis, including error analysis. Prerequisites: 29:11-12, 29:29, 29:15, 29:141. May be repeated. Prerequisites: 29:18 or 29:28; 29:62; and 22M:26 or 22M:36.

29:133 Advanced Laboratory 2 s.h.

Topics in electricity, electronics, magnetism; atomic, nuclear, plasma, solid state physics; techniques in data analysis, including error analysis. May be repeated.
Physics and Astronomy ● Liberal Arts

29:140 Introduction to Quantum Mechanics I 3 s.h.
Superposition principle. Stern-Gerlach experiment, linear operators, measurement, theory, one-body evolution, angular momentum, wave mechanics in one dimension, one-dimensional harmonic oscillator, two body problems with central forces, the hydrogen atom. Prerequisites: 29:29 or 29:83; 29:171 or 22M:28 or 22 M:60-62.

29:141 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: 29:140.

29:171 Mathematical Methods of Physics 3 s.h.

29:172 Mathematical Methods of Physics 3 s.h.
Continuation of 29:171; fiber space, special functions, Fourier transform and expansions in orthogonal polynomials, differential equations, Green’s functions.

29:180 Electromagnetic Foundations of Optics 3 s.h.
Microscopic origins of macroscopic optical properties of matter, dipole radiation; normal modes of matter; optical activity; anisotropy; crystal optics; electro-optical; magneto-optical; acoustooptical phenomena; spontaneous Brillouin scattering. Prerequisite: 29:130 or equivalent. Same as 55:177.

29:182 Electro-Optics 3 s.h.
propagation, absorption and effects in bounded structures; optical birefringence; dielectric waveguides, fibers; electro-opt, acousto-opt modulation; optical detection, now Prerequisite 29:130 or equivalent. Same as 55:178.

29:184 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: 29:130 or equivalent. Same as 55:179.

29:192 Elementary Particles and Nuclear Physics 3 s.h.
Acceleration, 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: 29:140.

29:193 Introductory Solid State Physics 3 s.h.
Basic equations of materials, solids and crystals, macroscopic and microscopic properties of solids; thermal, optical, magnetic, dielectric properties of solids. Prerequisites: 29:140 and 22M:28, or 22 M:40, 22 M:41, and 22M:42. Same as 55:171.

29:194 Plasma physics 3 s.h.
Physics of ionized gases, including theory, guiding center motion, adiabatic invariants, ionization balance description of plasmas by fluid variables and distribution functions; linearized wave motions, instabilities; magnetohydrodynamics. Prerequisite: 29:130.

29:195 Plasma physics 3 s.h.
Continuation of 29:194; linear, nonlinear solutions of the Vlasov equation, kinetic theory of plasmas, including Landau damping and velocity space instabilities.

29:196 Fluid Mechanics 3 s.h.
Basic equations of fluid mechanics; hydrostatics, potential flows in two and three dimensions, waves, effect of finite viscosity, turbulent flows, onset and nature of turbulence. Prerequisites: 22M:28 or 22 M:42, and 29:115 or equivalent.

29:211 Mechanics of Continua 3 s.h.
Hydrodynamics, dynamics of ideal fluids, both incompressible and compressible; viscous flow; astrophysics theory of elasticity. Prerequisites: 29:265 or 29:271.

29:212 Statistical Mechanics I 3 s.h.
Probability distributions; energy; free energy; classical and quantum equilibrium statistical mechanics with applications including ideal and imperfect gases and phase transition, irreversible processes, fluctuation and noise. Prerequisites: 29:118, 29:140, and 29:172.

29:213 Classical Electrodynamics 3 s.h.
Advanced electromagnetics; boundary value problems, Green’s functions, electromagnetic waves, radiation theory, physical optics, multiple expansion of radiation field. Prerequisites: 29:130 and 29:172.

29:214 Classical Electrodynamics 3 s.h.
Special relativity, motion of changes in fields, phenomena of radiation reaction, special topics. Prerequisite 29:2-13. Arr.

29:220 Individual Critical Study 3 s.h.
Essay on topic chosen in consultation with faculty member. Open only to candidates for M.S. with critical essay.

29:222 Nonlinear Optics 3 s.h.
Classical treatment of second, third order optical nonlinearities; phase matching, harmonic generation, four and three wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Prerequisite: 29:130 or equivalent. Same as 55:192.

29:224 Laser Principles 3 s.h.
Laser theory, stimulated emission, dispersion theory, broadening mechanisms, rate equations, gain saturation, optical resonators, mode locking; Switching techniques, survey of laser types, modes of operation. Prerequisite: 29:130 or equivalent. Same as 55:274.

29:226 Quantum Electrodynamics 3 s.h.

29:228 Topics in Quantum Electronics 3 s.h.
Quantum optics, optical properties of matter; laser science, photosensitization of a computer. Prerequisite: 55:172.

29:245 Quantum Mechanics I 3 s.h.
Nonrelativistic quantum mechanics; Schrödinger wave equation, probability, scattering, spin and angular momentum, identical particles, selected applications, introduction to relativistic theory. Prerequisites: 29:141 and 29:172.

29:246 Quantum Mechanics II 3 s.h.
Continuation of 29:245.

29:247 Introduction to Quantum Field Theory 3 s.h.
Quantization of relativistic and nonrelativistic fields, path integral formalism, Dirac quantization, introductory geometry, quantization theory of fields, dimensional regularization, renormalization group theory, introduction to gauge and anomalous. Prerequisite: 29:246.

29:248 Quantum Gauge Theories 3 s.h.

29:251 Advanced Nuclear Physics 3 s.h.
Microscopic models of nuclear systems at low, intermediate, and high energies based on nuclear-meson and quark-gluon degrees of freedom; nuclear structure, nuclear reactions, strong interactions, QCD, few, and many body quantum models, electroweak interactions and beta decay, relativistic models, nuclear symmetries, interacting boson models, heavy ion models, and applications, including the role of nuclear phase space, central evolution and cosmology. Prerequisite: 29:243 and 29:246 or consent of instructor.

Current research. Same as 55:291.

Current research.

29:266 Seminar: Space physics Arr.
Current research.

Current research.

Current research.

29:271 Theoretical Solid State Physics 3 s.h.
Central problems of the quantum theory of solids; lattice dynamics, electronic structure, optical properties, superconductivity, magnetism, emergence of the concept of elementary excitations. Prerequisites: 29:193 and 29:246.

29:272 Theoretical Solid State Physics II 3 s.h.
Magnetic ordered systems; Green’s function methods. May be repeated.

29:273 General Relativity and Cosmology 3 s.h.
Einstein’s theory of gravitation; applications to astrophysics and cosmology. May be repeated.

29:274 Statistical Mechanics II 3 s.h.
Advanced topics in statistical mechanics, such as foundations of kinetic theory and quark-gluon-plasma; statistical mechanics, quantum statistical mechanics. May be repeated.

29:275 Particle Physics 3 s.h.
Elementary particle properties and phenomenology, quark parton models, quantum chromodynamics, unified theory of weak and electromagnetic interactions. May be repeated.

29:276 Special Topics in Quantum Mechanics 3 s.h.
Current topics in quantum mechanics, such as group theory, relativistic quantum mechanics, quantum gravity, atomic quantum field theory. May be repeated.

29:278 Solar Terrestrial Physics 3 s.h.
Atmosphere of sun, radio and cosmic 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. May be repeated.


29:291 Advanced Atomic and Molecular Physics 3 s.h.
Structure and processes including scattering theory, radiative transfer, laser physics, nonlinear optics. May be repeated. Prerequisite: 29:246 or consent of instructor.

29:294 Advanced Plasma Physics 1 s.h.
Magnetohydrodynamics; statistical mechanics of plasmas; bumpy equation; BGG hierarchy; Fokker-Planck equation and relaxation processes; Balbus-Laden equation; Vlasov equation and linearized wave motion; shocks, nonlinear plasma motions, instabilities; fluctuations and radiation processes; topics from recent literature. May be repeated. Prerequisite: 29:12 or 29:213 or consent of instructor.

Astronomy - Primarily for Undergraduates

29:50 Modem Astronomy 3 s.h.
Survey for non-science majors; topics from visible phenomena in the sky to latest astronomical findings; properties of planets, origin of solar system, life cycle of stars, galaxies and quasars, origin of the universe. Open only to non-science majors. GER: natural sciences.

29:51 Introductory Astronomy Laboratory 1 s.h.
Lab for 29:50. Prerequisite: 3 semester hours credit in 29:50. GER: natural sciences.

29:52 Characteristics and Origins of the Solar System 3 s.h.
Well defined topics in solar system astronomy, such as celestial mechanics, structure and energy source of sun, production of comets on moon and other solar systems objects, formation of solar system, properties of planetary atmospheres including human modification of Earth’s atmosphere, astronomical perspectives on origin of life; for nonmajors. GER: natural sciences. Prerequisite: 29:50 or consent of instructor.

29:61 General Astronomy 4 s.h.
Qualitative and quantitative introduction to the development of astronomy, celestial mechanics, time, electromagnetic radiation, telescopes and astronomical instruments, planets, smaller solar system objects; emphasis on observation with telescopes. GER: natural sciences. Prerequisite: four years of high school math

29:62 General Astronomy 4 s.h.
Continuation of 29:61; qualitative and quantitative introduction to properties and evolution of sun, stars, interstellar matter, galaxies, cosmology; laboratory emphasis on observation with telescopes. GER: natural sciences. Prerequisite: four years of high school math

29:94 Reading in Astronomy Arr.
Astronomy-for Undergraduates and Graduates

29:104 Reading in Astronomy arr.
29:119 Introduction to Astrophysics I  3 s.h.
Fundamentals of astrophysical processes in solar system objects, stars, nebulae, interstellar medium, galaxies; topics include stellar spectra, binary stars, interstellar gas and dust, stellar and galactic kinematics, stellar evolution, HII regions, radiation processes in galaxies and quasars, stochastic processes in astrophysics. Prerequisites: 29:18 or 29:28, and 29:62, and 22M:26 or 22M:36. Recommended: computer programming experience.
29:120 Introduction to Astrophysics II  3 s.h.
Continuation of 29:119. Prerequisites: 29:29, and 22M:26 or 22M:36.
29:137 Astronomical Laboratory  2 s.h.
Techniques and instrumentation in astronomy. May be repeated. Consent of instructor required. Prerequisite: 29:62.

Astronomy- Primarily for Graduates

29:232 Theoretical Astrophysics I  3 s.h.
Radiative transfer, theory of stellar photospheres and continuum spectrum of stars, formation of absorption lines in spectra of stars. Consent of instructor required.
29:233 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.
29:234 Stellar Structure and Evolution  3 s.h.
Structure of stellar interiors; nucleosynthesis in stars and evolution of stars. Consent of instructor required.
29:235 Special Topics in Astrophysics  1-3 s.h.
Advanced lectures. May be repeated.
Current research.
29:262 Research: Astronomy arr.
Original research in observational, theoretical astronomy.

POLITICAL SCIENCE

Chair: Peverill Squire
Professors emeriti: Lane Davis, Hugh E. Kelso, Russell M. Ross, Peter G. Snow, Vernon B. Van Dyke
Associate professors: Cary R. Covington, Thomas M. Hagle, Sally Kenney, James M. Lindsay, Rebecca Morton, William M. Reisinger
Instructor: Kelly Kadera

Undergraduate Programs

Bachelor of Arts

Students seeking the B.A. degree with a major in political science must complete 33 semester hours of course work in political science, as follows.
30:1 Introduction to American Politics  3 s.h.

Four of these:
30:30 Introduction to Political Thought and Political Action  3 s.h.
30:40 Introduction to the Politics of the Industrial Democracies  3 s.h.
30:41 Introduction to the Politics of Russia, Eastern Europe, and Eurasia  3 s.h.
30:42 Introduction to the Politics of Developing Areas  3 s.h.
30:50 Introduction to Political Behavior  3 s.h.
30:60 Introduction to International Relations  3 s.h.
30:61 Introduction to American Foreign Policy  3 s.h.
30:70 Introduction to Political Communication  3 s.h.

Students must earn at least 18 semester hours in political science courses numbered 100 or above (credit from 30:191 Government Internship and 30:192 Washington Internship cannot be included in this total). At least 12 of the required 18 semester hours must be taken in regularly scheduled classroom work. Transfer students must take at least 12 of the 33 semester hours of work in political science at The University of Iowa.

Students must maintain at least a 2.00 grade-point average in all political science courses and in all political science courses taken at The University of Iowa.

Bachelor of Science

The B.S. degree requires three semesters of mathematics or statistics. The following sets of courses are approved.

22M:17 Quantitative Methods I or 22M:25 Calculus I  4 s.h.
22S: 102 Introduction to Statistical Methods  3 s.h.
22S:148 Intermediate Statistical Methods  3 s.h.
22M:17 Quantitative Methods I or 22S:8 Quantitative Methods II  4 s.h.
6K:71 Statistical Analysis or 6E:85 Economic Statistics  3 s.h.
22M:25 Calculus I  4 s.h.
22M:26 Calculus II  4 s.h.
22S:102 Introduction to Statistical Methods  3 s.h.

Other sets of courses maybe used with written approval of the director of undergraduate studies in political science. A 2.00 grade-point average is required.

Education Major

Undergraduates planning to emphasize political science in their teacher training should consult the College of Education for requirements.
The courses 30:1 Introduction to American Politics and 30:110 The American Political System fulfill the requirement for Iowa teacher licensure.

Honors

The program leading to a B.A. or a B.S. with honors is open to students with a minimum cumulative grade-point average of 3.20 overall and in political science. To graduate with honors, students must maintain at least a 3.50 grade-point average in political science and a cumulative grade-point average of at least 3.20. Students are encouraged to take upperclass honors seminars as often as possible, although the program requires only 9 semester hours of upperclass honors course work with a grade of B or higher in each course.

Honors students must complete 30: 180 Honors Seminar on the Study of Politics, preferably as sophomores. They also must take at least one additional upperclass honors seminar, 30: 181 Honors Seminar on American Politics, 30:182 Honors Seminar on Political Theory, 30:183 Honors Seminar on Comparative Politics, or 30: 184 Honors Seminar on International Politics. The last 3 semester hours required for graduation with honors in political science may be earned by completing 30:185 Honors Research Project, 30:186 Honors Senior Thesis, or a third upperclass honors seminar. Contact the department honors adviser for more information.

Minor

To receive a minor in political science, students must take 15 semester hours in political science courses, 12 of which must be taken in courses at The University of Iowa numbered 30:100 and above (credit from 30:191 Government Internship and 30:192 Washington Internship cannot be applied to the minor).

Graduate Programs

The department has a program leading to a Doctor of Philosophy in political science for students planning academic careers. The department usually offers the master’s degree only as a preliminary step toward the Ph.D.

Master of Arts with Thesis

To earn an M.A. in political science, students must complete at least 36 semester hours with a grade-point average of at least 3.25, submit a thesis, and pass a final oral examination. No more than 8 semester hours of credit for thesis preparation may be counted toward the 36-semester-hour minimum requirement. The final oral examination covers both thesis and course work.

Master of Arts without Thesis

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 without writing a master’s thesis. The requirements for the M.A. without thesis include completion of at least 30 semester hours of graduate work with a grade-point average of at least 3.25 and review of the student’s record by a final examination committee, which may waive the final oral examination.
The same requirements apply where a first-year evaluation committee finds the quality of a student’s work inadequate for recommending continuation toward the Ph.D. but adequate for proceeding with the master’s program. The committee may recommend that the student be permitted to seek the nonthesis M.A. as a terminal degree.

Doctor of Philosophy

The Ph.D. program in political science 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.

About ten Ph.D. students are admitted 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 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 today’s political scientist must understand thoroughly. Special attention is given to research design, collection of observations, analysis and interpretation of data, micro- and mainframe computers, and social science software. Most first-year students complete this training with a research tutorial involving investigative projects directed by the faculty.

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 comprehensive examinations by the end of the third year.

The fourth year is spent on dissertation research and writing. Students who do basic research and gather data abroad often require a fifth year to complete the dissertation.

Five fields of study are available: American politics, comparative politics, international relations, political theory, and for those who wish to go beyond the basic methodology training, research methods. Each student chooses three fields of study for the comprehensive examination.

A comprehensive statement of departmental requirements is set forth in the Guide to Doctoral Study in Political Science. For general graduate admission and degree requirements, see the Graduate College section of the Catalog.

Courses

For Undergraduates

Courses numbered below 100 are introductory; those numbered 100 to 199 are advanced.

30:000 Cooperative Education Training Assignment

30:1 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. GER: social sciences.

30:30 Introduction to Political Thought and Political Action

3 s.h.

Common problems, literature, analytic techniques. GER: social sciences or humanities.

30:40 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, policymaking processes, patterns of voting behavior and citizen participation. GER: social sciences.

30:41 Introduction to the Politics of Russia, Eastern Europe, and Eurasia

3 s.h.

Politics change in Russia, Eastern Europe, and Eurasia: historical factors, institutional change, current problems. GER: social sciences.

30:42 Introduction to the Politics of Developing Areas

3 s.h.

Political systems of underdeveloped countries in Africa, Asia, Latin America; development; how they interact with other developing countries and with developed countries. GER: social sciences.

30:50 Introduction to Political Behavior

3 s.h.

Patterns and bases of political behavior; emphasis on common elements across social, institutional, institutional settings. GER: social sciences.

30:60 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. GER: social sciences.

30:61 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 political science.

30:70 Introduction to Political Communication

3 s.h.

Institutions, dynamics, issues of political communities considered as networks of communication; representative topics include political action ads, news media; myths, news, publics, regulations, rhetoric, symbols. GER: social sciences.

30:100 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. May be repeated.

30:11 10 The American Political System

3 s.h.

Behavioral study of American individuals and groups; institutional structure of political system. Not open to students who have received credit for 30:1.

30:111 Municipal Government and Politics

3 s.h.

Models of city government; faction to state and federal governments; rights, liabilities of municipalities; city elections, campaigns, issues, role of pressure groups.

30:112 Iowa Government and Politics

2-3 s.h.

Political parties and campaigns, constitution, election laws, legislative process, judicial proceedings, roles of Iowa governors.

30:1 13 American State Politics

3 s.h.

Approaches to analysis of political behavior in American state governments; emphasis on cultures, parties, actors, processes, issues.

30:1 14 Political Parties and Pressure Groups

3 s.h.

Structure, factions of political parties and pressure groups in American politics; how the roles of these organizations have changed over time; focus on history of party system, effects of economic/political reforms, use of various models of group, parties, patisanship.

30:1 15 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.

30:1 16 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.

30:1 17 The Politics of Civil Rights and Liberties

3 s.h.

Civil rights and liberties of U.S. citizens; legislative statutes, administrative regulations, judicial decisions.

30:1 18 Law and Social Change

3 s.h.

How law is used to control and promote social change; conditions that make laws effective or ineffective.

30:1 19 Problems in American Politics

3 s.h.

Problems in studying American system; structures, functions, behavior. May be repeated.

30:1 20 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.

30:1 21 Urban Administration

3 s.h.

Problems, principles of urban administration; tax problems; personnel matters, budgeting, planning, fiscal, budget operations of city administrations-police, fire, public health, recreation, welfare services, education.

30:1 22 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.

30:1 23 Politics and American Economy

3 s.h.

Interaction between politics, the economy: how political factors influence economic policymaking; their impact on unemployment, inflation, output growth; potential impact of economic voting on aggregate economic performance. Prerequisite: 6E:02 or 6E:05.

30:1 24 Executive-Legislative Relations

3 s.h.

Conflict, cooperation between executive and legislative branches of U.S. government; budget politics, legislative veto, foreign policy.

30:1 26 American Public Policy

3 s.h.

Functions and policies of national government; emphasis on domestic policy making, impact of public policy. Prerequisite: 30:1.

30:1 32 Modern Political Theory

3 s.h.

Major writers and intellectual trends, from Renaissance and Reformation to nineteenth century.

30:1 33 Postmodern Political Theory

3 s.h.

Major writers and intellectual trends, from nineteenth century to World War II.

30:1 35 Introduction to Positive Political Theory

3 s.h.

Analysis of political issues through application of rational choice theory to problems of voting, collective action, bargaining, government structure, distributive justice, revolutionary change. Recommended: 6E:1.

30:1 36 Game Theory for Political Scientists

3 s.h.

Use of game theory in political science: utility theory; classical games, cooperative solutions concepts such as Nash equilibrium, subgame perfection, sequential equilibrium; games of imperfect and incomplete information, signaling games, repeated games.

30:1 38 Current Political Theory

3 s.h.

Thinkers or schools of thought, from World War II to present. May be repeated with consent of instructor.

30:1 39 Political Issues

3 s.h.

Representative topics include democracy, revolution, justice, obligation, technology. Authority may be repeated with consent of instructor.

30:1 40 Government and Politics of Western Europe

3 s.h.

Political institutions, processes of selected Western European countries. GER: social sciences. Prerequisite: 30:40.
30:141 Soviet and Post-Soviet Government and Politics 3 s.h.
How Soviet political system developed and functioned 1917-1985; transformations leading to (1990) breakup; emerging forms of government, politics in former Soviet republics. GER: foreign civilization and culture. Prerequisite: 30:41 or consent of instructor.

30:142 Politics in Post-Communist Societies of Eastern Europe and Asia 3 s.h.
Institutions, norms, functioning communist political systems in post-Stalin Soviet Union and Eastern Europe; differences shaped by history, culture, development geography; processes leading to fall of communist power 1989-1991; emerging forms of government and their politics. GER: foreign civilization and culture. Prerequisite: 30:141 or consent of instructor.

30:143 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 GER: foreign civilization and culture. Same as 39:178.

30:144 Latin American Government 3 s.h.
Governmental institutions, major interest groups; focus on area as a whole. GER: foreign civilization and culture.

30:145 Major States of Latin America 3 s.h.
Comparison of political systems; historical background with emphasis on contemporary political scene. GER: foreign civilization and culture.

30:146 African Development 3 s.h.
Problems of economic, political, spatial integration in Africa; processes of economic development and nation building. GER: foreign civilization and culture, social sciences. Same as 44:161, 141:146.

30:147 Ethnicity and Nationalism in the Former USSR 3 s.h.
Issues in religion, language, culture for ethnic minority groups in post Soviet societies; focus on policy challenges facing central leadership as result of rising demand for national self-determination. Political sovereignty. Prerequisite: 30:41 or 418:100.

30:148 The Politics of Southern Africa 3 s.h.
Major forces of political conflict, especially in South Africa; implications for development, stability of Africa and the West. GER: foreign civilization and culture. Same as 141:148.

30:149 Problems in Comparative Politics 3 s.h.
Structures, functions, behaviors of different political systems. May be repeated with consent of instructor.

30:150 The Political Economy of the Third World 3 s.h.
Patterns of political and economic change common to countries in Africa, Asia, Latin America; state formation and consolidation, neocolonialism and dependency, conflicting conceptions of meaning of development, costs and benefits of alternative strategies for achieving development. Prerequisite: 30:42 or consent of instructor.

30:151 Political Leadership 3 s.h.
Factors, effects of leadership in different political systems.

30:152 The Legislative Process 3 s.h.
Congressional 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. May be repeated with consent of instructor.

30:153 The Judicial Process 3 s.h.
Role of courts, lawyers, judges, interest groups in the American political system.

30:154 Political Psychology 3 s.h.
Political phenomena from psychological perspective; political behavior 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.

30:155 Political Violence and Revolution 3 s.h.
Causes, consequences in present and past political systems; Institutional violence, political crime, political and social movements, rebellion, revolution.

30:156 Politics of Ethnic and Cultural Conflict 3 s.h.
Origins, nature, political consequences of communal cleavage and conflict in minority societies and international settings.

30:157 Voting Behavior and Elections 3 s.h.
Determinants of voting behavior; correlates of political participation, political empathy, political socialization processes, nature and functions of elections.

30:158 The Criminal Justice System 3 s.h.
Role of actors, institutions that constitute and participate in the American criminal justice system.

30:160 International Politics 3 s.h.
Concepts and problems; war, conflict resolution, political terrorism.

30:161 International Organizations 3 s.h.
Functions in contemporary world affairs and impact on international policy; growth in the number and type, bargaining and decision-making within; impact on international security, global economic issues, development, environment, other issues of international order.

30:162 American Foreign Policies 3 s.h.
Ends pursued, means employed by the United States in relations with other states and international organizations. Prerequisite: 30:61 or consent of instructor.

30:165 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.

30:166 Politics of War and Peace 3 s.h.
Origins, purposes, effects of war in the modern era; attempts to eliminate or control war as an instrument of policy; alternative methods to secure a peaceful world.

30:168 Foreign Policies of the Former Soviet Bloc 3 s.h.
International politics between former USSR and Eastern European states and between them and other states; sources of foreign policy goals, strategies; similarities, differences between these states’ objectives, strategies, capabilities. Prerequisite: 30:60.

30:169 problems of International Politics 3 s.h.
May be repeated with consent of instructor.

30:170 The Politics of International Economics 3 s.h.
Political, historical dimensions; political aspects of trade, monetary systems, foreign investment, aid, dependency, global interdependence.

30:171 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 interviewing and conducting public opinion research. Same as 34:153.

30:172 Political Communication and Cognition 3 s.h.
Representative topics include structures, processes of political thinking and talking, especially in electronic societies; ads, experts, hearings, ideologies, media, news, publics, schemas, symbols, speech.

30:174 Women and the Law 3 s.h.
How laws classify, construct, affect women; readings in criminal law, family law, constitutional law, feminist jurisprudence; proposed legal reforms, litigation as a method of social change, strategies of legal defense groups, public policies; impact women judges, lawyers, legal scholars. Same as 131:180.

30:175 Comparative Law 3 s.h.
Relationship between law and politics in Britain House of Lords, U.S. Supreme Court, Court of Justice of the European Community; institutions, processes, comparative methods.

30:179 Crises in the Middle East 3 s.h.
Dynamics of interstate relations; focus on major crises over past two decades; domestic, historical roots of crises. GER: social sciences.

30:180 Honors Seminar on the Study of Politics 3 s.h.
History, scope, methods; diverse issues, theories, techniques in systematic study. Open only to political science honors students or to others with consent of instructor.

30:181 Honors Seminar on American Politics 3 s.h.
Ideas, issues, models in selected area. Open only to junior or senior honors students in political science or to others with consent of instructor. May be repeated.

30:182 Honors Seminar on Political Theory 3 s.h.
Ideas, issues, models in selected area. Open only to junior or senior honors students in political science or to others with consent of instructor. May be repeated.

30:183 Honors Seminar on Comparative Politics 3 s.h.
Ideas, issues, models in selected area. Open only to junior or senior honors students in political science or to others with consent of instructor. May be repeated.

30:184 Honors Seminar on International Politics 3 s.h.
Ideas, issues, models in selected area. Open only to junior or senior honors students in political science or to others with consent of instructor. May be repeated.

30:185 Honors Research Project 3 s.h.
Special research assistance to political science faculty. Open only to junior and senior honors students in political science. Consent of instructor required.

30:186 Honors Senior Thesis 3 s.h.
Supervised research and writing. Open only to honors students in political science who are not in their last semester of course work before graduation. Consent of instructor required.

30:190 Independent Study 3 s.h.
Supervised special projects. Consent of instructor required.

30:191 Government Internship 1-3 s.h.
Undergraduate internships in state or national legislative office, executive agency, or with election campaign official. May be repeated. Consent of instructor required.

30:192 Washington Internship 3 s.h.
Open only to students participating in the Washington Center. Consent of instructor required.

For Graduates

Courses numbered 200 to 299 are core courses; those numbered 300 and above are advanced.

30:200 Introduction to Political Analysis 3-4 s.h.
Conceptual problems of political analysis; analytical research strategies, quantitative techniques. Open only to doctoral students in political science or to others with consent of instructor.

30:201 Introductory Methodology 3 s.h.
Observational methods, data analysis; critical analysis of applied social research. Open only to doctoral students in political science or to others with consent of instructor.

30:202 Computing in Political Science 1 s.h.
Work on large and small computer systems. Open only to doctoral students in political science or to others with consent of instructor.

30:203 The Writing of Political Science 2 s.h.
Instruction, practice in writing; focus on style, critical thinking, use of graphics. Open only to doctoral students in political science or to others with consent of instructor.

30:204 Computational Methods 3 s.h.
Methods for political analysis; calculus, matrix algebra, set theory. Open only to doctoral students in political science or to others with consent of instructor.

30:210 American Politics 3-4 s.h.
Major literature of American politics, emphasis on comparative, systemic, behavioral studies. Open only to doctoral students in political science or to others with consent of instructor.

30:220 Administrative Theory and Public Policy 3-4 s.h.
Literature, research on organizational and administrative theory, behavior, politics.

30:221 Urban Administration 3 s.h.
Problems, principles of urban administration; tax problems, personnel matters, budgeting, planning, functional operations of city administrations-police, fire, public health, recreation, social welfare services, education.

30:231 Introduction to Positive Political Theory 3-4 s.h.
The formal analysis of politics; macroeconomic foundations, collective choice problems, spatial models, voting mechanisms.

30:240 comparative Politics 3-4 s.h.
Current approaches analysis of systems; emphasis on conceptual, methodological issues. Open only to doctoral students in political science or to others with consent of instructor.

30:260 International Politics 3-4 s.h.
Approaches to study of international politics. Open only to doctoral students in political science or to others with consent of instructor.

30:300 Philosophy of Political Inquiry 3-4 s.h.
Purposes, methods in study of politics.

30:301 Intermediate Methodology 3 s.h.
Techniques of data analysis; statistical models and their relationship to hypotheses tested. Open only to political science doctoral students. Prerequisite: one semester of intermediate statistics.

30:302 Time Series Analysis 3-4 s.h.
Applications of models of dynamic causality, particularly those associated with Box and Jenkins, focus on intervention and regular transfer function models for estimation of causal relationships through time. ARIMA models of noise processes. Prerequisite: 30-301 or equivalent.
30:303 Linear and Nonlinear Models in Political Science 3-4 s.h.
Statistical inference in regression models; matrix approach; simultaneous equation models; models with limited dependent variables; OLS, GLS, IV, ML estimation; emphasis on interpretation, application in political science.

30:304 Experimental Methods 4 s.h.
Methods, techniques, and design of political science experiments.

30:313 Interest Groups 3-4 s.h.
Structure, influence of types of organized groups in American and other political systems.

30:314 Political Parties 3-4 s.h.
Roles, organization, composition, leadership, functions of parties in American or other political systems. May be repeated.

30:315 The Presidency 3-4 s.h.
American chief executive: history, recruitment, behavior, roles, responsibilities, powers, relationships with other institutions.

30:316 Law and Politics 3-4 s.h.
Constitutional law and politics in several democratic systems; scholarly commentaries, research on doctrinal outcomes.

30:319 Problems in American Politics 3-4 s.h.
Problems in study of American political system; structures, functions, behavior. May be repeated.

30:324 Seminar: Urbanization 4 s.h.
Problems, consequences of urbanization; political, economic, social study of metropolitan areas. Same as 34:279, 73:301, 44:337.

30:338 Colloquium in Political Theory 1-4 s.h.
Issues and works; no subject repetition in six consecutive semesters. May be repeated.

30:339 Problems in Political Theory 1-4 s.h.
Prescriptive and explanatory political theory; May be repeated.

30:340 Politics of Western Europe 3-4 s.h.
Selected systems or common political phenomena.

30:341 Asian Political Systems 3-4 s.h.
Democratic, transitional, totalitarian types of government; emphasis on leadership recruitment, social control, political participation.

30:349 Problems of Comparative Politics 3-4 s.h.
Problems in study of comparative political systems; structures, functions, behavior. May be repeated.

30:350 Political Economy and Public Policy in Developing Countries 3-4 s.h.
Relationships between political, economic, social change in developing countries, their bearing on formulation of development policy; emphasis on significance of social theory for resolving dilemmas posed by alternative development strategies.

30:352 Legislative Behavior 3-4 s.h.
Institutions, processes, behavior in the United States, Europe, or developing countries. May be repeated.

30:353 Political Psychology 3-4 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.

30:354 Political Socialization 3-4 s.h.
Development of political roles, attitudes, orientations; emphasis on theoretical, comparative approaches. May be repeated.

30:355 Women and Politics 3-4 s.h.
Literature on women's voting behavior, women political elites, women and public policy, feminism as a social movement in the United States; use of gender as a category of political analysis, feminist political theories, anti-feminist thought. Same as 131:355.

30:357 Public Opinion and Electoral Behavior 3-4 s.h.
Political attitudes and beliefs in mass publics; voting behavior; how electoral systems function.

30:361 Foreign Policy 3-4 s.h.
Foreign policy making and international behavior in relation to theories, findings, in selected countries. May be repeated.

30:367 Theories of International Political Economy 3-4 s.h.
Theories focusing on international system, the state, bureaucracies, interest groups, international organizations, bargaining processes, distributive norms.

30:369 Problems in International Politics 3-4 s.h.
Issues of international politics, emphasis on problems of theoretical analysis. May be repeated.

30:370 Seminar: Political Communication and Cognition 3-4 s.h.
Theories of political discourse and cognition, especially for electronic societies; issues from anthropology, artificial intelligence, cognitive science, hermeneutics, literary theory, mass communication, rhetoric, semiotics, other areas of communication.

30:390 Readings Tutorial 4 s.h.
Independent study. May be repeated. Consent of supervising faculty member required.

30:393 Research Tutorial 4 s.h.
Individual training in applied research. Maybe repeated. Consent of supervising faculty member required.

30:395 Master’s Thesis 4 s.h.
Consent of supervising faculty member required.

30:398 Ph.D. Dissertation 4 s.h.
Consent of supervising faculty member required.

Undergraduate Programs
The B.A. and B.S. programs in psychology are designed to contribute to a student’s 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 requirements for 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 enroll in the B.A. program with courses in experimental psychology and other advanced electives if they intend to pursue graduate work in psychology or in a related field.

Students in either program begin with a general introductory course, followed by statistics and methodology courses and electives in several broad areas of psychology: animal learning and psychobiology, child development, clinical, cognitive, and social psychology.

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 Student Psychological Association, which is open to all interested students. The group sponsors speakers, films, career days, and student symposia. There also is a local chapter of Psi Chi, the national undergraduate honor society of the American Psychological Association.

Requirements for the B.S. and B.A. in Psychology changed in 1994. Students who declare the B.A. or are admitted to the B.S. after August 22, 1994 must complete the new requirements. Students who declared before that date may choose to complete either the old or the new requirements. Students who choose to complete the old requirements must complete the major and graduate by August 1998.

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 semester hours of college course work (excluding any credit by exam) and must have a cumulative grade-point average of 2.67 or higher. There is no limit to 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 any additional evidence of their qualifications.
Any university student may enter the B.A. program. Entering freshmen and transfer students with fewer than 30 semester hours of course work who are interested in the B.S. program will be 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 the 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 research-oriented career in psychology. The program is appropriate for students preparing for careers in law, business, technical writing, or secondary school teaching (see the College of Education section of the Catalog for the certification requirements for social science teaching). The B.A. program requires fewer psychology courses than the B.S. program, offers a wider choice of electives, and can more easily be combined with a second major.

Students interested in pursuing graduate study in psychology or other social scientific disciplines may wish to enrich their B.A. program by taking courses in mathematics, statistics, research methods, and the natural sciences.

Students must satisfy the College of Liberal Arts requirements for the B.A. and must complete at least 25 semester hours in psychology plus a 3-semester-hour upper level statistics course. Effective fall semester 1994, students must also complete at least 9 semester hours of course work in a second area of concentration. Courses used to satisfy the College of Liberal Arts General Education requirements may not be used to satisfy the second area of concentration, but a second major or a minor in any discipline will satisfy the requirement.

Transfer students must complete at least 15 semester hours of the major at The University of Iowa.

The B.A. program must include the following courses, or equivalents: 31:1 General Psychology or 31:11 Elementary Psychology; 7P: 143 Introduction to Statistical Methods (same as 22S:102) or its approved substitutes, 22S:101 Biostatistics or 6K:71 Statistical Analysis; 31:120 Experimental Psychology I; 31:121 Experimental Psychology II; one elective course from each of the five groups listed under “Area Electives”; at least one additional open elective course (excluding 31:185, 31:191, 31:195, and 31:199), with at least four of the six electives in 100-level courses.

Candidates for the B.S. in psychology are expected to satisfy the General Education Requirement in natural sciences in one of the following ways: one semester each of chemistry and biological sciences; two semesters of chemistry; two semesters of physics; or one semester each of chemistry and physics. B.S. majors also must complete at least one semester of calculus; in most cases this entails at least one pre-calculus mathematics course. Students should consult with their advisers concerning specific courses that will satisfy these requirements.

Effective fall semester 1994, students also must complete at least one additional course in advanced mathematics, statistics, or computer science chosen from the following list.

### Mathematics

- 22M:26 Calculus I
- 22M:27 Introduction to Linear Algebra
- 22M:36 Engineering Calculus II
- 22M:46 Accelerated Calculus 11

### Statistics

- 22S:101 Biostatistics
- 22S:120 Probability and Statistics
- 22S:148 Intermediate Statistical Methods
  - 6K:71 Statistical Analysis

### Computer Science

- 22C:5 Problem Solving and Computing
- 22C:7 Introduction to Computing with FORTRAN
- 22C:10 Programming with C
- 22C:12 Programming in C++
- 22C:16 Introduction to Programming with Pascal
  - 6K:70 Computer Analysis

### Honors

The department has an active honors program open to majors with at least a 3.30 grade-point average in psychology courses and at least a 3.20 overall. The program includes research seminars and individual research collaboration with faculty members. Students usually are selected to participate in the department’s 31:195 Honors Seminar in Psychology during the spring semester of their junior year. Interested majors should contact the department honors adviser early in their junior year.

### Minor

A minor in psychology is an attractive option to students from a variety of disciplines. A minor requires 15 semester hours of credit with a minimum grade-point average of 2.00. At least 12 of those 15 semester hours must be in upper-level courses in this department; this includes all 100-level courses and 31:43. Departmental advisers can help students identify courses for a minor that complement the student’s major.

### Area Electives

Area offerings vary somewhat from semester to semester. Prior to each registration period, students should check the latest version of the brochure *Undergraduate Psychology at Iowa* and the current Schedule of Courses.

An approved statistics course is a prerequisite to all 100-level courses. For psychology majors in the B.A. program, the statistics course must be 7P:25 Elementary Statistics and Inference (same as 22S:25) or a more advanced course. In the B.S. program, the statistics course must be 7P:143 Introduction to Statistical Methods (same as 22S:102) or its approved substitutes, 22S:101 Biostatistics or 6K:71 Statistical Analysis. Other statistics options are available to non-psychology majors.

### ANIMAL LEARNING AND BIOPSYCHOLOGY

- 31:12 Fundamentals of Neurophysiology 3 s.h.
- 31:17 Introduction to Comparative Psychology 3 s.h.
- 31:123 Psychology of Learning 3 s.h.
- 31:126 Physiological Psychology and Psychology 3 s.h.
- 31:128 Introduction to Behavioral Pharmacology 3 s.h.
- 31:129 Biological Aspects of Behavior 3 s.h.
- 31:132 Motivation 3 s.h.
- 31:135 Principles of Behavioral Analysis 3 s.h.

### CHILD AND DEVELOPMENTAL PSYCHOLOGY

- 31:14 Introduction to Child Development 3 s.h.
- *31:103 Development of Children’s Social Behavior 3 s.h.
- 31:114 Cognitive Development of Children 3 s.h.
- 31:118 Infant Development 3 s.h.
- *31:166 Childhood Psychopathology 3 s.h.

### CLINICAL PSYCHOLOGY

- 31:33 Introduction to Clinical Psychology 3 s.h.
- 31:105 Personality 3 s.h.
- 31:109 Psychology of Aggression 3 s.h.
- 31:152 Health Psychology 3 s.h.
- 31:161 Schizophrenia 3 s.h.
- 31:162 Depression and Mania 3 s.h.
- 31:163 Abnormal Psychology 3 s.h.
- *31:166 Childhood Psychopathology 3 s.h.
- 31:170 Behavior Modification 3 s.h.
COGNITIVE PSYCHOLOGY
31:16 Introduction to Mental Processes 3 s.h.
31:113 Language Processing 3 s.h.
31:119 Memory and Cognition 3 s.h.
31:130 Psychology of Thinking 3 s.h.
31:133 Fundamentals of Sensation and Perception 3 s.h.
31:155 Human Factors Engineering 3 s.h.

SOCIAL PSYCHOLOGY
31:15 Introduction to Social Psychology 3 s.h.
31:102 Interpersonal Influence 3 s.h.
*31:103 Development of Children’s Social Behavior 3 s.h.
31:106 Attitude Change 3 s.h.
31:107 Environmental Stress 3 s.h.
31:108 Small Group Processes 3 s.h.
31:12 Research in Nonverbal Communication 3 s.h.
31:124 Psychology and the Law 3 s.h.
31:140 Psychology of Interpersonal Relations 3 s.h.

*These courses may be counted in either-but not both-of the areas indicated.

Graduate Program

The graduate program in psychology is designed primarily for students seeking the Ph.D. Except in very special circumstances, applications are considered only for that degree. For students entering without previous graduate work, it is a four-year program; those entering with previous graduate training require from two to four additional years in this department, depending on the nature of the earlier preparation.

The Ph.D. program has a 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 five broad training areas: clinical psychology, developmental psychology, human experimental psychology, neuropsychology, neurobehavioral, 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, research methods, learning, and several content areas other than their primary one.

The department has two areas of research emphasis that cut across the five training areas and combine methodological expertise of faculty and students with special resources within and outside the department: cognitive psychology and health psychology. Students who have particular interests in either area may apply to any one of the training areas and indicate a focus in a designated research area. However, students are not required to concentrate their research interest in one of these two areas. Many faculty members have individual and collaborative research projects that contribute to one or both of the research areas. Consequently, students can easily complete the requirements of a training area while developing research knowledge and skills in one or both of the research areas.

The training area programs are sufficiently flexible to permit students to develop substantial competence in a second training area. Several joint programs have been formulated and others can be developed as student interest dictates. A joint program involves mixing course work in two areas, and research supervision or co-supervision by faculty members from both areas. The department also is prepared to help students develop additional expertise in any of the following interest areas: human factors, aging, organizational and consumer behavior, communications, and cognitive science.

Preparation in one of these interest areas involves some special advanced seminars within the department, selected courses in other departments of the University, and participation in one or more research projects in the interest area.

Doctor of Philosophy

The Ph.D. requires satisfactory completion of at least 72 semester hours of graduate work in psychology, including at least 33 semester hours in this department. All students must satisfy, through one of several options, requirements in statistics and research methods, and in learning. A course in the history and/or philosophy of psychology is strongly encouraged. Students also are expected to take sufficient course work outside the primary training area to develop a reasonably broad background in the discipline of psychology as a whole. The nature of these requirements and their placement in the graduate program varies somewhat among the training areas and depends on the individual student’s background and interests.

During each of the first three semesters, graduate students ordinarily take three courses: for example, a general core course, a course in the primary training area, and an outside area elective. Students also become familiar with the literature, research strategies, and special techniques in one or more research areas through engagement in individually supervised research projects. This research participation may be with one faculty member all year long or with a different faculty member each semester—is designed to help students develop, by early in the second year, a reasonably detailed plan for the master’s research project.

By the end of the second year—certainly very early in the third year—students are expected to have completed their master’s project and to have defended their thesis. Advancement to Ph.D. candidacy is based on a faculty-wide review of the student’s overall record of performance on the M.A. project, in course work, and in teaching, research, and service.

During the third year, students continue selected course work in the training and interest areas, develop a prospectus for the dissertation research, and prepare for the comprehensive examination. This written examination covers material in the specialty and in related areas and ordinarily is given at the beginning of the fourth year. The fourth year is devoted primarily to advanced seminars and 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

As indicated above, the department does not offer a specific M.A. program. The M.A. with thesis is a required step for students preparing for the Ph.D. This degree requires satisfactory completion of at least 30 semester hours of graduate course work in psychology, 18 of which must be taken at The University of Iowa. The course work must include the statistics sequence, a learning course, and at least one course outside the primary specialty area. Students also must complete an acceptable scholarly thesis and conduct a successful oral defense of the thesis.

Master of Arts without Thesis

The M.A. without thesis is an option available to those few students who terminate their work in the department after four semesters. This degree requires satisfactory completion of at least 36 semester hours of graduate credit in psychology, 24 of which must be taken at The University of Iowa. The course work must include the statistics sequence, a learning course, and at least one course outside the primary specialty area. Students also must perform successfully on a written examination covering their area of specialization.

Graduate Training Areas

Clinical Psychology

The clinical training program, fully approved by the American Psychological Association, strongly emphasizes a scientific approach to the study of psychopathology. It is designed for students who primarily are interested in developing scholarly understanding of clinical phenomena and acquiring research skills necessary to the systematic investigation of such phenomena. Recognizing that students must become familiar with clinical material and competent in the application of clinical skills, the department closely integrates practicum experience in the Carl E. Seashore Psychology Clinic with course work and supervised research experience.

Students in the clinical program may develop special competence in areas such as aggression, personality and personality disorders, psychophysiology, anxiety disorders, the 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,
neurology, and surgery, and from other units, such as the Center for Health Services Research and the Veterans’ Affairs Medical Center. Partly as a consequence of such collaboration, there are several topics in health psychology in which clinical faculty members are prepared to offer research supervision. Within the department, joint training programs combining a clinical specialty with work in other training areas have been established and are available to students with strong interests in two specialty areas.

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 the doctoral degree. The internship ordinarily comes after completion of all course work and of most, if not all, of the dissertation project.

Development Psychology

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 psychology 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 psychology research being conducted in the department.

Human Experimental Psychology

Students affiliated with the human experimental program concentrate their training in the broad areas of perception and cognition, information processing, and learning. Current faculty members specialize in the following areas: learning and memory; problem-solving; language and cognition; mathematical psychology, psychophysical scaling, and signal detection theory; cognitive effects of drugs; human judgment and decision making; information processing; human factors and ergonomics; visual perception; and psychoacoustics.

Faculty members in the human experimental area are prepared to help students gain additional expertise in a variety of interest areas, including human factors, communications, aging, and organizational and consumer behavior. Collaborative research is under way with faculty members from the College of Business Administration, the Center for Health Services Research, and several departments, including neurology, industrial engineering, speech pathology and audiology, and anesthesiology.

Neuroscience and Behavior

The program in neuroscience and behavior focuses on the analysis of learning and motivation, primarily in nonhuman subjects, through the application of behavioral and biological principles. Special faculty strengths are in classical and operant conditioning, comparative psychology, motivation and emotion, developmental psychobiology, 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, and advanced analytic and laboratory methods in neurosurgery, histology, and biochemical assay.

Faculty members in the neuroscience and behavior area interact extensively with colleagues from a number of basic science departments in the College of Medicine, including anatomy, anesthesia, and pharmacology. These collaborative activities provide excellent research and training opportunities for students interested in emerging interdisciplinary fields such as behavioral medicine and behavioral neuroscience.

Social Psychology

The social psychology program offers a variety of perspectives on social processes. Students develop some familiarity with all of the approaches but may focus their graduate training in any of several subareas, such as attribution, social influences on behavior, close relationships, health and stress, the social psychology of groups, and the study of social psychological aspects of clinical problems and processes.

Students in the 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 ordinarily will involve selected course work outside the department (e.g., in the College of Business Administration or the Department of Communication Studies) and participation in special research projects, will broaden students’ employment prospects.

Admission

Since the graduate program in psychology is designed primarily for students seeking the Ph.D. degree, all applicants are considered on this basis. Occasionally, a qualified applicant interested in advanced work only through the M.A. level may be admitted to pursue a joint graduate program involving psychology and another discipline or profession. A person interested in such a program should contact the department chair before filing an application.

The deadline for applications is February 1. For all materials to be on file by that date, the Graduate Record Examination (GRE) General Test should be taken in October, certainly no later than in December. The subject test in psychology is not required. Applications may be submitted at any time but are considered only once each year—between February 1 and March 15—for admission the following fall. Admission decisions are based on a composite consideration of prior academic performance, letters of reference, scores on the verbal, quantitative, and analytic sections of the GRE General Test, and the applicant’s statement about background and purpose. Initial review of admission materials is done 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 will be expected to remedy deficiencies through special course work or independent study prior to embarking on the regular graduate program.

A student who has completed substantial graduate work at another institution before being admitted to The University of Iowa’s psychology program is expected to present documents, such as a master’s thesis or equivalent, that reflect significant engagement in research and scholarly writing. This material and the record of previous graduate course work is reviewed by the faculty members of the appropriate training area as a basis for placement in the graduate program. In no instance are students permitted to complete substantial research or writing for a master’s degree at another institution while they are regular full-time students in the graduate program at The University of Iowa.

A foreign language is not required for admission, and there are no foreign language requirements for either the M.A. or the Ph.D. in psychology.

Financial Aid

All students admitted to the graduate training program in psychology automatically are considered, on the basis of merit, for available financial support in the form of fellowships, teaching assistantships, research assistantships, traineeships, and tuition scholarships. No separate application for financial aid is required.

Faculty

The widely recognized commitment of the faculty to research and scholarship is manifest in the publication of nearly 100 articles, books, reviews, and book chapters each year. Many faculty members also are active as editors, associate editors, and regular consulting editors for major psychology journals.
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, many computerized, for human and animal studies. Facilities include two separate animal housing areas; a histology laboratory; observation suites with remote audiovisual control and recording equipment; a soundproof chamber; closed-circuit TV systems; electrophysiological recording rooms; conditioning laboratories; the Carl E. Seashore Psychology Clinic; and well-equipped electronic, mechanical, and woodworking shops.

The University’s Weeg Computing Center currently operates an IBM 3090 and an IBM RS/60001, two Encore Multimaxes, and a VAX 6420. Students and faculty have ready access to these systems through terminals in the department and through a satellite computer facility in Seashore Hall. Microcomputers of many kinds are widely available. Office space for graduate students and faculty is provided in Seashore Hall. The psychology branch of the University’s Main Library, 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 The University of Iowa Hospitals and Clinics, the Psychiatric Hospital, the Veterans Affairs Medical Center, the University Counseling Service, the Child Development Clinic, the Wendell Johnson Speech and Hearing Clinic, the Iowa Driving Simulator, the Center for Health Services Research, and the School of Social Work.

Courses

Primarily for Undergraduates

31:1 or 31:3 or equivalent is prerequisite to all other psychology courses. Only one of these may be taken for credit.

31:12, 31:13, 31:14, 31:15, 31:16, 31:17, and 31:19 are open to freshmen who have satisfactorily completed an introductory psychology course (31:1 or 31:3 or equivalent).

31:000 Cooperative Education Internship 0 s.h.
Administered by Cooperative Education Program, filled on competitive basis. Open only to psychology majors. Consent of department required. Maybe repeated.

31:1 Elementary Psychology 3 s.h.
Psychology as a behavioral science. GER: social sciences.

31:3 General Psychology 4 s.h.
Introduction to psychology as an experimental science; focus on methods of investigation in psychology. GER: social sciences. Consent of instructor required. Prerequisite: high school preparation in mathematics and science.

31:12 Fundamentals of Neuropsychology 3 s.h.
Basic statistical methods of behavior; emphasis on relating basic information to human behavior; for students with minimal background in natural sciences.

31:13 Introduction to Clinical Psychology 3 s.h.
Scientist practitioner model, training ethics, research methods in clinical psychology; current approaches to intellectual, diagnostic, personality, behavioral assessment; theories, research on treatment of psychological disorder. GER: social sciences.

31:14 Introduction to Child Development 3 s.h.
Current research, theory in child psychology, including heredity and environment, infancy, perceptual development, attachment, language acquisition (Piaget), reasoning processes, memory and concept development, intelligence, child rearing, peers, sex differences, moral development, aggression, child psychopathology. GER: social sciences.

31:15 Introduction to Social Psychology 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:16 Introduction to Mental Processes 3 s.h.
Individual human cognition; perception, memory, language, learning, problem solving, decision making, thought considered from viewpoint of reformation processing. GER: social sciences.

31:17 Introduction to Comparative Psychology 3 s.h.
Behavioral processes in human, nonhuman primates and apes, birds, reptiles, archosaurs, and nonchordates; emphasizing studies with nonhuman subjects; Implications of research on aggression for social structures.

31:18 Introduction to Psychology of Social Development 3 s.h.
Psychological aspects of urban living, control, attitude development and change, attributional processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:20 Research in Nonverbal Communication 3 s.h.
Research relating communication behavior to broad range of topics in psychology, including language; language, learning, problem solving, decision making, thought considered from viewpoint of reformation processing. GER: social sciences.

31:21 Research in Social Psychology 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:22 Research in Psychological Assessment 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:23 Research in Child Development 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:24 Research in Cognitive Development 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:25 Research in Developmental Psychology 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:26 Research in Personality 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:27 Research in Social Psychology 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:28 Research in Behavioral Economics 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:29 Research in Behavioral Neuroscience 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:30 Research in Behavioral Genetics 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:31 Language Processing 3 s.h.
Current research, theory in child psychology, including heredity and environment, infancy, perceptual development, attachment, language acquisition (Piaget), reasoning processes, memory and concept development, intelligence, child rearing, peers, sex differences, moral development, aggression, child psychopathology. GER: social sciences.

31:32 Language Acquisition 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:33 Language Processing 3 s.h.
Current research, theory in child psychology, including heredity and environment, infancy, perceptual development, attachment, language acquisition (Piaget), reasoning processes, memory and concept development, intelligence, child rearing, peers, sex differences, moral development, aggression, child psychopathology. GER: social sciences.

31:34 Cognitive Development of Children 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:35 Principles of Behavioral Analysis 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:36 Cognitive and Social Development 3 s.h.
Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perceptual and conceptual processes, social interactions, close relationships; contributions by sociologists and anthropologists.

31:37 Language, Art, and Identity 3 s.h.
Quest for and expression of cognition, concepts of personal identity in ordinary language and written literature (poetry, art (ceramics), visual arts, performance, action.)
31:158 Love, Power, and Justice 3 s.h.
Psychological, philosophical, legal issues concerning individual’s role in a complex society.

31:140 Psychology of Interpersonal Relations 3 s.h.
Theories, empirical findings, speculation from social psychology and related disciplines regarding how people form, maintain, and dissolve interpersonal relationships.

31:152 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.

31:155 Human Factors Engineering 3 s.h.
Design of man/systems and development of optimum work environment by applying principles of behavioral science; emphasis on sensory and perceptual processes, motor skills, experimental methodology. Same as 56: 142.

31:156 Psychology in Management 3 s.h.
Application of psychological principles to human relationships and supervision; motivation, leadership, communication, group processes. Same as 56:145.

31:161 Schizophrenia 3 s.h.
Nature of schizophrenia; theories and research in topics such as clinical features, premorbid adjustment, genetic vs. environmental influences, cognitive deficits, pharmacological and psychological treatment. Recommended: 31:13 or equivalent.

31:162 Depression and Mania 3 s.h.
Review of symptoms, treatment, theories about causes of depressive disorders (e.g., major depression, bipolar disorder). Recommended: 31:13 or equivalent.

31:163 Abnormal Psychology 3 s.h.
Adult psychiatric disorders (e.g., anxiety disorders, affective disorders, antisocial personality, schizophrenia, substance abuse, etc.); emphasis on theories of etiology and of psychological processes underlying psychopathology.

31:166 childhood Psychopathology 3 s.h.
Major forms of childhood psychopathology; current theoretical approaches and methodological issues in understanding, conceptualization, treatment of developmental psychopathology. Recommended: 31: 14 or equivalent.

31:170 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.

31:171 Behavioral Medicine 3 s.h.
Role of psychological factors in physical health and illness; relationship between personality characteristics and physical conditions; behavioral processes in etiology and treatment of disorders; stress and coping mechanisms, psychological responses to enduring and/or traumatic illness.

31:175 History and Systems of Psychology 3 s.h.
Historical influences on contemporary psychology; emphasis on psychological, physiological, and biological contributions to enduring psychological issues; development of psychology as a science. Prerequisites: an approved statistics course and junior standing or above.

31:180 Current Topics in Psychology 2-3 s.h.
May be repeated.

31:185 Research Practicum in Psychology arr.
Small-group participation in faculty research projects; literature review, planning of studies, data collection, analysis, interpretation, write up. May be repeated. Consent of instructor required.

31:191 Special Readings and Projects arr.
Open only to undergraduate majors in psychology. Consent of department chair and sponsorship of staff member required. May be repeated.

31:195 Honors Seminar in Psychology 3 s.h.
Research areas; leads to choice of topic for honors project. Open only to honors students. Consent of instructor required.

31:199 Honors Thesis Research 1-3 s.h.
Supervised original project; leads to written thesis, oral defense. Open only to honors students. May be repeated.

Primarily for Graduates

31:203 Social Perception and Attribution 3 s.h.
Theory, empirical analysis of perception of persons and attribution; determinants of impression formation, attraction, behavioral prediction.

31:205 Social Influences on Behavior 3 s.h.
Theoretical, empirical analysis of interpersonal influences on self concept, behavior; social comparison, conformity, compliance, obedience.

31:207 Interpersonal Relationships 3 s.h.
Theoretical, empirical analysis of interpersonal attraction, affiliation, cooperation and competition, group formation and process, intergroup relations.

31:208 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.

31:209 Psychology of stress 3 s.h.
Theory, research on stress and emotion; learned helplessness, lots of a loved one, social support, coping strategies, overload, institutionalization, urban stress.

31:210 Nonverbal Communication 3 s.h.
Theoretical, empirical, methodological analysis of psychological principles relating to nonverbal communication of social information.

31:211 Processes in Social Development 3 s.h.
Theory of social development from infancy to adulthood; emphasis on temperament, attachment, emotion, aggression, pro-social behavior, peer relationships, moral development. Consent of instructor required.

31:212 Early Perceptual-Cognitive Development 3 s.h.
Knowledge acquisition during first two years of life; development of visual, speech, bimanual perception; imitation; object concept and permanence; early perceptual concepts.

31:213 Developmental Research Methods 3 s.h.
Designs, methods, and use of research in human development, including observations, experimental paradigms, interviews, or parent and child reports; methods specific to different developmental periods and areas (cognitive, social, emotional, developmental psychology).

31:218 Cognitive Development 3 s.h.
Theoretical and empirical analyses of children’s cognitive development; spatial and numerical concepts, causal reasoning, categorization, metacognition, memory.

31:219 Psychology of Language 3 s.h.
Cognitive processes involved in production and comprehension of natural language by normal adult humans, including processing of words, sentences, conversations, both spoken and written.

31:221 Motivation and Emotion 3 s.h.
Concepts of motivation, emotion as determinants of behavior; instincts, Hull-Spence Theory, opponent-process theory, two factor theory of avoidance, models of drug addiction and tolerance, biological basis of homosocial and homonegative behaviors.

31:222 Conditioning and Learning 3 s.h.
Methodological, theoretical considerations in analysis of conditioning and learning processes governing human, animal behavior.

31:223 Information Processing in Psychology 3 s.h.
Information-processing approaches to theoretical analysis of complex behavior; theoretical concepts including information theory, mechanical models, computer simulation; application to selected empirical topics.

31:224 Sensory Processes 3 s.h.
Methods, concepts, results of research relating to processes by which an organism obtains information about its environment.

31:225 Learning, Memory, and Cognition 3 s.h.
Historical development, current theories of human symbolic behavior; emphasis on acquisition, retention, use of verbal associations; visual imagery, simple decision making, concept formation, problem solving choice behavior. Same as 103:272.

31:226 Visual Perception 3 s.h.
Experiments, theories relating variation in visual stimuli, properties and cortical mechanisms to differential responding in visual recognition and discrimination tasks.

31:227 Introduction to Behavioral Neuroscience 3 s.h.
Basic facts, concepts in behavioral neuroscience; emphasis on relationship, relevance of behavior of concepts and facts, evolution, neuropepsychology, homestasis, biological rhythms, neuroanatomy.

31:229 Advanced Topics in Cognition 3 s.h.
Cognitive science, artificial intelligence; emphasis on psychological implications.

31:230 Behavioral Pharmacology 3 s.h.
Behavioral analysis of drug action; emphasis on physiological, biochemical mechanisms underlying behavioral processes in experimental animals, humans.

31:234 Developmental Psychology 3 s.h.
Physical, physiological, neural bases of behavior in developing organisms; thermoregulation, ingestion, sleep, sexual differentiation, parent-offspring interactions, sensory/motor development.

31:237 Experimental Analysis of Behavior 3 s.h.
Determinants of operant behavior; emphasis on philosophy, methodology of Skinner’s behaviorism; evaluation of application of operant behavior analysis to human affairs.

31:240 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.

31:244 Behavioral Neuroscience 2 s.h.
Basic principles of neuroanatomy, neuropsychology, developmental neuroscience, behavioral neuroscience. Offered fall semesters. Consent of instructor required. Same as 132:244.

71:248 Psychophysiology and Scaling 3 s.h.
Theoretical, empirical literature in psychophysiology and scaling; practical applications.

31:250 Introduction to Health and Behavioral Science 3 s.h.
Evolution of behavioral medicine area; 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. Consent of instructor required.

31:251 Psychology of Cardiovascular Disease 3 s.h.
Relationships between physiological systems and behavior; mechanisms of stress related hypertension, ingestive behaviors and hypertension, type A behavior in heart disease, neuropsychological impairment in stroke patients, psychoactive drugs. Consent of instructor required.

31:252 Clinical Behavioral Medicine 3 s.h.
Biopsychosocial framework applied to study, treatment of chronic and acute physical conditions; clinical concepts, procedures.

31:258 Personality 3 s.h.
Major theoretical, empirical issues in personality; role of the unconscious, stability and consistency of behavior, influence of heredity and environment in personality development; nature of traits and validity of trait reliability.

31:260 Descriptive Psychopharmacology 3 s.h.
Psychiatric syndromes, including description, etiology, experimental and clinical research; development, function of classification systems. Consent of instructor required.

31:261 Experimental Psychopharmacology 3 s.h.
Principles of psychobiological processes underlying etiology of psychopathology; emphasis on schizophrenia, affective disorders, anxiety, substance, drug abuse.

31:263 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. Consent of instructor required.

31:264 Psychological Appraisal II 3 s.h.
Detailed consideration of clinical use, interpretation of selected psychological assessment techniques; emphasis on research evidence of their validity and utility. Consent of instructor required. Prerequisite: 31:263 or equivalent.

31:265 Neuroscience Seminar 0-1 s.h.

31:268 Clinical Child Psychology 3 s.h.
Assessment, diagnosis, treatment of behavioral disorders of children; treatment approaches include behavior gradual, psychoanalytic, nondirective, pharmacological.

31:269 Theories and Techniques of Psychotherapy 3 s.h.
Major psychological techniques of behavior change; critical evaluation of theories, techniques.

31:271 Psychoacoustics 3 s.h.
Same as 3:354.
31:272 Psychoacoustics laboratory 4 s.h. 
Same as 3:255.

31:275 Behavioral and Cognitive Therapies 3 s.h. 
Major behavioral and cognitive therapies for psychological disorders, including anxiety, depression, schizophrenia, childhood disorders; emphasis on critical evaluation of therapy techniques.

31:276 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. Consent of instructor required.

31:277 Marital and Family Therapy 3 s.h. 
Theoretical foundations, clinical procedures, research investigations relative to treatment of families and couples; emphasis on behavioral and systems approaches to intervention; live and videotaped demonstrations of intervention strategies, clinical interviewing practice with couples.

31:290 Instruction in Psychology 1-2 s.h. 
Preparation of lectures, exams, homework assignments, term papers; elements of successful teaching.

31:291 Problems in Psychology arr. 
Individual study. Consent of instructor required.

Consent of instructor required.

Consent of instructor required.

31:297 Research Projects arr. 
Consent of instructor required.

31:301 Seminar: Personality 0-2 s.h. 
Recent and contemporary theories; current research on origins, nature, significance of individual differences.

31:303 Advanced Topics in Social Psychology 0-2 s.h. 
Recent theory, research.

31:308 Seminar: Clinical Child Psychology 0-2 s.h. 
Theoretical, methodological issues related to child clinical psychology. Consent of instructor required.

31:315 Seminar: Social Development 0-2 s.h. 
Theoretical, methodological issues focused on social, emotional, personality development.

31:322 Seminar: Language and Spatial Cognition 0-2 s.h. 
Relations between spatial cognition, language, categorization; language and spatial knowledge in the deaf, spatial metaphors, structural similarities between the representation of spatial and semantic information, spatial direction giving.

31:332 Seminar: Attention 0-2 s.h. 
Human attention, perception, information processing.

31:335 Seminar: Cognitive Neuroscience 0-2 s.h. 
Neurological and behavioral investigations of attention, perception, learning, memory, decision making, planning, contemporary models, theories. Consent of instructor required.

31:338 Seminar: Neuroscience and Behavior 0-2 s.h. 

31:350 seminar in Health and Behavioral Science 0-2 s.h. 
Recent theoretical issues, experimental findings, research approaches in health and behavioral science. Consent of instructor required.

31:361 Seminar: Clinical Psychology I arr. 
May be repeated. Consent of instructor required.

31:380 Ethics and Professions concerns arr. 
Standards, procedures for review of studies with human participants; professional ethics, licensing, teaching of psychology, professional placement.

31:384 Seminar: Professional Development in Higher Education 0-2 s.h. 
Assessment of teaching effectiveness; research supervision and mentorship; ethical standards in research; role of service to institution and profession in faculty development.

31:461 Introductory Practicum arr. 
Psychodiagnostic work in Department of Psychology clinic under supervision of clinical psychology faculty members. Consent of clinical training committee required.

31:462 Assessment Practicum arr. 
Supervised practice in psychological assessment techniques. Consent of clinical training committee required.

31:463 Therapy Practicum arr. 
Supervised practice and clinical experience in the application and evaluation of psychological therapies. Consent of clinical training committee required.

31:464 External Practicum arr. 
Supervised practice, clinical experience in field setting; psychological assessment techniques and/or application and evaluation of psychological therapies. Consent of clinical training committee required.

**RELIGION**

Director: George W.E. Nickelsburg
Professors emeriti: David R. Belgun, George W. Fellon, David E. Klemm, Sidney E. Mead, W. Pachow, James C. Spalding
Associate professors: Helen T. Goldstein, George W. Paterson
Assistant professors: Diana Firth Cates, Ralph Kean, Janine A. Sawada, Frederick M. Smith

Undergraduate degree: B.A. in Religion; minor in Religion
Graduate degrees: M.A., Ph.D. in 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 education appropriate to the 1990s. The School of Religion 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 school recognizes that religious activity is expressed in countless ways. Therefore, it offers a wide range of courses that explore facets of religion in cultures across the world. Topics and issues include religious texts and thinkers as well as how culture, tradition, and experience intersect. Study of the variety of ways in which religions have formulated values and addressed matters of ultimate concern is pursued through a diversity of academic approaches and methods, including historical, textual, artistic and literary.

**Undergraduate Program**

Each year almost two thousand University students enroll in courses in religion to fulfill part of their General Education Requirements. Students who choose to major in religion may count a maximum of three religion courses approved to meet General Education Requirements as part of the 30 semester hours in religion required for the major. Some students choose religion as a second major to complement their studies in another field.

Religion majors learn the basic skills required in today’s world: critical thinking, clear writing, persuasive use of evidence in arguing one’s point, and understanding and communicating with people who hold other points of view.

**Required Basic Courses**

Students must take 12 semester hours of continuing studies in one of the following nine areas of concentration, grouped in three divisions: historical traditions, thought and culture, and cross-cultural studies. Lists of approved courses for each concentration are available from the School of Religion office. The concentration areas are designed to give students great flexibility in fulfilling requirements for the major in religion.

**HISTORICAL RELIGIOUS TRADITIONS**

Judaism, Christianity, and Islam
Religions of India, China, and Japan
The Bible and its contexts

**THEORETICAL APPROACHES TO RELIGION**

Three semester hours from the following:

32:2 Religion and Society 3 s.h.
32:10 Introduction to Religious Studies 3 s.h.

**Advanced Requirements**

Students must take 12 semester hours of continuing studies in one of the following nine areas of concentration, grouped in three divisions: historical traditions, thought and culture, and cross-cultural studies. Lists of approved courses for each concentration are available from the School of Religion office. The concentration areas are designed to give students great flexibility in fulfilling requirements for the major in religion.

**HISTORICAL RELIGIOUS TRADITIONS**

Judaism, Christianity, and Islam
Religions of India, China, and Japan
The Bible and its contexts

**RELIGIOUS THOUGHT AND CULTURE**

Theology and ethics
Methods and theories
Religion, literature, and the arts

**CROSS-CULTURAL STUDIES IN RELIGION**

Religion in ancient civilization
Religion in medieval societies
Religion in the modern world

**Senior Seminar**

All students must take 32:196 Senior Majors Seminar for 3 semester hours.

**Honors**

Students with a 3.20 overall grade-point average are eligible to register for the honors program in religion. To complete the religion major with honors, students take 32:197 Honors Tutorial (3 s.h.) and 32:198 Honors Essay (3 s.h.) under supervision of a faculty adviser who must approve the completed honors essay. Copies are
submitted both to the School of Religion and to the University Honors Program. Honors majors may apply only 3 semester hours of their work in 32:197 and 32:198 to their area of concentration. Thus, honors majors must complete a total of 33 semester hours to fulfill the requirements for the religion major.

**Minor**

A minor in religion requires 15 semester hours of credit in religion courses with a minimum grade-point average of 2.00. Of the 15 semester hours, at least 12 must be taken at The University of Iowa in courses numbered 32:100 and above.

**Graduate Programs**

The School of Religion prepares a select number of graduate students to become specialists in the study and teaching of religion.

**Master of Arts**

There are two tracks, thesis and nonthesis, toward the M.A. In both, students must earn a minimum of 36 semester hours in the School of Religion, including 32:200 Colloquium: Introduction to the Graduate Study of Religion and 32:205 Methods and Theories in the Study of Religion. Most of these will be earned in courses that fall into one of five areas of concentration: the Hebrew Bible and its early interpretations; Judaism and Christianity in the Greco-Roman world; history of religion and religious thought in the West; theology, ethics, and culture; and history of Asian religions. Students in the thesis program take at least one seminar in this area and may count the thesis for 6 of the semester hours required. Students in the nonthesis program take at least two seminars.

A maximum of 6 semester hours of graduate work in religion may be transferred to the program from another accredited graduate or professional school. The student’s committee must approve a program of study, including course work and requirements for languages and other research tools.

All students are required to take a written M.A. examination that tests competence in the area of concentration.

**Master of Arts in Religion and Health**

Study of the role of religion in illness and health requires a combination of theoretical and clinical investigation. The University of Iowa Hospitals and Clinics provides the primary setting for research and training in this program. Students may choose a thesis or nonthesis program. In either, they are required to earn 36 semester hours, including 32:200 Colloquium: Introduction to the Graduate Study of Religion and 32:205 Methods and Theories in the Study of Religion. Students in the thesis program must take one seminar and may count the thesis for 6 semester hours of credit. Students in the nonthesis program take two seminars. A maximum of 6 semester hours may be transferred from another accredited graduate or professional school.

All students must complete a one-semester unit of 32:245 Clinical Study of Religion or present equivalent supervised experience. The program also includes required courses in religion and personality and at least four courses (for a minimum of 10 semester hours) in one other area of concentration in the School of Religion: the Hebrew Bible and its early interpretations; Judaism and Christianity in the Greco-Roman world; history of religion and religious thought in the West; theology, ethics, and culture; and history of Asian religions.

The student’s advisory committee may require languages or other research tools. All students must take an M.A. examination. More detailed information on graduate programs in religion is provided in *Graduate Studies in the School of Religion*, available from the department office or the University’s Office of Admissions.

**Financial Aid**

The School of Religion offers two types of departmental financial aid for graduate students: teaching assistantships and research assistantships. The department also may nominate eligible students for University of Iowa Fellowships. The Gilmore Scholarship has been established for doctoral students interested in the relationship of religion, the visual arts, and humanistic values. Financial aid awards are made annually on a competitive basis. First-year students ordinarily are appointed only as research assistants.

**Admission**

All applicants for admission to graduate study must meet the general requirements of the Graduate College. In addition, the School of Religion ordinarily requires a combined verbal-quantitative score of 1050 on the Graduate Record Examination (GRE) General Test and a 3.00 grade-point average for admission to the M.A. program, and a combined verbal-quantitative score of 1100 on the GRE General Test and a grade-point average of 3.20 for admission to the Ph.D. program. Applicants must submit three letters of recommendation and a writing sample demonstrating the ability to engage in critical thinking.

**Resources**

In addition to Greek, Latin, and modern European languages, the University offers courses in Japanese, Chinese, Sanskrit, and Hindi. The School of Religion offers Hebrew and other Semitic and Haminic languages as needed.

The University of Iowa Hospitals and Clinics provides clinical opportunities for students in the M.A. program in religion and health. Individual courses on such topics as death and dying and medical ethics also utilize hospital personnel and facilities.

**Courses**


32:2 Religion and Society 3 s.h. Meaning of religious questions and answers in traditional and modern social contexts in the West. Offered spring semesters. GER: humanities.

32:3 Quest for Human Destiny 3 s.h. Quest for destiny in terms of perceived options/goals and ability to recognize, pursue, achieve them. GER: humanities.

32:4 Living Religions of the East 3 s.h. Religion, beliefs, practices in India, China, Japan. GER: foreign civilization and culture; historical perspectives. Same as 39:64.
32:8 Asian Humanities: India 3 s.h.
Introduction to four thousand years of South Asian civilization. GER: foreign civilization and culture. Humanities. Same as 39:18.

32:9 Asian Humanities: China 3 s.h.

32:10 Introduction to Religious Studies 3 s.h.
Approaches to the study of religion. Open only to juniors and seniors or to others with consent of instructors. GER: humanities.

32:11 Old Testament Survey 2 s.h.
Life, afterlife in biblical Israel.

32:12 Old Testament Survey 2 s.h.
Presence of biblical God in and among humankind.

32:13 Personalities of the Old Testament 3 s.h.
Significant male, female figures of biblical Israel—their ancient literary and social context; continuing impact.

32:15 New Testament Survey 3 s.h.
Literature of New Testament in its historical setting. GER: humanities.

32:20 Religion in American History 2.3 s.h.
Protestant, Catholic, Jew; colonial era to present. Same as 16A:72.

32:51 Religious Thinkers of the West 3 s.h.
Significant religious thinkers in Western civilization; Augustine, Bonaventure, Fichte, Kierkegaard, Hegel, Derrida. GER: humanities.

32:52 Religion and Art 3 s.h.
Relationship between religious traditions, power of image.

32:55 History of Christianity to 1500 3 s.h.
Christian Church from origins through development in Mediterranean world and medieval Europe. Offered spring semesters. GER: historical perspectives.

32:57 Modern Catholic Theology 3 s.h.
Catholicism in the wake of Vatican II.

32:65 Power and Justice in the Good Life 3 s.h.
Ethical, theological reasoning in competing claims of power and justice. GER: humanities.

32:70 Classics in Religious Ethics 3 s.h.
Readings from the Greeks to Gandhi; mostly Western.

32:71 Sexual Ethics 3 s.h.
Christian, Jewish, secular perspectives on meaning and value of human sexuality; perspectives considered with regard to contemporary sexual ethical issues.

32:85 Zen and Japanese Culture 3 s.h.
Relationship between Zen and Japanese culture, especially in medieval, early modern periods of Japanese history; manifestations such as painting, architecture, poetry, drama, gardens, tea culture, related arts. Same as 39:85.

32:100 Biblical Hebrew I 3 s.h.
Basic elements of classical Hebrew grammar and syntax. Consent of instructor required.

32:101 Biblical Hebrew II 3 s.h.
Grammar and syntax, increasing attention to reading skills. Prerequisite: 32:100.

32:102 Biblical Hebrew III 3 s.h.
Narrative texts from Hebrew Bible; emphasis on translation and syntax, grammatical analysis, vocabulary building. Prerequisite: 32:101.

32:103 Biblical Archaeology 1.3 s.h.
Contributions of Syro-Palestinian archaeological research to understanding historical, cultural backgrounds of biblical period.

32:104 Egyptian Art 3 s.h.
Same as 11H:110.

32:105 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.

32:106 Theology of the Old Testament 3 s.h.
Ancient Israel’s perspective on God, world, individual through focus on dominant biblical themes.

32:108 Prophecy in Biblical Israel 3 s.h.
Literary, historical, theological analysis of prophetic movement in ancient Israel and its continuing impact.

32:110 Biblical Aramaic 3 s.h.

32:111 Religion and Women 3 s.h.
Sexism and its disavowal in biblical narrative, law, wisdom texts, Gospels; origins, contemporary impact. GER: humanities. Same as 131:111.

32:113 Introduction to the Intertestamental Period 3 s.h.
History, theology of Judaism from 200 B.C.E. to 135 C.E.; English translations of sources; archaeological evidence.

32:114 Readings in Intertestamental Jewish Texts 3 s.h.
Two or three writings.

32:116 Introduction to Rabbinic Literature 3 s.h.
Literary genres, historical and cultural context; problems in interpretation of rabbinic writings of first six centuries of this era.

32:118 Medieval Jewish Philosophers 2-3 s.h.
Survey or study of one specific philosopher.

32:119 Jewish Mysticism 3 s.h.
History of Jewish mystical thought over past 2,000 years.

32:120 The Jewish Experience 3 s.h.
Jewish history; development of Judaism; from beginnings in the Mediterranean basin throughout the world, through the centuries.

32:121 Introduction to Islam 2.3 s.h.
Major areas of Islamic religious tradition: Quran, traditions of the Prophet development and character of Islamic law, theology.

32:122 The World of the New Testament 3 s.h.

32:123 Pauline Theology in Historical Context 3 s.h.

32:124 The Synoptic Gospels 3 s.h.
Interpretation of one of three gospels, with reference to other two.

32:125 The Gospel of John 2-3 s.h.


32:129 History of Christian Theology I: Patristic Era 3 s.h.
End of New Testament period to end of fifth century.

32:130 History of Christian Theology II: Scholasticism and Reformation 3 s.h.
Scholastic theologies; their relation to theologies of Luther and Calvin and to the Council of Trent.

32:132 Reformation and Its Medieval Backgrounds 3 s.h.
Focus on intellectual developments; connectors to medieval traditions; Erasmus, Luther, Calvin, Mennonite Reformers, other major figures of era; cultural and social contexts. GER: historical perspectives.

32:133 Problems in History of Christianity 2-3 s.h.
May be repeated.

32:134 Nineteenth-Century Catholic Theology 2 s.h.
Restoration period after 1815 to beginning of the twentieth century; Catholic Trilingen School, neo-scholasticism, Newman, First Vatican Council.

32:135 Twentieth-Century Catholic Theology 3 s.h.
Principal developments from 1900 to present.

32:136 Religious Thought in the Eighteenth Century 3 s.h.
Trends in Western thought during Age of Reason, 1660-1800.

32:137 Religious Thought in the Nineteenth Century 3 s.h.

32:138 Religious Thought in the Twentieth Century 3 s.h.
History, analysis of main developments, 1915-present.

Same as 16A:120.

32:141 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.

32:142 Puritanism in Old and New England 2.3 s.h.
Historical survey; concepts of sacred book, redemption, national end, church and state, family, women, Indians, sex. Same as 16A:121.

32:143 Religious Thought in America 1607-1860 2-3 s.h.
Selected American thinkers. Same as 16A:123.

32:144 Religious Thought in America 1860 to Present 2 s.h.
Selected American thinkers. Same as 16A:124.

32:145 Ultraconservative and Radical Theologies in American History 3 s.h.
Intellectual patterns of the far right and left.

32:146 Philosophy of Religion Same as 26:134.

32:148 Literature and Philosophic Thought in American History 3 s.h.
Same as 8:176.

32:149 Values in the Contemporary World 2-4 s.h.
Same as 33:152.

32:152 Theological Questions 1 3 s.h.
Treatment of basic religious questions, such as the meaning of “God,” nature of religious symbols, phenomena of skepticism and atheism.

32:154 Readings from Reformers to Counter- Reformers 3 s.h.
Reformation of sixteenth century-Lutheran, Calvinist, Radical, English-with readings from major representatives of each.

32:155 Theology of Luther 2 s.h.

32:157 Religious Thought of Soret Kierkegaard 2 s.h.

32:158 Religious Ethics: Moral Character and Religious Faith 3 s.h.
Impact of religious faith on moral character: nature of moral character and moral agency, wickedness and self-deception, religious and moral transformation.

32:161 History of Religious Ethics 2.3 s.h.
Christian, Jewish ethics from Paul to Martin Buber, focus on the meaning and value of love.

32:163 Introduction to Biomedical Ethics 2.3 s.h.
Ethical dimensions of modern life sciences; emphasis on problems of method.

32:164 Religion and the Occult in Antiquity 3 s.h.
Occult power in early religions of Greece, Rome; its growth; magical influences on Greco-Roman culture from outside, during pre-Christian period; advent of Eastern mystery cults. GER: humanities. Same as 20:113.

32:165 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.

32:166 Faith and Reason in Islam 3 s.h.
Three types of religious thought in Islam: Kalam, Philosophy, Sufism.

32:167 Islam in the Modern World 3 s.h.

32:168 Art of Islam 3 s.h.
Islamic architecture, painting, minor arts in Spain, North Africa, Egypt, Turkey, Syria, Iraq, Iran, Afghanistan, India, 600-1600 A.D. Same as 11H:133.

32:169 Karma, Rebirth, and Human Destiny 3 s.h.
Development of doctrines of karma, rebirth in history of Indian religions; modern attempts to formulate ideas of human destiny and meaning. Sophomore standing or consent of instructor required. Same as 39:169.

32:170 Indian Mystical Literature 3 s.h.
Same as 39:137.

32:171 Indian Religious Texts 3 s.h.
Same as 39:163.

32:172 Comparative Ritual 3 s.h.
Practice and theory; rituals from religions, including Hinduism, Buddhism, Christianity. Indian religions; theories of interpretation. Same as 39:172.

32:173 Readings in Sanskrit Texts 3 s.h.
Philosophical, literary texts in original Sanskrit. May be repeated.

32:174 Art of India 3 s.h.
To 1000 A.D. Same as 11H:115, 39:181.

32:175 Painting of India Same as 11H:118, 39:168.

32:176 Chinese Religions 3 s.h.
Themes: major currents and patterns of belief and practice; readings from primary sources. GER: foreign civilization and culture. Same as 39:161.
32:177 Indian Literature 3 s.h.
Same as 39J:136.
32:178 The Literature of Diaspora 3 s.h.
Readings illustrating vigorous influence of philosophical and
diamotic movements in areas of traditional Chinese life, such as
political theory, poetry and the arts, alchemy and medicine, sexual
customs and combat. Same as 39: 140.
32:179 Scripture, Cult and Practice in Chinese
Religion 3 s.h.
Same as 39J:179.
32:180 Buddhist Sacred Texts 3 s.h.
Mahayana and Theravada texts in translation. Consent of
instructor required. Recommended: courses in Asian culture or
history. Same as 39: 162.
32:181 Buddhist and Hindu Iconography 2-3 s.h.
Historical development of religious imagery of Buddhism and
Hinduism in India, Central and Southeast Asia, China, Japan.
Same as 31:134.
32:182 Religion in Japan 3 s.h.
Development of Buddhism and non Buddhist religious practices
in historical context of traditional Japanese culture; religion in
family life; impact of Christianity; creation of nationalistic state
ideology. Consent of instructor required. GER: foreign
civilization and culture. Recommended: courses in Asian culture or
history. Same as 39J:161.
32:183 Readings in Japanese Religious Texts 3 s.h.
In original Japanese. May be repeated. Consent of
instructor required. Same as 39J:170.
32:184 Religious Themes in Japanese Literature 3 s.h.
Same as 39J:184.
32:185 Buddhist Worlds and World Views 3 s.h.
Concepts, practices common to the vast pan Asian Buddhist
traditions; selected cultural developments within historical
contexts. Same as 39:183.
32:186 Buddhism and Chinese Culture 3 s.h.
Cultural transmission, transformation, adaptation through
concretized study of Buddhist biographical writing, varieties of
Buddhist literature in China, structures and functions of Chinese
Buddhist monasteries. Same as 39: 171.
32:187 Themes in Japanese Religion 3 s.h.
Same as 39J:187.
32:188 Zen Buddhism 3 s.h.
Development of Zen Buddhist ideology and ritual practice in
context of East Asian Buddhism and in relation to other
meditative cults, shamanistic traditions. Consent of instructor
required. Recommended: courses in Asian culture or history.
Same as 39J:170.
32:189 Religious Life in Modern Japan 3 s.h.
Religion and state, family, individual since 1850s; traditional
religions in modern times, religious impact of westernization,
industrialization, defeat in World War II, success in business.
Consent of instructor required. Recommended: 32: 182 or 39J:181;
or other courses in Asian culture, history, or religion.
Same as 39J:189.
32:190 Indian Religion and Social Science 3 s.h.
Study of classical Indian religion according to social scientific
principles; ethnographic and socio-historical method. Same as 39:
136.
32:191 Religion in India 3 s.h.
Movements, doctrines, religious practices in India, both in
history and in modern expressions. GER: foreign civilization and
culture. Same as 39: 167.
32:192 Religion and Personality 3 s.h.
Use of psychological methods, theories in interpretation of
religious experience, behavior; influence of religion on
development of personality.
32:193 Suffering, Death, and Faith 2-3 s.h.
Role of religion with persons suffering from life-changing and
life-threatening illness.
32:194 Alternate Universes: Readings in Hindu
Mythology 3 s.h.
English translations of the Sankrit Puranas or “ancient stories”;
focus on the influence these collections of myths and ritual have
had on worldview of contemporary Hindus. Same as 39: 173.
32:195 Individual Study: Undergraduates
May be repeated.
32:196 Senior Majors Seminar 2-3 s.h.
Issues central to academic study of religion.
32:197 Honors Tutorial 2-3 s.h.
32:198 Honors Essay 2-4 s.h.
32:200 colloquium: Introduction to the Graduate
Study of Religion 1 s.h.
Orientation to graduate study, profession of teacher scholar.
32:201 Colloquium on Teaching 1 s.h.
Teaching methods, course development, examination
construction.
32:202 Proseminar: Biblical Studies 3 s.h.
Biblical and related literature and its contexts; exegetical and
historical methods; bibliography, other resources.
32:203 Seminar: Problems in Old Testament
Criticism 3 s.h.
Pentateuch, Old Testament poetry, prophetic or wisdom
literature.
32:204 Seminar: Problems in New Testament
Interpretation 2-3 s.h.
Knowledge of Greek required.
32:205 Methods and Theories in the Study of
Religion 3 s.h.
Principal methods, theories in academic study of religion.
32:206 Religion and Culture in the Ancient Near
East 3 s.h.
Religious-cultural milieu of biblical Israel; examination of limited
artificial evidence and representative religious and
historiographic texts in translation from ancient Egypt,
Mesopotamia, Syria, Atrahatu. May be repeated.
32:207 Semitic and Hamitic Languages arr.
Introductory grammar, syntax of an ancient language such as
Aramaic, Syriac, Ethiopic, Coptic. May be repeated.
Noncanonical Christian texts of Roman and Byzantine periods;
literary, theological matters; in original language. May be
repeated.
Development of Christianity to late second century; character,
relationships of Jewish Christianity, Gnosticism, emerging
orthodoxy.
Same as 16:275.
32:214 Seminar: Puritanism arr.
Same as 16:276.
32:219 seminar: Nineteenth Century Catholic
Theology: Newman 3 s.h.
May be repeated.
32:230 Colloquium: Introduction to Systematic
Theology, thinking, basic questions such as kinds of theological
systems, resources, methods, aims, characters of religious
thought.
32:231 Seminar: Medieval Philosophy and the
History of Religions 3 s.h.
Development of ability to think methodologically; functionalism,
phenomenology, personism, normative approaches; nature of
category formation, logic of religio-historical method.
32:223 Seminar in Historical Theology 3 s.h.
32:222 Seminar: Contemporary Theology arr.
Theology of one great Protestant reformer of the sixteenth
century.
32:224 Seminar: Contemporary Theology arr.
32:225 Seminar in Recent Catholic Theology
arr.
Contemporary theology or problem.
32:226 Seminar: Religious Ethics 3 s.h.
32:227 Seminar: Jewish Religious Thought: From
Maimonides to Derrida 3 s.h.
Continuity, innovation.
32:228 Sacred Geography 3 s.h.
Religious views, practices related to landscape; several distinctly
different cultural, ecological settings.
32:229 Feminist Ethics arr.
Constructive reflection on the nature of the self as relational,
dynamics of friendship, ethics of love and justice. Same as 131:229.
32:230 Seminar: Ethics of Aristotle and Thomas
Aquinas 3 s.h.
Nature of human action, nature of virtue, content of the good
human life according to Aristotle, Thomas Aquinas.
32:231 seminar: Problems in the History of
Religions 3 s.h.
Methodological and interpretive problems.
32:232 Seminar: Religion in Modern India 3 s.h.
Modern Indian thinker or movement. Same as 39:267.
32:233 Seminar: Buddhism 3 s.h.
Buddhist thinker or movement. Same as 39:263.
32:234 Seminar: Japanese Religions 3 s.h.
Same as 39J:214.
32:235 Seminar: Chinese Religions 3 s.h.
32:236 Religion in Ancient India 3 s.h.
Upasnas, including the Bhadadarsana and Chandogya; early
literature on Yoga, with focus on ideas of self, god, structure of
cosmos, nature of transcendence. Same as 39J:236.
32:237 seminar: East Asian Religion in
Cross-Culture Perspective 3 s.h.
Emphasis on China and/or Japan.
32:240 Religion and Black Culture 3 s.h.
Same as 12:220.
32:245 Clinical Study of Religion arr.
Supervised study in hospital setting.
32:250 Reading for Research: Texts in German I
3 s.h.
32:251 Reading for Research: Texts in German II
3 s.h.
32:252 Reading for Research: Texts in Latin I
3 s.h.
32:253 Reading for Research: Texts in Latin II
3 s.h.
32:254 Reading for Research: Texts in Latin III
3 s.h.
32:260 Readings in Jewish and Christian
scripture arr.
May be repeated.
32:261 Readings in Rabbinic Hebrew
May be repeated.
32:262 Readings in History of Christianity
May be repeated.
32:263 Readings in Theology and Religious
Thought arr.
May be repeated.
32:264 Readings in Religious Ethics arr.
May be repeated.
32:265 Readings in Asian Religions
May be repeated.
32:266 Readings in the Methodology and the
History of Religions arr.
May be repeated.
32:247 Readings in Religion and Health
May be repeated.
32:268 Readings in Biomedical Ethics
Offered spring semesters. Open only to graduate students and
health care professionals. Same as 50:167.
32:290 Individual Study: Graduates May be repeated.
32:291 Thesis May be repeated.

Rhetoric
Chair: Frederick J. Antczak
Professors: Sharon Crowley, Donovan J. Ochs,
Douglas M. Trank
Associate professors emeriti: Margaret B. McDowell
Associate professors: Frederick J. Antczak, Gene H.
Krupa, Dennis M. Moore
Assistant professors: William G. Clark,
Richard S. Hoitman, Lou Kelly, Lois B. Muehl
Assistant professors emeriti: Barbara Bieseecker, Ralph
Cintron, Takis Poulakos, Carol Severino, Mary Trachsel
Assistant professor emerita: Cleo Martin
The Rhetoric Department offers courses that fulfill the General Education Requirement in rhetoric; it also provides individual instruction in its Writing, Reading, and Speaking Labs. Rhetoric faculty members advise graduate instructors and teach advanced courses that promote the rhetorical understanding and professional development of graduate students from diverse disciplines.

General Education Requirement 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 ideas;
- take into account fundamental rhetorical concepts such as audience, purpose, and appropriateness in devising effective communication.

Rhetoric General Education Requirement courses are sometimes organized around a special topic, but the primary emphasis is always on rhetorical practice and analysis.

All undergraduates—including transfer students—must satisfy the rhetoric requirement in one of several ways:
- pass 10:1 Rhetoric I and 10:2 Rhetoric II (total of 8 s.h.);
- pass 10:3 Accelerated Rhetoric (4 s.h.); score high on the speech exemption test and pass 10:4 Writing and Reading (3 s.h.); score high on the essay exemption test and pass 10:6 Speaking and Reading (3 s.h.); score high on both the speech and essay exemption tests; or
- some combination of the above, with appropriate course work accepted for transfer credit.

During their first semester at the University, students should enroll in the course indicated on their degree evaluations (unless a delay is required). Students must enroll in a rhetoric course each semester until the requirement has been satisfied.

Once enrolled in a rhetoric General Education Requirement course, a student may not drop.

Placement is ordinarily determined by American College Testing scores and any available transfer credit. Students who question their placement should bring their degree evaluations to the Rhetoric Department office, 71 EPAB, during registration.

Students registered in 10:1 can test into 10:3 by achieving a high score on a two-part essay examination. Students registered in 10:3, 10:4, or 10:6 can satisfy all or part of the rhetoric General Education Requirement by taking an essay and/or speech examination. No academic credit is awarded for these examinations, which usually are administered on the first two nights of the semester. Further information is published in the Schedule of Courses each semester.

Students who have undergone formal evaluation by the Office of Services for Persons with Disabilities and are found to be learning disabled in reading, writing, or speaking should request reasonable accommodations in order to complete the rhetoric requirement. Accommodations may be arranged by the Office of Services for Persons with Disabilities in consultation with the Rhetoric Department.

Satisfactory completion of the rhetoric requirement is prerequisite to the humanities GER course 8G:1 The Interpretation of Literature.

Courses

For Undergraduates

General Education

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:1</td>
<td>Rhetoric I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>10:2</td>
<td>Rhetoric II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>10:3</td>
<td>Accelerated Rhetoric</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>10:4</td>
<td>Writing and Reading</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10:6</td>
<td>Speaking and Reading</td>
<td>3 s.h.</td>
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Labs

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<tbody>
<tr>
<td>10:8</td>
<td>Individual Instruction in Reading</td>
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</tr>
<tr>
<td>10:9</td>
<td>Individual Instruction in Writing</td>
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Special

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<thead>
<tr>
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<tbody>
<tr>
<td>10:13</td>
<td>Rhetorical Process</td>
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For Graduates

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>10:203</td>
<td>Rhetoric Workshop</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10:330</td>
<td>Issues in the History of Rhetoric</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10:333</td>
<td>Rhetorics of Liberalism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10:335</td>
<td>History of Composition Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10:340</td>
<td>Current Issues in Rhetoric</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10:345</td>
<td>Research on Writing</td>
<td>3 s.h.</td>
</tr>
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</table>

Russian

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<th>Title</th>
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<tbody>
<tr>
<td>10:203</td>
<td>Rhetoric Workshop</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10:330</td>
<td>Issues in the History of Rhetoric</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10:333</td>
<td>Rhetorics of Liberalism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10:335</td>
<td>History of Composition Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10:340</td>
<td>Current Issues in Rhetoric</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10:345</td>
<td>Research on Writing</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Russian Department

Chair: Margaret H. Mills
Professors emeriti: Norman Luxenburg, Helene Scriabine, Harry B. Weber
Associate professors: Margaret H. Mills, Christopher A. Wertz
Assistant professors: Kathryn Henry, Russell Valentino
Assistant professor emerita: Miriam J. Gelfand
Undergraduate degree: B.A. in Russian; minor in Russian
Graduate degree: M.A. in 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 is a complement to some other vocation. Accordingly, the department encourages all of its students to pursue a joint major and to develop their interests in related or complementary fields.

Traditionally at Iowa, many students have combined study of Russian with a double major in economics, global studies, history, journalism and mass communication, or political science. Thus, they have been better equipped to gain...
Students majoring in Russian are urged to choose elective courses in economics, geography, history, or political science. 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.

Honors

Russian majors of junior or senior standing with a grade-point average of at least 3.20 both in Russian and overall 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 semester hours. Students may take up to 9 semester hours of honors in Russian.

Minor

A minor in Russian requires 15 semester hours with a minimum grade-point average of 2.00. Of these, 12 must be taken at The University of Iowa in advanced courses. The department recommends that students seeking a minor in Russian focus their preparation on 100-level courses, such as the sequences 41:109-41:110, 41:11-41:112, or 41:13-41:13. Four courses taught exclusively in English do not count toward the minor.

Graduate Program

Offered with or without thesis, the M.A. program in Russian offers two major emphases, literary or language study. The focus in literary studies is on the development of Russian literature, both as a national phenomenon and as a part of European culture. Students are expected to analyze writers’ styles, perceive literary techniques, recognize literary influences, and develop the ability to soundly criticize form, content, and language of works in all genres.

Students who elect a language studies emphasis focus on the historical development of Russian and do advanced study of grammar, contemporary phonology, morphology, syntax, and stylistic.

Candidates for the M.A. must have completed the equivalent of the undergraduate major in Russian. Deficiencies in previous training may be made up by taking appropriate courses.

Candidates are required to complete a minimum of 30 semester hours of graduate work, with or without thesis. Ideally, the program should include courses in related fields, such as comparative literature, history, political science, philosophy, and other languages. Students in the thesis program may earn 4-8 semester hours of credit for thesis preparation. Prior to scheduling the M.A. examination and submitting the thesis (where applicable), candidates must pass a comprehensive Russian language examination; they also must demonstrate a reading knowledge of either French or German.

Financial Aid

Aid is available to graduate students in the form of tuition scholarships and teaching and research assistantships; it is awarded annually on a competitive basis. Teaching assistantships usually are not awarded to first-year students, although exceptions occasionally are made on the basis of advanced language skills. Applications are considered only from students who have been admitted to the Graduate College. Inquiries should be addressed to the departmental office.

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 Department of Russian 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 College of Education, Division of Curriculum and Instruction.

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.

Summer and Study Abroad Programs

The department strongly encourages undergraduate and graduate students to participate in intensive programs of language study, both in the United States and in Russia. In recent years, more and more students have studied in summer, semester, and academic-year programs at St. Petersburg State University under the auspices of the Council on International Educational Exchanges, as well as in American Council of Teachers of Russian programs at a variety of Moscow and St. Petersburg institutes that specialize in teaching Russian as a foreign language. Other students have accelerated and refined their Russian language skills in various intensive summer programs at major American universities, including the program at The University of Iowa.

Inquiries should be directed to the Russian Department office.

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 and Soviet literatures, culture, a monograph course on Tolstoy and Dostoevsky, and courses on women in Russian society and Russia today.

Special Activities

Russian Circle is a student organization open to both undergraduates and graduate students; it meets regularly for social and educational activities and provides students with a valuable opportunity to develop conversational skills and to share experiences with other members of the University community. Participation in the Foreign Language House in Hillcrest Residence Hall is encouraged. The house serves as a focal point for many Russian Circle functions, including weekly meals with faculty and guest speakers.

A number of outstanding students are inducted annually into Dobro Slovo, the National Slavic Honor Society, and are honored at a commemorative gathering.

Language Media Center

The University’s Language Media Center provides facilities for language learning, teaching, and research. Equipment in the center includes standard and short-wave radios, tape and cassette recorders, record players, soundproof recording moms, drill rooms, and computing and video facilities. An electronic classroom, a soundproof workroom, and a library of tape, disc, and cassette recordings also are available.

Courses

For Undergraduates and Graduates

41:000 Cooperative Education Internship
0 s.h.

41:1 First-Year Russian
GER: foreign language.
4 s.h.

41:2 First-Year Russian
GER: foreign language. Prerequisite: 41:1 or equivalent.
4 s.h.

41:3 Second-Year Russian
GER: foreign language. Prerequisite: 41:2 or equivalent.
4 s.h.

41:4 Second-Year Russian
GER: foreign language. Prerequisite: 41:3 or equivalent.
4 s.h.

41:101 Intensive Russian
Equivalent of 41:1 and 41:2 in one semester. GER: foreign language. Consent of instructor required.
6 s.h.

41:102 Intensive Russian
Continuation of 41:101; equivalent of 41:3 and 41:4 in one semester. GER: foreign language. Prerequisite: 41:101 or equivalent.
6 s.h.

41:108 Special Readings
arr.
May be repeated. Prerequisite: 16 s.h. of language instruction.

41:109 Beginning Composition and Conversation
Prerequisite: 41:4 or equivalent.
4 s.h.

41:109H Beginning Composition and Conversation
Prerequisite: 41:4 or equivalent.
4 s.h.

41:11 Third-Year Russian
Prerequisite: 41:4 or equivalent.
4 s.h.

41:12 Third-Year Russian
Prerequisite: 41:11 or equivalent.
4 s.h.

41:113 Fourth-Year Russian I
Prerequisite: 41:12 or equivalent.
4 s.h.

41:14 Fourth-Year Russian II
Prerequisite: 41:13 or equivalent.
4 s.h.

41:115 Intermediate Composition and Conversation
Oral and aural proficiency; conversational and grammatical constructions, idioms, word formation; conducted in Russian. Prerequisite: 41:13 or equivalent.
4 s.h.

41:116 Intermediate Composition and Conversation
Spoken Russian and aural comprehension; oral reports, topic discussions, use of contemporary Soviet television programs via satellite, translations of literary and media materials. Prerequisite: 41:13 or equivalent.
4 s.h.

41:117 Advanced Composition and Conversation
4 s.h.

41:118 Advanced Composition and Conversation II
4 s.h.

41:120 Teaching Methods
Theories, methods, procedures, materials of foreign language instruction.
3 s.h.

41:125 Pronunciation and Intonation
Development and refinement of speech sounds and intonation patterns. Open to undergraduates and graduates.
3 s.h.

41:151 Russian Literature in Translation 1800-1860
Conducted in English. GER: humanities.
3 s.h.

41:152 Russian Literature in Translation 1860-1917
Conducted in English. GER: humanities.
3 s.h.

41:155 Tolstoy and Dostoevsky
Conducted in English.
3 s.h.

41:160 Women in Russian Society
Conducted in English.
3 s.h.

41:181 Soviet Literature to 1954
Conducted in English.
3 s.h.

41:182 Soviet Literature since Stalin
Conducted in English.
3 s.h.

41:185 Russian Culture
Conducted in English. GER: foreign civilization and culture.
3 s.h.

41:186 Russia Today
3 s.h.

41:201 Advanced Grammar I
Difficult areas of Russian word formation, morphology, government, tense/aspect usage, other syntactic and stylistic problems; pragmatic, contextual approach, allowing for simultaneous treatment of several linguistic issues (e.g., verbal government and conjugation). Primarily for graduates.
3 s.h.

41:202 Advanced Grammar II
Continuation of 41:201. Primarily for graduates.
3 s.h.

41:203 Russian Morphology
3 s.h.

41:205 Russian Syntax
3 s.h.

41:206 Russian Stylistic
3 s.h.

41:211 Russian Romanticism
3 s.h.

41:212 Modern Russian Literature 1880-1917
3 s.h.

41:215 Russian Poetry
3 s.h.

41:216 Russian Folklore
3 s.h.

41:231 Soviet Literature
3 s.h.

41:244 Problems in Russian Literary Criticism
3 s.h.

41:249 Proseminar: Research Methods
2 s.h.

41:250 Proseminar: Research Methods
2 s.h.

41:261 History of the Russian Language
3 s.h.

41:263 Old Church Slavonic
3 s.h.

41:275 Seminar: Russian Literature
3 s.h.

41:276 Seminar: Russian Linguistics
3 s.h.

41:279 Independent Research
arr.

41:280 Spetsseminar
3 s.h.

RUSSIAN, EAST EUROPEAN, AND EURASIAN STUDIES

Codirectors: Vicki Hesli [Political Science], Steven Hoch (History), Margaret Mills (Russian), Ray Parrott (Russian), William Reisinger (Political Science) Professors: Hanno Hardt (Journalism and Mass Communication), Vladimir Kreid (Russian), Gerald Nordquist (Economics), Ray Parrott (Russian), Jaroslav Pelenks (History), John Reitz (Law), Donald Smith (Journalism and Mass Communication), Martin Tracy (Social Work)

Institutional emphasis on interdisciplinary programs that builds on the strengths of the University’s Department of Russian, key faculty in the social sciences and humanities, and an institutional emphasis on interdisciplinary programs. Currently participating in the program are 16 faculty members from the Departments of Economics, History, Political Science, and Russian; Schools of Journalism and Mass Communication and of Social Work; and the College of Law. Students in the program seek training for a wide variety of professions requiring specialization in Russian, East European, and Eurasian Studies.

Undergraduate Program

The Bachelor of Arts in Russian, East European, and Eurasian Studies is a multidisciplinary program that builds on the strengths of the University’s Department of Russian, key faculty in the social sciences and humanities, and an institutional emphasis on interdisciplinary programs. Currently participating in the program are 16 faculty members from the Departments of Economics, History, Political Science, and Russian; Schools of Journalism and Mass Communication and of Social Work; and the College of Law. Students in the program seek training for a wide variety of professions requiring specialization in Russian, East European, and Eurasian Studies.
The large number of governmental agencies that annually interview job candidates for positions in translation and interpretation, research, information analysis, and policy formulation almost invariably give preference to applicants who couple a well-rounded background in area studies with strong language proficiency. For this reason, the REEES major at Iowa requires three years of college-level training, or the equivalent, in the Russian language rather than the two-year requirement found in comparable programs nationwide. This unique feature of the Iowa major provides its graduates with a competitive edge in career opportunities and appointments.

Curriculum

Students pursuing the Bachelor of Arts in Russian, East European, and Eurasian Studies must meet the general College of Liberal Arts degree requirements (see the College of Liberal Arts introductory section of the Catalog) and earn at least 33 semester hours of credit in the program. The major requires:

- completion of the interdisciplinary course 41S:100 Introduction to the Commonwealth of Independent States (3 s.h.);
- achievement of third-year college-level proficiency in the Russian language (up to 24 semester hours of study, depending upon the student’s prior training in the language);
- completion of nine additional courses (27 s.h.) from a core group including two courses each in history and political science, one area-related course in economics, and one area-related course in either journalism and mass communication or Russian; and
- 41S:190 Senior Project (3 s.h.); students enroll for the Project in the spring semester, with one REEES faculty member; arrangements are discussed at an organizational meeting late in the fall semester preceding registration.

The existing core courses for Russian, East European, and Eurasian Studies represent regularly offered undergraduate and graduate courses.

Sample Course of study

FRESHMAN YEAR

Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>6E:1</td>
<td>Principles of Macroeconomics</td>
<td>3-4</td>
</tr>
<tr>
<td>41:1</td>
<td>First-Year Russian 1</td>
<td>4</td>
</tr>
<tr>
<td>41:4</td>
<td>S: 100 Introduction to the Commonwealth of Independent States</td>
<td>3</td>
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Spring Semester

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<tr>
<td>6E:2</td>
<td>Principles of Macroeconomics</td>
<td>3-4</td>
</tr>
<tr>
<td>16E:177</td>
<td>Imperial Russia 1801-1917</td>
<td>3</td>
</tr>
<tr>
<td>41:2</td>
<td>First-Year Russian 11</td>
<td>4</td>
</tr>
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<td>4-6</td>
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SOHMORE YEAR

Fall Semester

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<tbody>
<tr>
<td>16E:176</td>
<td>Imperial Russia 1598-1801</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16E:178</td>
<td>Soviet Union 1917-1953: Revolution and the New Regime</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>41:3</td>
<td>Second-Year Russian I</td>
<td>4 s.h.</td>
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<td>General education electives</td>
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<td>4-6 s.h.</td>
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Spring Semester

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<tr>
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<tbody>
<tr>
<td>6E:164</td>
<td>Economies in Transition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16E:179</td>
<td>Soviet Union 1953-1991</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>41:4</td>
<td>Second-Year Russian II</td>
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<td>4-6 s.h.</td>
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JUNIOR YEAR

Fall Semester

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<th>Course Title</th>
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<tbody>
<tr>
<td>19:155</td>
<td>Mass Media and Society (area-related)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>30: 141</td>
<td>Soviet and Post-Soviet Government and Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>41:111</td>
<td>Third-Year Russian I</td>
<td>4 s.h.</td>
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<tr>
<td>General education electives</td>
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<td>4-6 s.h.</td>
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Spring Semester

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>19:156</td>
<td>Comparative Communication Systems (area-related)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>30: 142</td>
<td>Politics in Post-Communist Eastern Europe and Asia</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>41:112</td>
<td>Third-Year Russian II</td>
<td>4 s.h.</td>
</tr>
<tr>
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<td>4-6 s.h.</td>
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SENIOR YEAR

Fall Semester

<table>
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<tr>
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<tbody>
<tr>
<td>6E:125</td>
<td>International Economics</td>
<td>3 s.h.</td>
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<tr>
<td>16E:175</td>
<td>Muscovite Russia 1280-1598</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16E:185</td>
<td>Russian Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>General education electives</td>
<td></td>
<td>3-4 s.h.</td>
</tr>
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</table>

Organizational meeting for Senior Project (registration for spring semester)

Spring Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>30: 168</td>
<td>Foreign Policies of the Former Soviet Bloc</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>41: 182</td>
<td>Soviet Literature since Stalin</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>41S:190</td>
<td>Senior Project</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Honors

The program leading to a B.A. degree with honors is open to students with a minimum cumulative grade-point average of 3.20. To graduate with honors, students must maintain a grade-point average of at least 3.50 in the Russian, East European, and Eurasian Studies program and a cumulative grade-point average of at least 3.20. Honors students must take 12 semester hours of course work with a grade of B or higher in each course. In consultation with the honors adviser, students choose courses and honors seminars and/or projects in economics, history, journalism and mass communication, political science, and Russian, as appropriate. The last 3 semester hours maybe earned by completing an honors research project directed by faculty members from at least two REEES disciplines.

Students interested in seeking a B.A. degree with honors should contact the University Honors Program and the REEES program honors adviser before they begin their junior year.

Joint Programs

Joint programs leading to a double major in Russian, East European, and Eurasian Studies and another discipline can be managed without difficulty. Double majors are appropriate in all the program's constituent disciplines, especially in the Russian language or in economics. Other combinations are possible as well. In most cases, at least two courses count toward requirements in each major.

Supplementary Study Programs

The REEES program encourages all participants to explore opportunities for internships with governmental departments and agencies, nonprofit organizations and institutions, and businesses. Internships not only enrich the student’s learning from course work but also may lead to enhanced employment opportunities after graduation. In some cases, academic credit may be arranged for an internship.

Study Abroad

Students who wish to enrich their education through study abroad are strongly encouraged to do so. The REEES faculty stands ready to assist qualified students in selecting foreign study programs and institutions best suited to their educational objectives and needs. There are numerous programs available to students who desire to pursue both language and cultural training in Bulgaria, the Czech and Slovak republics, the former East Germany, Hungary, Poland, and Romania. The best study abroad programs in Russia are described in the Russian Department section of the Catalog. Students are increasingly able to apply directly for admission to almost all institutions of higher learning throughout Eastern Europe and Central Asia as well as Russia.

REEES Area Courses

Course descriptions are available in the appropriate departmental sections of the Catalog.

ECONOMICS

● 6E:001 Principles of Macroeconomics 3-4 s.h.
● 6E:002 Principles of Macroeconomics 3-4 s.h.
● 6E:125 International Economics 3 s.h.
● 6E:163 Comparative Economies 3 s.h.
● 6E:164 Economies in Transition 3 s.h.
● 6E:197 Honors Seminar (area related) arr.

● These courses are prerequisites to the other economics courses and do not count toward the 33 semester hours of course work required for the Bachelor of Arts.

HISTORY

16:51 Colloquium for History Majors (area related) 3 s.h.
or
16:51 Colloquium for History Majors (European) (area-related) 3 s.h.
16E:174 Medieval Russia 3 s.h.
16E:175 Muscovite Russia 1280-1598 3 s.h.
16E:176 Imperial Russia 1598-1801 3 s.h.
16:177 Imperial Russia 1801-1917 3 s.h.
16:178 Soviet Union 1917-1953 3 s.h.
16:179 Soviet Union 1953-1991 3 s.h.
16:255 Seminar Russian or Soviet History arr.
16:256 Readings: Russian History arr.
16:257 Readings: Soviet History arr.

JOURNALISM AND MASS COMMUNICATION

19: 155 Mass Media and Society (area-related) 3 s.h.
19: 156 Comparative Communication Systems (area-related) 3 s.h.
19: 169 Topics in Mass Communication (area-related) 3 s.h.
19: 180 Special Projects in Mass Communication (area-related) arr.
19: 181 Readings in Communication and Mass Communication (area-related) 1-3 s.h.
19: 190 Honors Readings (area-related) 1-3 s.h.
19: 219 Topics in Mass Communication (area-related) 3 s.h.
19: 254 Communication and Change (area-related) 3 s.h.

LAW

All law courses require instructor’s consent.
91: 224 Comparative Law 2-3 s.h.
91: 349 Survey of Russian Law from the Middle Ages to the Present 3 s.h.
91: 512 Selected Problems in Comparative Law 3-5 s.h.

POLITICAL SCIENCE

30: 41 Introduction to the Politics of Russia, Eastern Europe, and Eurasia 3 s.h.
30: 42 Soviet and Post-Soviet Government and Politics 3 s.h.
30: 43 Politics in Post-Communist Eastern Europe and Asia 3 s.h.
30: 47 Ethnicity and Nationalism in the Former USSR 3 s.h.
30: 49 Problems in Comparative Politics (area-related) 3 s.h.
30: 56 Politics of Ethnic and Cultural Conflict 3 s.h.
30: 68 Foreign Policies of the Former Soviet Bloc 3 s.h.
30: 183 Honors Seminar on Comparative Politics 3 s.h.
30: 184 Honors Seminar on International Politics 3 s.h.

RUSSIAN

All courses are conducted in English.
41: 151 Russian Literature in Translation 1800-1860 3 s.h.
41: 152 Russian Literature in Translation 1860-1917 3 s.h.
41: 153 Tolstoy and Dostoevsky 3 s.h.
41: 160 Women in Russian Society 3 s.h.
41: 181 Soviet Literature to 1954 3 s.h.
41: 182 Soviet Literature Since Stalin 3 s.h.
41: 185 Russian Culture 3 s.h.
41: 186 Russia Today 3 s.h.
41: 199 Honors arr.

International and Comparative Studies. 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 consult REEES advisers for information on other available scholarships.

Special Activities

The Russian House offers a multicultural living environment to undergraduates, graduate students, and visiting professors engaged in the study of Russian. Residents are encouraged to use the Russian language when “at home” in the Russian House. Students also may wish to join the newly founded East European Cultural Society, which organizes and participates in activities that focus on cultural exchange.

The REEES Program puts together a rich public programming agenda each year. Scholars of national and international prominence are invited to address the University community and to interact with faculty, staff, and students. Each year, in collaboration with an academic department, REEES sponsors a symposium on issues related to the former Soviet Union and/or Eastern Europe. Past topics include reconstructing the history of imperial Russia, and economic, legal, and political dilemmas of privatization in post-communist Russia.

courses

41S:100 Introduction to the Commonwealth of Independent States 3 s.h.
41S:110 Comparative Values: Eastern Europe and the West 3 s.h.
41S:150 Independent Study arr.
41S:190 Senior Project 3 s.h.
41S:199 Honors arr.

SCIENCE EDUCATION

Coordinator: John T. Wilson
Professors: John E. Penick, Edward L. Pizzini, James A. Shymansky, Robert E. Yager
Undergraduate degree: B.S. in Science Education
Graduate degrees: M.A.T.; M.S.; Ed. S.; Ph.D. in Science Education

Science education is concerned with the interface between science and society. The academic programs in science education include 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.

Because science education is transdisciplinary, program planning requires the cooperation and involvement of a variety of University departments and colleges. Most of the formal requirements are drawn from courses offered in these varied departments.

Undergraduate Programs

The undergraduate program in science education represents 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 a minimum of 56 semester hours earned in selected courses in College of Liberal Arts science departments, science applications courses, and courses in the history, philosophy, and sociology of science. Students may choose from six emphasis areas within the science education major: biological sciences, earth science, chemistry, physics, physical science, and general science.

The requirements for the major with each of the six emphasis areas are as follows.

Biological Sciences Emphasis

At least 25 semester hours must be earned in 100-level courses.

Science

2:1 Introduction to Botany 4 s.h.
2:10 Principles of Biology I 4 s.h.
Electives (in botany, microbiology, or zoology, including work in genetics, ecology, and physiology) 15 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
4:121 Organic Chemistry I 3 s.h.
29:11 College Physics 4 s.h.
Chemistry electives 5 s.h.
12:5 Introduction to Geology 4 s.h.
or Approved geology elective 4 s.h.
Application of Science
97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
or
97:105 Societal and Educational Applications of Physical Sciences 3 s.h.
or
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
or
97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
Transfer courses from areas such as engineering, agriculture, and technical schools may be substituted for 97:102 or 97:105 or 97:106 with the adviser’s approval.

History/Philosophy/Sociology of Science
97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.

Earth Science Emphasis
At least 25 semester hours must be earned in 100-level courses.
Science
12:4 Evolution and the History of Life 4 s.h.
12:5 Introduction to Geology 4 s.h.
12:6 Lectures in Evolution and the History of Life (may be substituted for 12:4) 2 s.h.
12:8 Introduction to Environmental Geology 4 s.h.
12:109 Advanced Historical Geology: Iowa 3 s.h.
29:11 College Physics 4 s.h.
29:12 College Physics 4 s.h.
or
12:180 Environmental Geophysics 3 s.h.
4:13-14 Principles of Chemistry I-11 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
12:149 Elements of Geochemistry (may be substituted for 4:14) 3 s.h.
29:61 General Astronomy 4 s.h.
44:101 Climatology 3 s.h.
Earth science electives 3 s.h.

Application of Science
97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
or
97:105 Societal and Educational Applications of Physical Sciences 3 s.h.
or
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
or
97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
Transfer courses from applied areas such as engineering, agriculture, and technical schools may be substituted for 97:102 or 97:105 or 97:106 with the adviser’s approval.

History/Philosophy/Sociology of Science
97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.

Chemistry Emphasis
At least 25 semester hours must be earned in 100-level courses.
Science
2:1 Introduction to Botany 4 s.h.
or
2:10 Principles of Biology I 4 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
4:101 Elementary Quantitative Analysis 4 s.h.
4:121 Organic Chemistry I 3 s.h.
4:125 Inorganic Chemistry Chemistry elective 3 s.h.
Earth science elective 3 s.h.
29:1 1-12 College Physics and Physics electives 8 s.h.
or
29:17-18 Introductory Physics 1-11 8 s.h.
and 29:29 Physics 111 4 s.h.
and Physics electives 4 s.h.

Application of Science
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
or
97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
or
97:105 Societal and Educational Applications of Physical Sciences 3 s.h.
or
97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
Transfer courses from applied areas such as engineering, agriculture, and technical schools may be substituted for 97:102 or 97:103 with the adviser’s approval.

History/Philosophy/Sociology of Science
97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.

Physical Science Emphasis
Science
4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
12:5 Introduction to Geology 4 s.h.
29:1-12 College Physics 8 s.h.
Chemistry electives 8 s.h.
Physics electives 8 s.h.
Additional physical science electives (geology, geography, chemistry, physics) 10 s.h.

Application of Science
97:105 Societal and Educational Applications of Physical Sciences 3 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.

History/Philosophy/Sociology of Science
97:128 Meaning of Science 2 s.h.
97:130 Science in Historical Perspective 2 s.h.

General Science Emphasis
Science
2:1 Introduction to Botany 4 s.h.
2:10 Principles of Biology I 4 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
4:121 Organic Chemistry I 3 s.h.
12:5 Introduction to Geology 4 s.h.
29:11 College Physics 4 s.h.
29:12 College Physics 4 s.h.
Science electives 15 s.h.
Electives must be chosen so there are at least 21 semester hours in either biological sciences, chemistry, physics, or geology.
Application of Science

Two of the following:
97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
97: 105 Societal and Educational Applications of Physical Sciences 3 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.

History/Philosophy/Sociology of Science
97: 128 Meaning of Science 2 s.h.
97:130 Science in Historical Perspective 2 s.h.

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 order to be considered for admission to the TEP, students must have completed a minimum of 30 semester hours of course work with a minimum cumulative grade-point average of 2.50. A limited number of applicants are accepted into the TEP, so having a 2.50 grade-point average does not ensure admission. Admission decisions are based on grade-point averages in science courses and other criteria relevant to teaching.

Procedures and deadlines for TEP applications are described under “Curriculum and Instruction” in the College of Education section of the Catalog. Interested students must apply to the College of Education for admission to the Teacher Education Program.

TEP students must complete all College of Liberal Arts General Education Requirements, the requirements for a science education major, and the following professional education courses.

7F: 180 Human Relations for the Classroom Teacher 3 s.h.
7P:15 Educational Psychology and Measurement 3 s.h.
7S:100 Foundations of Education 3 s.h.
7S:151 Science Methods 1: Elementary School Seminar and Practicum 2 s.h.
7S:152 Science Methods H: Resources, Research, Teaching Strategies, and Curriculum Development for K-12 Science 3 s.h.

Applications of Biological Sciences 3 s.h.
Applications of Physical Sciences 3 s.h.

The Science Education Program offers graduate studies leading to the Master of Arts in Teaching, Master of Science, Educational Specialist, and Doctor of Philosophy.

These programs are described under “Secondary Education” in the College of Education section of the Catalog. The Master of Science with specialization in elementary school science
education is described under “Early Childhood and Elementary 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, philosophy and sociology of science, individualized learning, research 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 inservice programs guide teachers in adapting innovative instructional methods, including problem solving methods, STS, and laboratory centered instruction. Other programs of the center promote development and revision of science curricula K-12, science literacy, and programs for gifted and talented students. The Science Education Center has been a leader in development, testing, and education of many national programs, Iowa recently has been chosen the national center for SALISH, a project to examine the long-range effects of several past NSF-supported science teacher programs.
Another national program of interest is Scope, Sequence, and Coordination (SS&C), which involved many teachers from Iowa and some contiguous states in an effort to redefine goals for science curricula as well as special materials to achieve these goals.
Many Science Education Center activities are funded by NSF, Title H, Eisenhower, the Iowa Lottery program, and industries such as the Iowa Utility Association. Many teachers involved with in-service programs are attracted to graduate degree programs.

International Programs
Science education faculty members have collaborated on a number of international research and development projects in countries including Brazil, Italy, Spain, Portugal, Israel, Nigeria, Malaysia, Indonesia, Korea, Australia, Taiwan, South Africa, Mexico, and India. Several faculty exchanges have occurred, and numerous cross-national studies have been undertaken.
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. Relations are maintained and new collaborative efforts are under way each year.

Facilities
The facilities for science education programs at The University of Iowa are exemplary. They include a main office; faculty, secretarial, and graduate student office space; a photographic laboratory; instructional classrooms, including space for elementary and secondary school science methods courses and applications-oriented courses; a departmental conference room used for seminars, conferences, meetings, workshops, and in-service work with teachers, supervisors, and administrators; a common area for small-group discussions and individual work; and a lounge. The Science Education Center is located in Van Allen Hall near the center of the University campus.

Courses
The following are special courses offered by the Science Education Program to supplement the undergraduate emphasis areas in science education and to provide science options for elementary education majors.

Primarily for Undergraduates

Public Relations
97:00 Cooperative Education Internship 0 s.h.
97:05 Fundamentals of Science 2 s.h.
Science topics and laboratory investigations from physical, life, earth sciences; focus on problem solving and process skills in science.
97:99 Honors Research Project arr.

For Undergraduates and Graduates

3:000 Societal and Educational Applications of Earth Sciences and Environmental Sciences arr.
Major ideas and principles of earth and environmental sciences; emphasis on common applications in today’s world.
3:023 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.
3:030 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.
3:060 Societal and Educational Applications of Chemical Concepts arr.
Principles of chemistry as applied in industry, communication, daily living.
3:070 Textile Science 3 s.h.
Textile properties, fiber science, yarn and fabric construction, textile testing and standards, dyeing, finishing.
3:080 Experimental Textile Science 3 s.h.
Projects conducted in the laboratory; methodology of textile science research. Consent of instructor required.
3:110 Earth Science for Resolving Issues 2-3 s.h.
Earth science concepts used in resolving community issues.
3:111 Life Science for Resolving Issues 2-3 s.h.
Life science concepts, resolving issues in local communities.
3:122 Planet Earth 3 s.h.
Plate tectonics; Earth and other planets in solar system; Earth’s oceans, interior, atmosphere, natural resources; Earth’s future.
3:131 Race to Save the Planet 3 s.h.
Today’s environmental issues, revolution; solutions, constructive ideas, new approaches worldwide; environmental affairs from Neolithic agricultural revolution to present.
3:141 Physical Science for Resolving Issues 2-3 s.h.
Physical science concepts, resolving issues in local communities.
3:151 Introduction to Museology 3 s.h.
GER: humanities. Same as 78:112, 113; 102: 102; 113: 103.
3:191 Directed study arr.
3:200 Meaning of Science 2-3 s.h.
Critical examination of scientific enterprise from social, ethical, cultural, epistemological viewpoints.
3:210 Science in Historical Perspective 2-3 s.h.
Science and its related contemporary social issues from perspective of historical development.
3:240 Problems in integrating the Teaching of Environmental Science 3 s.h.
Environmental education resources in the community-human, governmental, natural, integrated (holistic) view of environmental education of K-12 teaching.
3:50 Resolution of Issues: Life Science 2-3 s.h.
Use of life science to explain, augment understanding of, and propose resolutions for local and regional issues; integration of concepts from other science disciplines.
3:511 Resolution of Issues: Physics 2-3 s.h.
Use of physical science to explain, augment understanding of, and propose resolutions for local and regional issues; integration of concepts from other science disciplines.
3:512 Resolution of Issues: Earth and Space Science 2-3 s.h.
Use of earth and space science to explain, augment understanding of, and propose resolutions for local and regional issues; integration of concepts from other science disciplines.
3:531 Resolution of Issues: Chemistry 2-3 s.h.
Use of chemistry to explain, augment understanding of, and propose resolutions for local and regional issues; integration of concepts from other science disciplines.
3:541 A World View of Science 2-3 s.h.
Multiple dimensions of science, nature of scientific inquiry, perceptions about science, relationship of science to technology.

Social Studies
Coordinator: Margaret Rogers
Assistant professors: Bruce Fehn, Margaret Rogers
Undergraduate degree: B.A. in Social Studies
Graduate degrees: M.A. in Social Studies, Ph.D. in Education

Undergraduate Program
The major in social studies is an interdisciplinary, nonprofessional major. It provides an excellent foundation for careers in law, social work, religion, urban planning and development, and government service at all levels.

General Program
Major requirements for the B.A. in social studies total 60 semester hours of credit earned in departments cooperating in the social studies education program.
Students choose Plan A or Plan B. Both require 60 semester hours of course work.

Plan A
U.S. history or world history 15 s.h.
American government/political science 15 s.h.
In addition, students complete 15 semester hours in each of any two areas chosen from anthropology, economics, geography, psychology, and sociology.

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PLAN B

Students complete 30 semester hours in one area chosen from American government political science, anthropology, economics, geography, psychology, sociology, U.S. history, or world history. They also complete 15 semester hours in each of any two of the remaining disciplines.

There is no separate honors program in social studies. Students who qualify for the University Honors Program are encouraged to do honors work in the social science department in which they wish to concentrate their work.

A global studies certificate may be obtained in conjunction with the social studies major. See “Global Studies” in this section of the Catalog.

Teacher Licensure

Students who want to obtain a teaching license in history or other social science areas must declare a major in the academic field they want to teach and earn a total of 30 semester hours in that field. They also must complete 15 semester hours in each of two fields related to history or social science. Majors and related fields may be selected from the following: U.S. history, non-U.S. (world) history, anthropology, economics, sociology, geography, political science, or psychology. Courses must conform to departmental requirements for the major. In most instances, students are assigned an adviser in their major area as well as in social studies.

Additional information on social studies teacher licensure programs is available from the office of the Division of Curriculum and Instruction, College of Education.

Graduate Programs

Master of Arts

The department offers the Master of Arts with or without thesis.

Graduates of the M.A. program are classroom teachers and chairs of social studies departments in junior and senior high schools. Some serve as curriculum consultants for school districts, while others are staff members in community colleges. A few have found the degree to be excellent preparation for professional work in correctional and penal institutions. For a few, the program has provided access to civil service positions at various levels of government.

Students choose from two programs. Program A provides an opportunity for interdisciplinary work in history, social science, or related areas for classroom teachers and others interested in acquiring greater competence in their subject area. Program B is for individuals who have their bachelor’s degree in history or one of the other social sciences and who wish to obtain a teaching certificate in the process of completing the master’s degree. Both programs are described in the College of Education section of the Catalog under “Curriculum and Instruction.”

Doctor of Philosophy

Graduates of the Ph.D. program hold administrative posts in institutions of higher education, serving as presidents, provosts, or deans of faculty or graduate studies. Some are department chairs in colleges of education or curriculum directors in large school districts. Many are in teacher education programs in colleges and universities, while others are college instructors in their areas of academic concentration.

Requirements and admission criteria for the Ph.D. program in Social Studies Education are described in the College of Education section of the Catalog under “Curriculum and Instruction.”

Facilities

Social studies students have access to the facilities and services of the cooperating departments and the College of Education. Special agencies and services also are available, such as University Hospital School, the Iowa Center for Education in Politics, the Bureau of Educational Research, the Institute of Public Affairs, the Iowa Educational Information Center, the Curriculum Laboratory, the Statistical Consulting Center, the computer laboratory, and Weeg Computing Center.

Faculty members who serve as social studies advisers and coordinators are experienced classroom teachers whose advanced degrees have been earned in history, the social sciences, and education. They are active in professional organizations, in consulting work, and in working with schools in curriculum revision.

SCHOOL OF SOCIAL WORK

Director: Patricia Kelley
Professors: Lorraine Dorfman, H. Wayne Johnson, Patricia L. Kelley, Martin B. Tracy, Thomas H. Walz
Professors emeriti: Ralph E. Anderson, Frank Z. Cick
Adjunct professors: Woodrow W. Morris, Beverlee C. Tracy
Associate professors: Catherine F. Alter, Jim Hall, Edward J. Saunders, William M. Theisen
Associate professors emeriti: W. Stanley Good, Katherine A. Kruse
Assistant professors: Amy Butler, Theora Evans-Dodd, Carolyn Hartley, Julia Holmes, Robert Jackson, Salome Raheim, Judith Rinehart
Assistant professors emeriti: B. Eleanor Anstey, A. Louise Mays, E. Jean Williams
Adjunct assistant professors: Larry Allen, James Cone, Wendy Deutelbaum, Diane Dornburg, John F. Else, Greg Jensen, Paul Lambakis, Miriam Landsman, Kathy Morgan, Linda Neuman, Robert Oberbillig, Michael O’Melia, Anita Richards, Rebecca Sarvo, Dorothy Seyfried, Janet Simons, Bonnie Theisen, Nicholas Tormey, Patsy Tracy, Steve Trefz, Nancy Wallace, Bonnie Williams
Adjunct instructors: Nancee Blum, Bl. Brightman, Victoria Bruner, Lois Buntz, Paul Danforth, Barbara Ehlers, John Fairweather, Robert Freeman, Betty Grandquist, Dan Grinstead, Heather Henderson, Mary Hubbard, Lance Kinseth, Theresa Kulpfer, Paul Lambakis, Jean Mann, Billie Marchik, Pat Meyers, Hermine McLean, Barbara Miller, Pam Moore, Jeanne Neibitt, Linda Petersen, Anita Patterson, Joy Sutter, Sally Titus-Cunningham, Lisa Walz, John Zalenski
Undergraduate degree: B.A. in Social Work; minor in Social Work
Graduate degree: M.S.W.

The School of Social Work provides an accredited program of professional training at the baccalaureate and master’s levels in physical and social milieu that supports a people-centered approach to professional education.

Undergraduate Program

The Bachelor of Arts program prepares students for beginning professional social work practice as generalists. The goals of the program are to prepare students for employment in social services using B.A. graduates, such as public welfare, child welfare, group services, health, mental health, elderly services, and corrections; to provide a base for graduate study in social work or allied professions; and to prepare students for informed community participation in social welfare issues.

The program is accredited by the Council on Social Work Education.

Selective Admission

A limited number of students are admitted to the major. Applications are processed each December. Admission to the undergraduate program in social work requires:

- completion of 42-22 Introduction to Social Work with a grade of C or higher (can be taken the sophomore year);
- a cumulative grade-point average of at least 2.50; and
- completion of the application process.

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.

Admission is limited by available instructional resources and opportunities for field placement. Meeting these requirements does not guarantee admission.

More information is available from the School of Social Work admissions coordinator.

Curriculum

Undergraduate students majoring in social work must satisfy the College of Liberal Arts General Education Requirements. The General Education Requirement in natural sciences should include 2/21 Human Biology. The minimum requirements for a B.A. in social work include 35 semester hours in social work courses, 12 semester hours in one other department (see “Other Courses,” below), and 12 semester hours in social science courses. The following courses are required for the major.

FRESHMAN/SOPHOMORE YEARS

30:1 Introduction to American Politics
31:1 Elementary Psychology
31:3 General Psychology
34:1 Introduction to Sociology: Principles
Any basic economics course
42:22 Introduction to Social Work

3 s.h.
3 s.h.
4 s.h.
3-4 s.h.
3-4 s.h.
4 s.h.
JUNIOR YEAR
42:147 Racism and Discrimination 3 s.h.
or
Approved course from another department
(see School of Social Work for list)
42:140 Human Behavior in the Social Environment 4 s.h.
42:141 Fundamentals of Social Work Practice 3 s.h.
42:142 Interpersonal Skills Laboratory 2 s.h.
42:144 Introduction to Social Work Research 4 s.h.
42:171 Social Work Processes 3 s.h.

SENIOR YEAR
42:143 Social Welfare Policy and Practice 3 s.h.
42:189 Field Experience Seminar 1 s.h.
42:193 Field Experience 8-11 s.h.

OTHER COURSES
The undergraduate program requires a minimum of 12 semester hours of course work in one area listed below. Most students select either sociology or psychology. Students wishing to meet this requirement in another area must present a written request and rationale. Courses used to meet General Education Requirements do not count toward the 12 semester hours, nor do the specifically required social science courses.

- African-American world studies
- Aging studies
- American studies
- Anthropology
- Business
- Communication studies
- Economics
- Education
- English
- History
- Journalism
- Political science
- Psychology
- Religion
- Sociology
- Spanish
- Sport, health, leisure, and physical studies
- Women’s studies

Honors
The School of Social Work has an honors program leading to a Bachelor of Arts with honors in social work. A 3.20 cumulative grade-point average is required for participation in the program, which enables students to do in-depth study in subjects of interest to them.

Minor
A minor in social work requires a minimum of 15 semester hours of credit in social work courses with a minimum grade-point average of 2.00. At least 12 semester hours must be taken at The University of Iowa in courses numbered 42:100 and above. 42:22, or its equivalent at another institution, a prerequisite to many upper-level social work courses, is required.

Graduate Program
The Master of Social Work program 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. Its common goals, to be met through a set of foundation requirements, are to enable all students to understand the dynamics of human development and change; to learn how to enhance the responsiveness of human service between society and the individual; and to acquire intervention skills for working with individuals, families, small groups, organizations, and communities in public and private agencies and institutions.

The program is accredited by the Council on Social Work Education (CSWE).

The Master of Social Work includes 25 semester hours of foundation-level courses and 35 semester hours of advanced-level courses. Students who have a B.S.W. from a CSWE-accredited program receive 15 semester hours of advanced standing and earn the degree with 45 semester hours. A limited number of students are admitted to a 36-hour, full-time program. All students must earn a minimum of 36 hours after admission to the M.S.W. program.

Up to 14 semester hours of partial advanced standing is possible for students who have completed courses in a CSWE-accredited program but who do not have the degree. Students with equivalent foundation course content taken in departments or programs other than accredited social work programs must pass a qualifying exam for the particular foundation course in order to receive partial advanced standing. Nineteen to 24 semester hours of graduate transfer credit may be allowed for previous graduate work.

The school operates a year-round, sequenced program that begins in the fall semester for full-time students who need the full 60 semester hours. The program continues through the summer, which is a full semester. Full-time students who complete the entire 60 semester hours after admission generally earn the M.S.W. the spring semester of their second year. Those who require 45 semester hours enter the program in the second semester (January). Students in the 36-semester-hour program begin their course work in the third semester (May). The 36-semester-hour program is available only for full-time students.

Part-time students go through the program at a slower pace. Students who need the full 60 semester hours complete the program in four years.

A special intensive summer program has been designed to enable students from Des Moines and the Quad Cities to attend classes in Iowa City.

Students must maintain at least a 3.00 cumulative grade-point average; must be promoted each semester in compliance with the Student Advancement Policy, and must successfully complete a master’s comprehensive examination, an integrative paper involving evaluation of practice, prepared in conjunction with a practicum seminar in the final semester.

Students may elect a thesis option for credit and use the oral defense as their final examination.

The following is an outline of the full-time 60-semester-hour program.

FIRST YEAR FOUNDATION
Fall Semester
42:140 Human Behavior in the Social Environment 3 s.h.
42:141 Fundamentals of Social Work Practice 3 s.h.
42:142 Interpersonal Skills Laboratory 1 s.h.
42:147 Racism and Discrimination 3 s.h.
42:144 Introduction to Social Work Research 3 s.h.
Elective 3 s.h.
Total 13 s.h.

Spring Semester
42:143 Social Welfare Policy and Practice 4 s.h.
42:145 Organization and Community Practice 3 s.h.
42:146 Microcomputer Laboratory 3 s.h.
42:290 Foundation Practicum in Social Work 3 s.h.
42:291 Foundation Practicum Seminar 1 s.h.
Total 15 s.h.

SECOND YEAR CONCENTRATION
Fall Semester
42:250 Family Systems Theories 3 s.h.
or
42:260 Integrated Practice Theories 3 s.h.
42:270 Advanced Research 3 s.h.
42:292 Advanced Practicum in Family Centered Practice I and 11 arr.
or
42:295 Advanced Practicum in Integrated Practice 5-6 s.h.
42:293 Advanced Practicum Seminar in Family Centered Practice I 3 s.h.
or
42:297 Advanced Practicum Seminar in Integrated Practice I 1 s.h.
Total 12-13 s.h.

Spring Semester
42:251 Family Therapy 3 s.h.
or
42:261 Integrated Social Work Practice 3 s.h.
42:252 Family Policy: Domestic and International 3 s.h.
or
42:262 Social Policy and Integrated Practice: Domestic and International 3 s.h.
42:292 Advanced Practicum in Family Centered Practice I and II arr.
or
42:295 Advanced Practicum in Integrated Practice 5-6 s.h.
42:294 Advanced Practicum Seminar in Family Centered Practice 11 s.h.
or 42:298 Advanced Practicum Seminar in Integrated Practice 11 s.h.
Thesis or elective 2-3 s.h.
Total 12-13 s.h.

Concentrations

After admission, students choose between two concentrations: family systems or interdisciplinary systems.

Family Centered Practice

This concentration prepares students to become clinical social work practitioners, working with individuals and families experiencing problems that have impaired personal or family functioning, such as mental illness, family violence, abuse and neglect, juvenile offenses, substance abuse, relationship problems, or poor parenting skills. The goals of clinical social work are to increase competence of these individuals and families, to support family functioning, and to decrease the need for various types of institutionalization. This concentration is designed to enable students to work intensively with individuals and families directly, as well as to work with the larger systems on their behalf. The term “family” is broadly defined to include step families, single-parent families, same-sex couples, adult child-parent families, and traditional forms of families. Thus, sensitivity to a variety of family structures is emphasized.

Graduates of this concentration work with a variety of populations across the age span in mental health, in traditional family services as well as intensive family-based services, in child welfare agencies, and in a variety of other settings. The theoretical basis for this concentration is the family systems perspective, which emphasizes interpersonal and social forces over intrapsychic factors in explaining human behavior and change. This view emphasizes mobilizing strengths in the system, rather than diagnosing pathology, in creating change.

Integrated Practice

The integrated practice concentration teaches a model of advanced practice that aims to meet the multiple needs of individuals and families through culturally sensitive assessment, planning, intervention, and evaluation in multiple settings. These skills are needed for a broad set of interventions (direct practice, planning and program development, team building, networking, and client information management) used by social workers working in family-centered case management and community practice.

This concentration is designed for students who will work in settings where advanced generalist interventions are necessary, such as community-based and family-based agencies, rural settings, and large complex organizations (hospitals, schools, and correctional facilities). In these settings, social workers function as team members and team leaders and often must coordinate activities across different departments and agencies.

The integrated practice concentration is based on the concept of person-in-environment and is an extension of multisystemic practice. The theoretical foundations of the concentration are social network and social systems theory (family and organizational systems), and empowerment models, as well as mid-range theories of communication, power, conflict, political economy, and development theory, as they apply to changing the circumstances of oppressed/distressed individuals and families. The policy framework for the concentration includes both a comparative analysis of policy and program, and an understanding of the reciprocal relationships between problems of individuals and families and those of the systems in which they are enmeshed.

Off-Campus Centers

The full-time program is available in Iowa City and Des Moines. At the end of the first calendar year, some students stay in the Iowa City-Cedar Rapids area for the remainder of their program, including practicum, and some are assigned to Des Moines or the Quad Cities for practicum. Students may need to relocate.

The Des Moines Center, 115 miles west of Iowa City, is located in Iowa’s state capital and largest city, Des Moines. The Quad Cities Center is located on the Mississippi River in Davenport, 60 miles east of Iowa City. Full-time students who have a practicum assignment in the Quad Cities usually commute to Iowa City for required courses during the second year of the program. Some elective courses are available in the Quad Cities.

Part-Time Program

The School of Social Work also has a part-time program in three locations: Iowa City, Des Moines, and the Quad Cities. In Iowa City and Des Moines, students are admitted each fall semester. In the Quad Cities, a group of part-time students is admitted every three years; the next group will start in August 1997. School of Social Work faculty members teach required courses in all centers and are available for student advising.

The off-campus programs have been evaluated by CSWE and The University of Iowa Graduate Council as providing a comparable program to that available on the Iowa City campus.

Part-time students complete two courses each spring and fall semester for three or four years. Electives may be taken concurrent with fall and spring semester courses and in the summer. A full range of summer courses is available in Iowa City, and some courses are available in Des Moines. The format for some Iowa City summer courses is intensive, short-term, and split session, enabling students from other centers to take campus courses.

Joint Degree Programs

The school has formal agreements with the College of Law and the Department of Urban and Regional Planning for joint degrees. Students must be accepted to each department through its regular admission process. Up to nine semester hours in each program are applied to requirements of the other, thus reducing the time it would usually take to pursue two degrees. Individual arrangements may be made with other departments. Students have pursued joint degrees with the College of Business Administration, College of Education, American Studies Program, School of Religion, School of Journalism and Mass Communication, and others. Students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Cooperative Programs

In cooperation with the Counselor Education Program in the College of Education, a curriculum has been designed around the requirements of the American Association of Marriage and Family Therapists (AAMFT). Graduates of accredited M.S.W. programs are eligible for associate membership upon fulfilling certain curriculum requirements at the graduate level. Courses are not automatically accepted; graduates need to demonstrate that they meet requirements, usually by sending course outlines.

The School of Social Work participates in the Aging Studies Certificate Program through the College of Liberal Arts. Students can earn the certificate concurrent with the M.S.W. program; they must apply independently to the coordinator of the Aging Studies Program.

The school also participates with the College of Education to provide curricula that meet requirements for school social work certification in Iowa. Students can work toward certification concurrent with the M.S.W. program. Students apply for certification to the assistant to the dean in the College of Education.

Special Projects, Travel/Study Seminars

Students may become involved in special projects such as the National Resource Center on Family Based Services and the School of Social Work gerontology programs.

The school also offers students the opportunity to participate in travel/study seminars. Urban, rural, national, and international seminars are available.

Admission

The criteria for admission for full-time and part-time study in the 60- and 45-semester-hour M.S.W. programs are:

a bachelor’s degree from an accredited college or university, with a reasonable distribution of courses in the social sciences and humanities;

competence with word processing and spreadsheet application on personal computers;

a 3.00 or higher grade-point average for the junior and senior years of undergraduate study, or for 12 semester hours of letter-graded graduate course work (exceptions noted below);
a Graduate Record Examination GRE score; the minimum GRE score is either a combined verbal and quantitative score of 900 or an average of 500 for the verbal, quantitative, and analytical portions;

three positive letters of recommendation, including one regarding academic abilities and one or more regarding social service or other work experience; and

a personal statement addressing criteria specified by the School of Social Work.

Previous experience in the human services (volunteer, field, or employment) is desired.

Previous enriching life experience (cross-cultural and international experience and background, and minority status) also are granted consideration.

Foreign applicants must score at least 600 on the Test of English as a Foreign Language (TOEFL).

Applicants who are especially strong candidates on the basis of other criteria may be admitted even if their grade-point average is below 3.00. Since the school seeks to maintain a heterogeneous student body, it makes special efforts to admit students who represent a diversity of racial, ethnic, and socioeconomic backgrounds. Students with disabilities also are encouraged to apply.

Applications are accepted beginning September 1 and must be completed by February 1 to be considered for the next academic year. Students in the 45-semester-hour program begin in January and are considered part of the same class and must meet the same application deadlines as students who begin the preceding semester. Applications for the 36-semester hour program must be completed by January 1. Additional criteria for admission to the full-time, 36-semester-hour program include:

- a bachelor’s degree from a CSWE-accredited social work program;
- a 3.00 or higher grade-point average for the junior and senior years of undergraduate study;

A Graduate Record Examination GRE score; the minimum GRE score is either a combined verbal and quantitative score of 900 or an average of 500 for the verbal, quantitative, and analytical portions;

extensive experience after receipt of a bachelor’s degree; and

completion of a basic statistics course and proficiency in the use of microcomputers (credits received in these two areas are not applied toward the M.S.W. degree).

A complete statement of graduate admission policies is available upon request.

Financial Aid

Financial aid for students varies from year to year. All students seeking financial assistance should apply for aid through The University of Iowa Office of Student Financial Aid and should maintain close contact with the school’s financial aid administrator regarding availability of funds from the School of Social Work. Aid received through the Office of Student Financial Aid does not preclude students from consideration for aid through the School of Social Work.

Courses

Few courses are offered every semester; consult the current Schedule of Comes for availability of specific courses.

Primarily for Undergraduates

*Courses with numbers preceded by asterisks meet requirements of the M.S.W. program.

42:22 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 60 hours volunteer work. Sophomore standing or above or consent of instructor required. same as 34:22.

42:144 Introduction to Social Work Research 4 s.h.

Skills appropriate to evaluation of practice, participation in social work research; emphasis on formulating research questions; research design and methodology; sampling techniques; sanctions; data collection; coding and computerized statistical analyses; presentation of findings. Open only to undergraduate social work students. Prerequisite: 42:22 or graduate standing or consent of instructor.

42:171 Social Work Processes 3 s.h.

Practice strategies for working with communities, small groups, families, individuals in community, organizational contexts; volunteer work. Prerequisite: 42:141 or consent of instructor.

42:189 Field Experience Seminar 1 s.h.

Experiences from a variety of placements; link between previous courses and 42:193, which is coquisite.

42:191 Individual Study arr.

Project related to student interest. May be repeated.

42:192 Honors in Social Work Research. May be repeated. Open only to honors program students.

42:193 Field Experience arr.

Supervised experience in selected social welfare organizations; understanding and use of knowledge and skill common in generalist practice; evaluation of practice; Senior standing in social work or consent of instructor required. Prerequisites: 42:22, 42:140, 42:141, 42:142, and 42:171; or consent of instructor. Corequisite: 42:189.

For Undergraduates and Graduates

*Courses with numbers preceded by asterisks meet requirements of the M.S.W. program.

42:00 Cooperative Education Internship 0 s.h.


42:93 Intercultural Communication 3 s.h.

Same as 36C:93.

42:108 Basic Aspects of Aging 3 s.h.

Biological, social, and psychological aspects; major topics include health, economic health, economic status, social participation, health, and social services.

42:12 Human Sexuality 1-3 s.h.

Physiological, psychological aspects; parameters defined by students, instructor. Same as 96:112, 7C:112.

42:117 Interdisciplinary Programs for Disabled 3 s.h.

Same as 7U:117.

42:129 Substance Use and Abuse 2 s.h.

Chemical dependency for helping professions; biological, physiological, psychological, legal, sociological aspects; treatment methods. Junior standing or above or consent of instructor required.

42:140 Human Behavior in the Social Environment 3-4 s.h.

Behavior and development in context of social, ecological systems; social systemic theories; personality and life span development theories, theories of psychosocial dysfunction. Open only to social work students. Prerequisite: 42:22 or graduate standing or consent of instructor.

42:141 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. Open only to social work students. Prerequisite: 42:22 or graduate standing. Corequisite: 42:140.

42:142 Interpersonal Skills Laboratory 1-2 s.h.

Practice of interpersonal skills required in the helping relationship. Open only to social work program students. Prerequisites: 42:22 and 42:140, or graduate standing, or consent of instructor. Corequisite: 42:141.

42:143 Social Welfare Policy and Practice 3 s.h.

Framework for analyzing specific social welfare programs, policies, alternatives; special attention to impact of social welfare programs on women, minorities; international focus. Graduate standing in social work or consent of instructor required. Prerequisites: economics course, 42:22 and 42:140; or consent of instructor.

42:147 Racism and Discrimination 3 s.h.

Theoretical, historical perspectives on racism, sexism, other forms of discrimination; application to social work practice with antidiscrimination strategies.

42:183 Issues in Criminal Justice and Corrections 2 s.h.

Contemporary programs, organizational structures, administrative processes in criminal justice, particularly corrections; related social policy issues. Junior standing or above required.

42:184 Multidisciplinary Perspectives on Aging 3 s.h.

Social, behavioral, health-related perspectives on aging; public and private, traditional and innovative programs for meeting service needs of elderly; functional assessment of older persons.

42:185 Social Policy and the Elderly 3 s.h.

Public social policies, their affect on wellbeing of elderly, including women and minorities; U.S. policies, those of other nations, Junior or higher standing required. Prerequisites: 42:143 and introductory course on aging (34:130, 42:184, 96:129), or consent of instructor.

42:186 Comparative Social Policy 3 s.h.

U.S. social policies and programs, those of other countries; historical development, current status of income maintenance, health, education, social service. Junior standing or above required.

42:190 Field Work in Gerontology arr.

Opportunities for students in various disciplines to relate their areas of study to elderly, aging; interdisciplinary relationship, approaches to meeting needs of elderly. Prerequisite: 34:130 or 42:184 or 96:129 or consent of instructor.

42:194 Social Work Practice in Health Care Settings 2 S.h.

Introduction to organization, provision of social work services in health care setting; practice issues such as models of intervention, ethical questions, impact of cultural diversity on health care. Prerequisite: 42:141 or consent of instructor.

42:195 Selected Topics 1-2 s.h.

Ongoing faculty research areas.

42:196 Family Violence 2-3 s.h.

Child abuse and neglect, domestic violence, elder abuse; causes, policy aspects, identification, reporting, treatment, prevention.

42:198 Social Work Practice with Developmentally Disabled 2 s.h.

Problems, programming needs of disabled; their families; practice issues, including individual needs assessment and program planning family dynamics, service needs.


Human behavior, practice, social welfare policy. Consent of instructor required.
Primarily for Graduates

- **42:145** 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, implementation, ethics, program and self-evaluation. Admission to social work or consent of instructor required.

- **42:146** Microcomputer Laboratory 1 s.h.
  Microcomputers in social work practice; skill in use of hardware, software for a variety of applications in social service settings. Open only to social work students.

- **42:148** Social Work Research Methods 3 s.h.
  Skills appropriate to evaluation of practice and participation in social work research, on formulating research questions; development, current status of family, professional standards of practice. Open only to M.S.W. students. Prerequisite: 42:141, 42:142, 42:143, 42:144, 42:145, 42:146, 42:147, and 42:291.

- **42:204** 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.

- **42:211** Individual and Family Development Life Span 3 s.h.
  Infancy through senescence; families from their beginnings through their later years; theoretical, methodological issues. Graduate standing required.

- **42:216** Group Leadership in Human Sexuality 0.5-3 s.h.
  Principles of group dynamics, group process; leadership skills for small, task-oriented discussion groups on human sexuality. May be repeated. Prerequisite: 42:112 or consent of instructor. Same as 7C:216, 96:216.

- **42:219** Aging and the Family 2-3 s.h.

- **42:220** 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: 42:143 or consent of instructor.

- **42:222** Social Policy Issues in Health Care 3 s.h.
  Policy model used to analyze major health policy issues in the United States; health care systems; socioeconomic-political contexts; tendencies, strategies, prospects for change; significance to social work profession. Prerequisite: 42:143 or consent of instructor.

- **42:223** Cross-Cultural Social Work 2-3 s.h.
  Issues, issues in practice with culturally different populations, including U.S. ethnic groups, women, homosexuals, disabled, recent immigrants. Prerequisite: 42:147 or consent of instructor.

- **42:228** Theories of Personality and Psychopathology 3 s.h.
  Theories and their relevance to social work practice with diverse populations. Graduate standing in social work or consent of instructor required. Prerequisite: 42:140 or consent of instructor.

- **42:229** working with Groups 2 s.h.
  Theory, practice of group work, group process, leadership styles and skills; fundamental theory to specific group, facilitates a small group. Prerequisite: completion of foundation courses or consent of instructor.

- **42:232** Therapy with Couples 2 s.h.
  Marital, other couples as social systems; theories of functional, dysfunctional, healthy relational techniques of intervention. Prerequisite: completion of foundation courses or consent of instructor. Same as 7C:232.

- **42:233** school social work Practice 2 s.h.
  School as a social institution; activities of school social worker; theoretical, practice issues; current issues in field.

- **42:235** Intervention with Individuals 2 s.h.
  Theories, practice skills; focus on object relations theory and therapy; development of therapeutic skills to bridge between systemic perspective and working with individuals. Prerequisite: completion of foundation courses and 42:250, or consent of instructor.

- **42:237** 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.

- **42:250** Family Systems Theories 3 s.h.
  Communication, family systems theories compared to other theories of personal change. Skill development in analyzing problems and theories, implementing change strategies, developing of hypothesis. Prerequisite: completion of foundation courses or consent of instructor.

- **42:251** Family Therapy 3 s.h.
  Techniques for assessment, intervention in family therapy and for evaluation of practice; theoretical bases for intervention. Prerequisite: 42:250 and consent of instructor. Same as 7C:251.

- **42:252** Family Policy: Domestic and International 3 s.h.
  Development, current status of family; forms, functions, relation to other institutions; analyses of social policies affecting families; comparative, international focus. Prerequisite: completion of foundation courses or consent of instructor.

- **42:260** Integrated Practice Theories 3 s.h.
  Theories that contribute to understanding of complex interactions between human, organizational, environmental systems; organizational, family, social networking, family systems theories. Prerequisite: completion of foundation courses or consent of instructor.

- **42:261** integrated Social Work Practice 3 s.h.
  Practice theories, skill development, ethical issues; direct family centered practice, planning and program development, team building, networking, client relationship management. Prerequisite: 42:260 or consent of instructor.

- **42:262** Social Policy and Integrated practice: Domestic and International 3 s.h.
  Systematic policy analysis framework applied to major health, education, employment policies and programs; impact of these programs with community services; impact of policies on women and minorities; international emphasis. Prerequisite: 42:260 or graduate standing or consent of instructor.

- **42:270** Advanced Research 2-3 s.h.
  Skills applied to topics as needs assessment, program evaluation, policy analysis, evaluation of social work practice. Open only to social work students. Prerequisite: 42:144 or equivalent.

- **42:271** Individual Study arr.
  Project related to student interest. May be repeated. Graduate standing required.

- **42:272** Thesis arr.

- **42:273** Women, Men, and Global Social Change 3 s.h.
  International social change as understood by those affected by it; emphasis on discrepant social economic, and political aspects of change in the United States and selected areas of Africa, Asia, Latin America. Prerequisite: 42:143 or consent of instructor.

- **42:277** Organizational and Community Planning Theory and Skills 3 s.h.
  Principles, ideology, values of technocratic and developmental models of planning; emphasis on skills such as needs assessment, goal setting and strategizing, grant writing, assessment of planning process and outcomes. Prerequisite: completion of foundation courses or consent of instructor.

- **42:280** Personnel and Financial Management 2 s.h.
  Human, financial resources required by communities and organizations for the 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.

- **42:284** Treatment Approaches to Substance Abuse and Dependency 3 s.h.
  One-semester seminar focusing on addictions and related social issues. Prerequisite: completion of foundation courses or consent of instructor.

- **42:286** Social Welfare Seminar 1 s.h.
  Community mental health, public welfare, rural social work, social work with minority and international populations, occupational social work. Graduate standing and consent of instructor required.

- **42:290** Foundation Practicum in Social Work 3 s.h.
  Individuals, families, small groups, organizations, communities; communication skills, problem solving process, professional values and ethics applied at all system levels. Open only to M.S.W. students. Prerequisites: 42:140, 42:141, 42:142, 42:143, 42:144, 42:145, 42:146, 42:291.

- **42:291** Foundation Practicum Seminar 1 s.h.
  Integration of academic, experiential learning, self-assessment, peer feedback to promote model of professional accountability. Open only to M.S.W. students. Prerequisites: 42:140, 42:141, 42:142, 42:143, 42:144, 42:146, and 42:291.

- **42:292** Advanced Practicum in Family Centered Practice I 1 s.h.
  Two semester field course; implementing family centered practice theory and skills in interventions with individuals and families.

- **42:293** Advanced Practicum Seminar in Family Centered Practice I 1 s.h.
  Prerequisite: completion of foundation courses or consent of instructor. Corequisites: 42:292, 42:294.

- **42:294** Advanced Practicum Seminar in Family Centered Practice II 1 s.h.

- **42:295** Advanced Practicum in Integrated Practice arr.
  Two semester field course; implementing integrated social work theories and interventions n work with individuals, families, organizations, and informal networks. Prerequisite: completion of foundation courses or consent of instructor. Corequisites: 42:297 or 42:298.

  Prerequisite: completion of foundation courses or consent of instructor.

  Two-semester course integrating social work knowledge, skills, values, and professional identity within context of advanced practice and direct multi-systemic interventions. Prerequisite: completion of foundation courses or consent of instructor. Corequisites: 42:295 or 42:296.

- **42:298** Advanced Practicum Seminar in Integrated Practice 1 s.h.

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**Sociology Chair:** James L. Price

**Professors:** Carl J. Crouch, Jae-On Kim, Barry Mekelovsky, Ross Matsueda, Charles W. Mueller, David A. Parton, James L. Price

**Professor emeritus:** Lyle W. Shannon

**Associate professors:** Hallowell Pope, John R. Stratton, Robin Strzyker, Stephen G. Wieting

**Assistant professors:** Scott Elaison, Lingxin Hao, Karen Heimer, Michael Lovaglia, Gi-Wook Shin, Robin Simon

**Undergraduate degrees:** B.A., B.S. in Sociology

**Graduate degrees:** M.A., Ph.D. in Sociology
Undergraduate Program

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of baccalaureate study in sociology provides background for employment in fields such as social services, criminal justice, personnel, applied social research, community organizations, and teaching social science in secondary schools. The program 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 academic, private, and governmental research positions.

Undergraduate students majoring in sociology may elect either a Bachelor of Arts or a Bachelor of Science degree program. Students interested in higher degrees and professional careers in the social sciences are advised to seek the Bachelor of Science. It is recommended that students pursuing the B.S. maintain a cumulative grade-point average of 3.00 or higher.

The Department of Sociology has recently revised the structure of its undergraduate programs. The new requirements described below apply to all students declaring a sociology major beginning fall semester 1993.

Students who declared a sociology major before fall semester 1993 have the option of completing the major under the old requirements, listed in the 1992-94 General Catalog. Eligible students who wish to complete the sociology major under the old requirements must do so by August 1995. No degrees in sociology completed under the old requirements will be awarded after August 1995.

Bachelor of Arts

The B.A. requires 27 semester hours of course work in sociology including the following courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>34:1 Introduction to Sociology: Principles</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:9 Sociological Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:10-11 Theory, Research, and Statistics</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>34:195 Senior Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Electives</td>
<td>12 s.h.</td>
</tr>
</tbody>
</table>

Students need to be aware of how the courses for the major are sequenced. They should complete the No-semester theory, research, and statistics course early, as preparation for the other sociology courses. Students also must complete two 100-level sociology courses (excluding 34:198 Directed Individual Study) after completing 34:9, 34:10, and 34:11. Then they must take 34:195 Senior Seminar.

Bachelor of Science

The B.S. program prepares students for graduate training in sociology. It requires 24 semester hours in sociology, including the following courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>34:1 Introduction to Sociology: Principles</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:9 Sociological Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:11 Theory, Research, and Statistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>(34: 10 is optional, but it or an introductory course in statistics must be completed before 34:11.)</td>
<td></td>
</tr>
<tr>
<td>34:195 Senior Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Electives</td>
<td>12 s.h.</td>
</tr>
</tbody>
</table>

Students need to be aware of how the courses for the major are sequenced. They should complete their two statistics courses (34:10 or other introductory statistics course, and 34:11) early, as preparation for the other sociology courses. Students also must complete two 100-level sociology courses (excluding 34:198 Directed Individual Study) after completing 34:9, 34:10, and 34:11. Then they must take 34:195 Senior Seminar.

Four additional courses are required, as follows (14-15 semester hours).

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:25 Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:26 Calculus II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22S:120 Probability and Statistics</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>26:103 Introduction to Symbolic Logic</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>26:104 Introduction to Philosophy of Science</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Both B.A. and B.S. majors are advised to take 6 semester hours of course work in at least one of these departments: anthropology, economics, geography, political science, or psychology.

Departmental requirements are the same for transfer students as for other students. While some courses taken at other colleges may be applicable toward the major, the department requires that transfer students majoring in sociology take at least 12 semester hours in sociology at The University of Iowa. Students should consult with their advisers.

Students who wish to obtain teacher licensure in the social sciences while majoring in sociology should contact the Division of Curriculum and Instruction in the College of Education.

Honors Program

The University Honors Program provides a stimulating and integrative educational experience for undergraduate majors who perform at a high level. To qualify for the honors program in sociology, students must have a grade-point average of 3.20 overall and in sociology courses.

The special requirements for an honors degree in sociology are completion of 34:100 Honors Proseminar in the spring semester of the junior year, one advanced undergraduate course or graduate course approved by the honors director, and an honors thesis. The honors thesis gives students an opportunity to do sociological research in consultation with a faculty member of the student's choice.

Minor

In addition to its programs for majors, the department provides supportive 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 administration, elementary education, or nursing. The requirements for a sociology minor are:

- a minimum of 15 semester hours of credit in sociology courses with a grade-point average of 2.00 or higher; at least 12 of the 15 semester hours must be taken at The University of Iowa in advanced courses (courses numbered 34: 100 and higher plus 34:9);
- 34:9, which must be completed prior to enrolling in at least two of the required 100-level courses; and
- no course accepted toward the minor may be taken pass/nonpass.

Students who will graduate by August 1995 may choose to fulfill the old requirements for the minor, listed in the 1992-94 General Catalog.

Graduate Programs

The graduate programs in sociology prepare students for professional careers. Master's degree students can choose between programs that prepare them for doctoral studies or for professional positions applying sociology. The doctoral program has a research emphasis and primarily prepares sociologists for 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 M.A. requires 30 semester hours with thesis or 38 semester hours without thesis. The program without thesis is intended for persons who desire 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 or higher:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>34:201 History of sociological Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:202 Sociological Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:214 Introduction to Sociological Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:215 Sampling, Measurement, and Observation Techniques</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:216 Linear Models in Sociological Research</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Joint Program in Sociology and Law

Students may obtain a Master of Arts in sociology and a Juris Doctor by fulfilling the basic requirements of both programs. They may apply up to 12 semester hours of graduate credit earned to satisfy the requirements of either degree, toward both the M.A. in sociology and the 90 semester hours required for the J.D.

This cross creding, approved at the discretion of the Department of Sociology and/or the College of Law, allows students to receive the
J.D. and the M.A. by taking less course work than would be necessary if the two degrees were pursued independently. This program is highly individualized, allowing students to explore various aspects of the relationship between law and society.

Doctor of Philosophy

The Ph.D. degree in sociology requires a minimum of 72 semester hours of graduate-level course work, including the post-M.A. course 34:218 Categorical Data Analysis in Sociological Research and 3 elective semester hours in methods/statistics. Most of the course work for the Ph.D. is taken in the student’s major and minor areas. Candidates also must pass comprehensive examinations and write a dissertation.

All doctoral candidates are examined in the basic tool areas of sociology-theory, history of theory, methodology, and statistics—and in one major and one minor area chosen from the areas represented by the faculty, such as social psychology, deviance and criminology, family, social stratification, sociology of work, organizations, political sociology, theory, and methods and statistics. A description of faculty interests is available upon request.

A detailed statement of regulations for graduate study also is available upon request. Prospective doctoral candidates should examine this statement carefully.

Special Workshops

The department organizes a series of workshops each semester on new and interesting research methods not covered in the standard methods sequence. Each workshop informs students about the problems for which the method is applicable, gives an introduction to its theory, and shows how the method is actually used in research setting. Topics covered in recent years include LISREL, meta-analysis, simulation techniques, event history analysis, and time-series analysis.

A biweekly theory workshop on tools and methods used in theoretical analysis attracts both faculty members and graduate students. Workshop participants critique a paper, which has been distributed a week before the session.

Training for Teaching Assistants

All new students are expected to attend a week-long orientation for teaching assistants before the beginning of classes. In addition, a practical on teaching (34:382) is required for those who wish to teach their own courses.

Admission

Admission to graduate study in sociology usually requires a minimum undergraduate grade-point average of 3.00 and a total score of 1100 from the quantitative plus verbal sections of the Graduate Record Examination GRE General Test. Foreign students whose native language is not English should submit scores from the TOEFL exam. In addition to fulfilling the Graduate College requirements for admission (see the Graduate College section of the Catalog), the applicant must complete a departmental application statement and use its personal reference forms in obtaining three letters of recommendation.

Applications should be submitted at least two months before the start of the academic session for which admission is requested. The deadline for applying for departmental financial support is February 1, although evaluation of applications begins in 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. 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. Inquiries concerning admission should be directed to the chair of the admissions committee, Department of Sociology.

Financial Aid

The Department of Sociology offers four types of awards to graduate students: teaching assistantships, research assistantships, University of Iowa fellowships, and graduate Opportunity at Iowa Fellowships. Resident tuition is charged to out-of-state students who receive awards. Students who receive one-half-time assistantships work 20 hours each week for faculty members on either teaching or research assignments. The department also may offer tuition scholarships to some students.

Research Facilities

Center for the Study of Group Processes

The department’s 18-room small-group laboratory includes eight computer-controlled subject rooms with audiovisual and psychophysiological recording capabilities, two large-group rooms with an adjoining observation room, an audiovisual control room, an instrument shop, and other flexible research office spaces.

Survey

The Social Science Survey Research Center offers facilities, staff, and data archives for conducting surveys and secondary data analysis. Computer-aided telephone surveys can be conducted, and an annual Midwest opinion survey is ongoing.

Computer Facilities

The department operates a remote computer terminal and personal computer cluster adjacent to graduate student offices. Both terminals and personal computers can access main-frame computers that provide all of the popular statistical and mathematical computing programs.

COURSES

For Undergraduates Only

Courses open to freshmen without prerequisites: 34:1, 34:2, and 34:120. All other undergraduate courses are open to freshmen with stated prerequisites.

34:00 Cooperative Education Internship 0 s.h.
RegISTRATION during work assignment period; permanent record of internship. Open only to sociology majors. May be repeated. Consent of advisor and admission to Cooperative Education Program required.

34:1 Introduction to Sociology: Principles 3 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. GER: social sciences.

34:2 Social Problem 3 s.h.
Emergence and distribution of selected social problems; alternative solutions; social problems may include population, inequality, female-male relationships, racism, and crime. GER: social sciences.

34:9 Sociological Theory 3 s.h.
Theoretical perspectives in sociology; construction, evaluation of sociological explanations. Prerequisite: 34:1 or consent of instructor.

34:10 Theory, Research, and Statistics 3 s.h.
Introduction to basic scientific concepts; emphasis on theoretical thinking, the statement of researchable propositions, and the logic and meaning of proof operant in the research process; general issues associated with designing social research including problems of sampling and measurement, analysis, presenting research data, and interpreting research findings. Open only to sociology majors. Prerequisite: 34:1.

34:11 Theory, Research, and Statistics 3 s.h.
Continuation of 34:10, which is prerequisite. Open only to sociology majors.

34:100 Honors Proseminar 2 s.h.
Discussion of sociological topics with other honors students and faculty; helps students develop a topic for honors papers. Open only to sociology honors students. Offered spring semesters.

34:195 Senior seminar 3 s.h.
Skill training, guidance in writing a paper that integrates theoretical and substantive knowledge; contemporary sociological issues. Prerequisites: 34:9, 34:16, and 34:11, and two additional 100-level sociology courses; or consent of instructor.

34:196 Field Experience arr.
Supervised field experience relating to sociology; primarily for students participating in Washington Center internship. Consent of advisor required. Open only to sociology majors of junior standing or above.

34:198 Directed Individual Study arr.
May be repeated. Consent of instructor required.

34:199 Honors Research arr.
Research projects under faculty supervision. Consent of instructor required.

Advanced Courses

Social Theory

34:200 Graduate Proseminar 1 s.h.
General introduction to department and discipline for entering graduate students; departmental and graduate college requirement; program and career planning, interaction with faculty members, and consideration of student interests and concerns. Two-semester course beginning in fall.

34:201 History of Sociological Theory 3 s.h.
Examination of ideas of major nineteenth- and twentieth-century social thinkers (e.g., Marx, Weber, Durkheim, Simmel, Maf.). Graduate standing or consent of instructor required.
Statistics and Research Methods

34:184 Applied sociology 3 s.h.

34:212 Introduction to Analytic Methods 3 s.h.

34:214 Introduction to Sociological Data Analysis 3 s.h.

34:380 Modular Topics in Methods and Statistics arr.

34:217 Theory and Research Design 3 s.h.

34:218 Categorical Data Analysis in Sociological Research 3 s.h.

34:219 Seminar in Research Methods and Data Analysis 3 s.h.

34:220 Contemporary Approaches to Social Psychology 3 s.h.

34:221 Seminar: Selected Topics in Social Psychology 3 s.h.

34:222 Seminar: Collective Action and Social Movements 3 s.h.

34:223 Aging and Human Development 3 s.h.

34:224 Seminar: Selected Topics in Deviance and Control 3 s.h.

34:230 Sociology of the Family 3 s.h.

34:233 Aging and Society 3 s.h.

34:240 Seminar: Criminological Theories 3 s.h.

34:241 Juvenile Delinquency 3 s.h.

34:242 Internship in Criminal Justice and Corrections 1-4 s.h.

34:243 Juvenile Delinquency 3 s.h.

34:244 Seminar: Selected Topics in Deviance and Control 3 s.h.

34:245 Sociology of Corrections 3 s.h.

34:246 Deviance and Control 3 s.h.


34:248 Internship in Criminal Justice and Corrections 3 s.h.

34:249 Seminar: criminological Theories 3 s.h.

Social Psychology

34:120 Principles of Social Psychology 3 s.h.

34:121 Sociology of Mental Illness 3 s.h.

34:122 The Paranormal Society 3 s.h.

34:123 Mass Communication 3 s.h.

34:124 Social Processes: Interpersonal Relations 3 s.h.

34:125 Small-Group Analysis 3 s.h.

34:126 Collective Behavior and Social Movements 3 s.h.

34:127 Social Forms and Interaction 3 s.h.

34:128 Deviance and Control 3 s.h.

34:129 Development and Control of Aggression 3 s.h.

34:130 Aging and Society 3 s.h.

34:131 Social Psychology of Bargaining 3 s.h.

34:132 Social Psychology of Alcohol Use and community Problems 3 s.h.

34:133 Deviance, Delinquency, Crime, and Law 3 s.h.

34:134 Criminology 3 s.h.

34:135 Public Opinion 3 s.h.

34:136 Comparative Sociology 3 s.h.

34:137 Social Forms and Interaction 3 s.h.

34:138 Deviance and Control 3 s.h.

34:139 Deviance and Control 3 s.h.

34:140 Development and Control of Aggression 3 s.h.

34:141 Juvenile Delinquency 3 s.h.

34:142 Women, Crime, and Deviance 3 s.h.

34:143 Juvenile Delinquency 3 s.h.

34:144 Women, Crime, and Deviance 3 s.h.

34:145 Sociology of Corrections 3 s.h.

34:146 Deviance and Control 3 s.h.

34:147 Prevention of Crime and Delinquency: Strategies and Problems 3 s.h.

34:148 Internship in Criminal Justice and Corrections 3 s.h.

34:149 Seminar: criminological Theories 3 s.h.

Social Institutions, social Change

34:222 Introduction to Social Work 4 s.h.

34:223 Aging and Social Policy 3 s.h.

34:224 Seminar: Selected Topics in Deviance and Control 3 s.h.

34:225 Aging and Social Policy 3 s.h.

34:226 Liberal Arts . Sociology 226

34:227 Theory and Research Design 3 s.h.

34:228 Categorical Data Analysis in Sociological Research 3 s.h.

34:229 Seminar in Research Methods and Data Analysis 3 s.h.

34:230 Sociology of the Family 3 s.h.

34:231 Seminar: Social Theory 3 s.h.

34:232 Seminar: Collective Action and Social Movements 3 s.h.

34:233 Aging and Human Development 3 s.h.

34:234 Juvenile Delinquency 3 s.h.

34:235 Social Institutions, social Change 3 s.h.

34:236 Comparative Sociology 3 s.h.

34:237 Theory and Research Design 3 s.h.

34:238 Seminar: Social Theory 3 s.h.

34:239 Seminar: Collective Action and Social Movements 3 s.h.

34:240 Seminar: Criminological Theories 3 s.h.

34:241 Juvenile Delinquency 3 s.h.

34:242 Internship in Criminal Justice and Corrections 1-4 s.h.

34:243 Juvenile Delinquency 3 s.h.

34:244 Seminar: Selected Topics in Deviance and Control 3 s.h.

34:245 Sociology of Corrections 3 s.h.

34:246 Deviance and Control 3 s.h.


34:248 Internship in Criminal Justice and Corrections 3 s.h.

34:249 Seminar: Criminological Theories 3 s.h.

34:250 Seminar: criminological Theories 3 s.h.

34:251 Sociology of the Third World 3 s.h.

34:252 Seminar: Social Theory 3 s.h.

34:253 Aging and Social Policy 3 s.h.

34:254 Seminar: Social Theory 3 s.h.

34:255 Social Institutions, social Change 3 s.h.

34:256 Comparative Sociology 3 s.h.

34:257 Theory and Research Design 3 s.h.

34:258 Seminar: Social Theory 3 s.h.

34:259 Seminar: Collective Action and Social Movements 3 s.h.

34:260 Seminar: Selected Topics in Family Sociology 3 s.h.

34:261 The American Family 3 s.h.

34:262 Seminar: Social Theory 3 s.h.

34:263 Social Institutions, social Change 3 s.h.
34:395 Seminar: Communication and Change 3 s.h.
Theory, research, and methodological problems of studying change; topics include diffusion, innovations, media and change, reform organizations, revolutionary and evolutionary organizations. Graduate standing required.

Community and Population

34:154 Society and Politics in East Asia 3 s.h.
Japan, China, South and North Korea, and Taiwan; major theoretical issues in social change and development through East Asian experiences in the modern era.

34: 172 Immigration to the United States 3 s.h.
Central phenomena of immigration to the United States; decision by foreign national to move here; subsequent decision to remain here; extent and pace of adjustment to this country.

34:275 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. Graduate standing required. Same as 7F:275, 42:275, 44:275, 102:275, 113:275.

34:279 Seminar: Urbanization arr.


34:286 Methods of Organizational Research 3 s.h.
Productivity, effectiveness, innovation, coordination, conformity, and satisfaction. Graduate standing or consent of instructor required.

34:285 Complex Organizations 3 s.h.
Impacts of rural-urban migration; gender and ethnicity as the dual labor market, occupational/internal labor markets; other social processes and consequences of systems transformation. Same as 7D:300, 42:274, 44:274.

34:284 Seminar: Occupational Structure and Social Mobility 3 s.h.
Conceptualization and measurement of social mobility; cross cultural comparisons and trends in mobility; current research on U.S. mobility with emphasis on race and sex differences. Graduate standing or consent of instructor required.

34:384 Seminar: Practicum on Teaching Sociology 3 s.h.
Supervised preparation for teaching sociology courses; literature on teaching; course objectives, alternative teaching techniques, preparation of course syllabus, lectures, discussions, exams. Graduate standing and consent of instructor required.

Teaching

34:383 Readings and Research Tutorial arr.
May be repeated. Consent of supervising faculty member required.

34:385 Master’s Thesis arr.

34:386 Ph.D. Dissertation arr.

Independent Reading and Research

Undergraduate Programs

Bachelor of Arts in Spanish

Elementary and intermediate courses in Spanish interrelate five performance goals-listening, reading, speaking, writing, and cultural knowledge-in a staged progression that has an overall goal of developing oral proficiency. Emphasis is given to the acquisition of Spanish language skills in communicative contexts, the enrichment of vocabulary through an introduction to Hispanic culture, and the development of grammatical accuracy in speaking and writing. Elementary and intermediate Spanish courses meet daily and are taught in Spanish.

The undergraduate major in Spanish may be completed with an emphasis in Spanish language and linguistics, Latin American studies, or Spanish and Spanish-American literature and culture. The Latin American studies track of the Spanish major requires study of Portuguese language and Brazilian literature and culture, in addition to study of Spanish language and Spanish-American literature and culture.

Language and Linguistics Track

Designed for students interested in pursuing in-depth study of Spanish language and linguistics, and for those who want to prepare themselves for graduate work in Spanish linguistics, careers in secondary education, or a variety of business careers, the language and linguistics track requires a minimum of 34 semester hours of credit in course work, as follows.

35:107 Advanced Spanish Language 4 s.h.
35:111 Introduction to Hispanic Linguistics 3 s.h.
Spanish, Spanish-American, Portuguese, or Brazilian literature or culture 6 s.h.

At least 15 semester hours must be taken from the courses listed below; at least two of the three groups of courses must be represented.

LANGUAGE

35:103 Written and oral Expression in Spanish 3 s.h.
35:105 Cultural and Communicative Skills in Spanish 3 s.h.
35:108 Problems in Spanish Grammar 3 s.h.
35:109 Senior Spanish Language I 4 s.h.
35:110 Senior Spanish Language II 3 s.h.
35:116 Technical Communication 3 s.h.
35:118 Business Spanish 3 s.h.
35: 120 Techniques of Spanish-English Translation 3 s.h.

LINGUISTICS

35:122 Spanish Phonology 3 s.h.
35:113 Structure of the Spanish Language 3 s.h.
35:119 Introduction to Bilingualism 3 s.h.
35:126 Foundations in Sociolinguistics 3 s.h.
35:171 Spanish Syntax 3 s.h.
35:178 Culture and Language in the Andes 3 s.h.
35:188 History of the Spanish Language 3 s.h.
PORTUGUESE
38: 100 Accelerated Elementary Portuguese 5 s.h.
38: 118 Foundations in Sociolinguistics 3 s.h.
38: 119 Topics in Portuguese Linguistics 3 s.h.
38: 122 Topics in Portuguese Language 3 s.h.

The remaining 6 semester hours of elective course work must be taken at the 100 level in either the Department of Spanish and Portuguese or the Department of Linguistics.

No more than 6 of the 34 semester hours required for the language and linguistics track may be taken in English.

Latin American Studies Track
The Latin American studies track is designed for students interested in pursuing interdisciplinary study of Spanish-American and Brazilian literature on the basis of knowledge of both Spanish and Portuguese, and for those who want to prepare themselves for graduate work in the humanities or social sciences, for study at professional schools such as law, journalism, or business, or for a variety of business careers. It requires a minimum of 35 semester hours of credit in course work, as follows.

38: 100 Accelerated Elementary Portuguese 5 s.h.
Additional Spanish or Portuguese language or linguistics 3 s.h.
Spanish-American or Brazilian culture 6 s.h.
Spanish-American literature 6 s.h.
Brazilian literature 3 s.h.
Latin American Studies Seminar or another approved undergraduate seminar 3 s.h.

Electives that are approved courses in the Latin American Studies Program 9 s.h.

No more than 9 of the 35 semester hours required in the Latin American studies track may be taken in English.

Students completing the Latin American studies track of the undergraduate major in Spanish also may count their work toward completion of the Latin American Studies Certificate Program. Contact an undergraduate adviser or the chair of the Latin American Studies Program for more information.

Literature and Culture Track
The literature and culture track is designed for students interested in pursuing in-depth study of Spanish and Spanish-American literature, history, and contemporary society, and for those who want to prepare themselves for graduate work in literature, study at professional schools such as law, journalism, or business, or for a variety of business careers. It requires a minimum of 34 semester hours of course work, as follows.

35: 107 Advanced Spanish Language 4 s.h.
Additional Spanish or Portuguese language or linguistics 6 s.h.
Spanish and Spanish-American literature and culture 24 s.h.

Among the 24 semester hours taken in literature and culture, at least 6 semester hours must be taken in the Spanish area and 6 semester hours in the Spanish-American area.

No more than 3 of the 34 semester hours required in the literature and culture track may be taken in English.

Elementary and Secondary Teaching Licensure in Spanish
Students in the Department of Spanish and Portuguese have the option of earning a K-12 endorsement to teach Spanish, along with the bachelor’s degree. For information about the foreign languages teacher education program and graduate programs in foreign language education, contact the College of Education, Division of Curriculum and Instruction.

Honors in Spanish
Admission to the honors program in Spanish requires a minimum 3.20 total cumulative grade-point average and a minimum 3.20 average in Spanish. Graduation with honors in Spanish requires, in addition to the semester hours for the various major tracks described above, 3 semester hours earned in 35: 198 Honors: Research and Thesis, plus another 3-semester-hour course to be designated in consultation with the department honors adviser. Included are an honors report in Spanish and a meeting with a faculty committee, conducted in Spanish.

Transfer Credit for Spanish Majors
A maximum of 12 semester hours of credit in approved courses may be transferred from other institutions toward the requirements for the major in Spanish.

Minor in Spanish
A minor in Spanish requires 15 semester hours of course work in Spanish with a minimum grade-point average of 2.00, 12 of which must be taken at The University of Iowa or in a University of Iowa foreign study program in courses numbered 100 and above. Students may not elect 35: 101, 35: 102, 35: 115, or 35: 117 to fill requirements for the minor.

No more than 3 semester hours maybe applied toward the minor from departmental courses taught in English. Courses elected for the minor may not be taken pass/fail.

Foreign Study Programs in Spanish
The department participates in seven study-abroad programs. Its summer programs include the State Board of Regents Hispanic Institute (Valladolid, Spain) and the CIEE Summer Program in Mexico.

Included in its 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 (Seville, Spain), the CIEE Business and Society Program (Seville, Spain), and the University Studies in the Basque Country Consortium (San Sebastian, Spain).

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 adviser. Credit earned in study-abroad programs other than the seven listed above counts as transfer credit and is subject to the 12-semester-hour maximum allowed for the major.

Bachelor of Arts in Portuguese
Beginning courses in Portuguese are for students without previous foreign language study or experience. Classes are small, providing for a great deal of individual attention in an informal language learning environment. Courses emphasize speaking, comprehending, and reading basic Brazilian Portuguese; they incorporate cultural material in the form of films and music.

The B.A. in Portuguese requires the following courses or their equivalents, for a total of 27 semester hours of come work beyond the second-year level. Courses listed under “Prerequisites” below may be counted toward-the 27 semester hours.

Prerequisites
38: 1-2 Elementary Portuguese I-II 8 s.h.
38: 100 Accelerated Elementary Portuguese 5 s.h.
38: 11 Intermediate Portuguese I 4 s.h.
38: 12 Intermediate Portuguese II 4 s.h.
38: 101 Accelerated Intermediate Portuguese 5 s.h.

Required Courses
38: 105 Brazilian Literature I 3 s.h.
38: 106 Brazilian Literature II 3 s.h.
38: 107 Introduction to Portuguese Literature 3 s.h.
38: 112 Topics in Luso-Brazilian Literature 3 s.h.
38: 114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
38: 119 Topics in Portuguese Linguistics 3 s.h.
38: 122 Topics in Portuguese Language 3 s.h.

Total 21 s.h.

Electives
Other courses in the above group or other nonregular offerings in Portuguese (seminars; conversation); approved courses in related areas (e.g., art, anthropology, comparative literature, geography, history, Latin American studies, linguistics, sociology) 6 s.h.
Minor in Portuguese

A minor in Portuguese requires 15 semester hours of course work in Portuguese with a minimum grade-point average of 2.00, 12 of which must be taken at The University of Iowa or in a University of Iowa foreign study program in courses numbered 101 and above. Courses elected for the minor may not be taken pass/fail.

International Business Certificate

The Colleges of Liberal Arts and Business Administration offer a joint program leading to a 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 business administration.

Contact the Office of Academic Programs in the College of Business Administration for more information.

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, and literature of Latin America. Work in the program leads to a certificate or minor in Latin American studies.

To receive the certificate, students must have sufficient competence in Spanish or Portuguese to do background readings in the language before enrolling in the required senior seminar. For further information on the Latin American Studies Program, see “Latin American Studies Program” in this section of the Catalog.

Courses for Undergraduate Nonmajors

Undergraduate students in other disciplines may meet part of the College of Liberal Arts General Education Requirements in humanities and foreign civilization and culture with 35:20 Contemporary Latin American Narrative and 38:20 Contemporary Brazilian Narrative, in which the readings are in English. 38:114 Culture and Civilization of the Portuguese-Speaking World satisfies the General Education Requirement in foreign civilization and culture. The department offers several other literature, film, and cultural survey courses that are taught in English and are of general interest.

Graduate Programs

Master of Arts in Spanish

Candidates for the M.A. must have completed the equivalent of the undergraduate Spanish major with at least a 3.00 grade-point average in course work for the major. Deficiencies may be remedied with the appropriate course work.

The following course work is required.

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:200 Foreign Language Teaching Methods</td>
<td>3</td>
</tr>
<tr>
<td>Spanish language and linguistics (200 level)</td>
<td>6</td>
</tr>
<tr>
<td>Spanish literature</td>
<td>6</td>
</tr>
<tr>
<td>Spanish-American literature</td>
<td>6</td>
</tr>
</tbody>
</table>

Fifteen semester hours of elective courses at the 200 level or the advanced 100 level, no more than 6 semester hours of which may be taken outside the department; the required minimum is 36 semester hours for the M.A.

Maximum Study Loads

Maximum course registration is 15 graduate semester hours during fall or spring semesters and 8 graduate semester hours during summer sessions. One-quarter- and one-third-time teaching assistants are permitted to register for the maximum study loads. One-half-time teaching assistants may register for not more than 12 semester hours in fall or spring semesters, and for not more than 6 semester hours during summer sessions. Additional semester hours may be taken only with Graduate College approval.

Transfer Credit

A maximum of 9 semester hours of graduate credit in approved courses may be transferred from other institutions toward the 36-semester-hour requirement for the M.A.

Teaching Certification

Exclusive of the student teaching requirement, graduate students may take the courses necessary for secondary teaching certification while completing M.A. requirements in the department.

Examinations

The M.A. comprehensive examination is administered in both written and oral parts. The written portion consists of a two-hour examination in each of three areas; an oral examination follows, usually lasting one and one-half hours. The candidate may choose to be examined in one linguistics and two literature areas, one literature and two linguistics areas, or three literature areas. If more than one literature area is represented, at least one must be in Spanish literature and at least one must be in Spanish-American literature. One film area may be substituted for either a linguistics or literature area. The examining committee is composed of four departmental faculty members.

Doctor of Philosophy in Spanish

Two doctoral programs are available. The first is dedicated to Hispanic literatures. Before the comprehensive examination, candidates 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 (a Portuguese-Brazilian program is especially recommended); complete the equivalent of a year of college Portuguese; and complete the equivalent of one year of college-level study of another approved foreign language. This language must be Latin for those who will write the dissertation on a pre-1700 topic.

The second doctoral program provides for specialization in Spanish linguistics. Before taking the comprehensive examination, candidates must complete the equivalent of one year of college Latin, the equivalent of three years of college Portuguese, and the equivalent of two years of college-level study of a third approved foreign language.

Program I: Literature Track

The following course work is required.

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.A. courses or equivalent transfer credits</td>
<td>36</td>
</tr>
<tr>
<td>A course in literary theory, 200 level or above</td>
<td>3</td>
</tr>
<tr>
<td>Two 300-level seminars</td>
<td>6</td>
</tr>
<tr>
<td>35:299 Thesis</td>
<td>3</td>
</tr>
</tbody>
</table>

Eight elective courses at the 200 level or the advanced 100 level, no more than three (9 s.h.) of which may be taken outside the department, bringing the total semester hours to the required minimum of 72 in the Ph.D. program.

Program II: Linguistics Track

The following course work is required.

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.A. courses or equivalent transfer credits</td>
<td>36</td>
</tr>
<tr>
<td>Department of Linguistics</td>
<td></td>
</tr>
<tr>
<td>103:110 Articulator and Acoustic Phonetics</td>
<td>3</td>
</tr>
<tr>
<td>103:111 Syntactic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>103:112 Phonological Theory and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>103:121 Syntactic Theory</td>
<td>3</td>
</tr>
<tr>
<td>Department of Spanish and Portuguese</td>
<td></td>
</tr>
<tr>
<td>One course in advanced Spanish syntax</td>
<td>3</td>
</tr>
<tr>
<td>One course in advanced Spanish phonology</td>
<td>3</td>
</tr>
<tr>
<td>One course in comparative Romance linguistics</td>
<td>3</td>
</tr>
<tr>
<td>One course in Spanish dialectology</td>
<td>3</td>
</tr>
<tr>
<td>Two additional courses in linguistics (may be taken in the Department of Linguistics)</td>
<td>6</td>
</tr>
<tr>
<td>Two 300-level seminars in Spanish linguistics</td>
<td>6</td>
</tr>
<tr>
<td>35:299 Thesis</td>
<td>2</td>
</tr>
</tbody>
</table>

Total semester hours required: 74 s.h.
Comprehensive Examination

The purpose of the Ph.D. comprehensive examination is to determine whether the candidate has gained sufficient breadth and depth of research knowledge in Hispanic literatures or in Spanish linguistics to enter the profession as a teacher-scholar. The Ph.D. comprehensive examination is administered in both written and oral parts. The written portion consists of a three-hour examination in each of four areas, detailed below; an oral examination follows, usually lasting two hours. The examining committee is composed of five departmental faculty members. The four examination areas for each track are as follows:

Literature Track
A broad area in Spanish literary history; a reading list is determined by the student and the advisory committee. A broad area in Spanish-American literary history; a reading list is determined by the student and the advisory committee.

Two specialized areas of the candidate’s choosing; these areas might involve further and more specialized 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 candidate is given wide latitude in formulating the reading lists for these areas according to his or her research and teaching interests.

Linguistics Track
Contemporary Spanish syntax; a reading list is determined by the student and the advisory committee. Contemporary Spanish phonology; a reading list is determined by the student and the advisory committee.

Two specialized areas of the candidate’s choosing; these areas might involve exploration of a specialized topic in one of the two core areas listed above; or it might involve study of a particular topic in comparative Romance philology, history of the Spanish language, Spanish dialectology, Portuguese linguistics, applied linguistics, language acquisition, bilingualism, sociolinguistics, or linguistic theory. Candidates are given wide latitude in formulating reading lists for these areas according to individual research and teaching interests.

After the Ph.D. Comprehensive Examination, the candidate prepares a dissertation prospectus, which must be approved by the candidate’s dissertation committee.

Financial Aid

Teaching and research assistantships are available to qualified graduate students. Usually, two years of support are available for the completion of a master’s degree, 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 will continue to receive support over a reasonable period of time, but usually not for more than six years. Students who want financial support should apply directly to the department office.

Facilities

The Language Media Center provides facilities for language learning, teaching, and research. These include standard and shortwave radios, tape recorders, record players, soundproof recording rooms, two drill rooms with 68 dual-channel tape recorders providing a simultaneous master duplicate and student record, an electronic classroom, a soundproof workroom, 16mm and 8mm projection equipment and facilities, videocassette players and monitors, and a library of tape, videotape, and disc recordings. The department offers its majors a specific course in language laboratory procedures.

Courses

Spanish – Primarily for Undergraduates

Entering freshmen who studied Spanish in high school and wish to continue studying the language are required to take the Spanish Placement Test, which is offered at regular intervals on campus. Transfer students who have taken college Spanish at other institutions are urged to take the placement test. Effective fall 1992, students may not repeat courses in elementary Spanish for which high school transcript credit is presented. Students whose placement test scores do not indicate readiness for an intermediate or higher level Spanish course should register for 35:5 Elementary Spanish Review, if they wish to continue study of Spanish toward completion of the General Education Requirement in foreign language.

Students may not, except with the department chair’s approval, take an elementary course for credit after having completed a higher-level course for which the elementary course or its equivalent is a prerequisite.

Under the provisions of the Foreign Language Incentive Program, entering students who take the foreign language placement examination and are placed in fourth- or fifth-semester courses also may receive additional credit for third semester or third- and fourth-semester courses if specific conditions are met. Contact the Liberal Arts Office of Academic Programs or refer to the College of Liberal Arts section of the Catalog for more information.

35:000 Cooperative Education Internship 0 s.h.
35:1 Elementary Spanish I 4 s.h. Emphasis on oral and written comprehension; conducted in Spanish. Open only to students with no previous study of Spanish. GER: foreign language.
35:2 Elementary Spanish II 4 s.h. Continuation of 35:1; emphasis on oral and written skills. GER: foreign language. Prerequisite: 35:1 or equivalent.
35:5 Elementary Spanish Review 5 s.h. Intensive review of material presented in 35:12. GER: foreign language. Open only to freshmen and new transfer students. Prerequisite: previous study of Spanish.
35:8 Spanish for Health Professionals I 3-4 s.h. Intensive conversation; basic vocabulary used in Spanish speaking environments; sociocultural aspects of Hispanic culture; emphasis on speaking proficiency. May be taken to place of 35:1 to satisfy GER: foreign language.
35:9 Spanish for Health Professionals II 4 s.h. Continuation of 35:8, which is prerequisite. GER: foreign language.
35:10 Hispanic Institute: Study/ life in Spain 1 s.h. Application to life in Spain, research and outside the classroom, through discussions, role playing, related activities Prerequisite: 35:12 or equivalent.
35:11 Intermediate Spanish I 3-4 s.h. Review of first year Spanish grammar; emphasis on oral and written communicative skills; conducted in Spanish. GER: foreign language. Prerequisite: 35:2 or equivalent.
35:12 Intermediate Spanish II 3-4 s.h. Continuation of 35:11. GER: foreign language. Prerequisite: 35:11 or equivalent.
35:13 Accelerated Intermediate Spanish 6 s.h. The 35:11-12 sequence in one semester. GER: foreign language. Consent of coordinator required. Prerequisite: 35:2 or equivalent.
35:20 Contemporary Latin American Narrative 3 s.h. Themes and narrative techniques in major texts of 1960-1970; overview of cultural, sociopolitical aspects; conducted in English, readings in English. GER: foreign civilization and culture, humanities. Prerequisite: 8G:1.
35:53 Special Work 1-3 s.h.

Spanish-for Undergraduates and Graduates

35:100 Regents Hispanic Institute 4 s.h. May be repeated to a maximum of 8 credits. Regents Study Abroad Program in Valladolid, Spain.
35:101 Accelerated Elementary Spanish 0-4 s.h. Complete first year course. Open only to graduate students.
35:102 Accelerated Intermediate Spanish 0-4 s.h. Complete second year course. Open only to graduate students. Prerequisite: 35:12 or equivalent.
35:103 Written and Oral Expression in Spanish 3 s.h. Communication-oriented course designed to help third-year students develop the four basic linguistic skills: oral comprehension, speaking, reading, writing. Prerequisite: 35:12 or equivalent.
35:105 Cultural and Communicative Skills in Spanish 3 s.h. Oral proficiency, conversation skills; reading and writing; contemporary Hispanic culture through videos from the Spanish speaking world. Prerequisite: 35:12.
35:107 Advanced Spanish Language 4 s.h. Detailed points, especially troublesome to English-speakers; reading, composition, grammar, oral presentation, vocabulary. Prerequisite: 35:12 or equivalent.
35:108 Problems in Spanish Grammar 3 s.h. Readings, discussion, vocabulary building, grammar analysis, written practice; focus on difficult topics such as adjective placement, relative pronouns, gustar construction, reflexive constructions. Prerequisite: 35:107 or equivalent.
35:109 Senior Spanish Language I 4 s.h. Syntactic, lexical aspects; vocabulary; structure of Spanish language. Prerequisite: 35:108 or equivalent.
35:110 Senior Spanish Language II 3 s.h. Syntactic and morphological aspects of Spanish grammar and its underlying theory. Prerequisite: 35:109 or equivalent.
35:111 Introduction to Hispanic Linguistics 3 s.h. Elementary linguistic theory applied to analysis of Spanish language; systematic study of sound patterns, sentence construction, word formation; semantics, historical linguistics, sociolinguistics, psycholinguistics. Prerequisite: 35:107 or equivalent.
35:112 Spanish Phonology 3 s.h. Articulatory description and phonetic transcription of Spanish sounds; how individual sounds are interrelated. Prerequisite: 35:107 or equivalent.
35:113 Structure of the Spanish Language 3 s.h. Linguistic analysis of Spanish in terms of generative grammar with focus on morphology, syntax, usage; their interpersonal relationship in an explanatory system. Prerequisite: 35:111.


35:116 Technical Communication 3 s.h. Principles, practices as applied to reports, brochures, newswriting, oral presentations; emphasis on technical report writing, audience analysis. Prerequisite: 35:107 or equivalent.

35:117 Topics in Foreign Language Instructional Technology 2 s.h. Technology-based materials for foreign language instruction; computer authoring languages, interactive media, language laboratory methods and management. Same as 13:123, 9:138.

35:118 Business Spanish 3 s.h. Clear, concise business writing; emphasis on linguistic and cultural proficiency. Prerequisite: 35:107 or equivalent.

35:119 Introduction to Bilingualism 3 s.h. Spanish, English bilingualism in the United States; current research on language usage, maintenance, attitudes, shift, transfer, loss; code-switching. Prerequisite: 35:111 or equivalent.

35:120 Techniques of Spanish-English Translation 3 s.h. Journalistic, literary, technical texts. Prerequisite: 35:107 or equivalent ability.

35:121 Readings in Spanish Literature and Culture 3 s.h. Tools for improving reading skills; basic concepts for textual understanding; historical overview of literary works. Prerequisite: 35:12 or equivalent.

35:122 Introduction to Literary Analysis 3 s.h. Close readings of literary texts; basic concepts of narrative and poetic analysis. Prerequisite: 35:12 or equivalent.

35:123 Screening Latin America 3 s.h. Question of representation, methods of film analysis; feature films from and about Latin America.

35:124 Hispanic Institute: Culture 3 s.h. Overview of geography, history (political, economic, social), architecture, painting, and music of Spain; readings, slides, video and audio cassettes, visits to local sites of cultural significance. Prerequisite: 35:12 or equivalent.

35:125 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. Prerequisite: 35:12 or equivalent.

35:126 Foundations in Sociolinguistics 3 s.h. Dialects, speech communities, variation, choosing a code, solidarity and politeness, language and sex, language planning; taught in Spanish. Same as 38:118.

35:127 Sociolinguistics 3 s.h. Continuation of 35:126; discourse analysis, popular language, language maintenance and language shift, levels of address, and Spanish in the United States. Same as 38:120.

35:130 Spanish-American Civilization 3 s.h. Pre-Columbian, colonial, modern periods; socioeconomic structure, form of government, culture.

35:131 Contemporary Spanish-American Fiction 3 s.h. Major twentieth-century short-story writers and novelists (Asturias, Borges, Cortazar, Fuentes, Garcia-Marquez, etc.) through representative works. Prerequisite: 35:12 or equivalent.

35:132 Spanish-American Poetry I 3 s.h. Poetry as a literary genre; short history of its development; early forms in Spanish America; poets from Modernismo to present; readings from writers including Raban Dario, Pablo Neruda, Cesar Vallejo, Octavio Paz, J.L. Borges.

35:133 Spanish-American Drama 3 s.h. Short history; leading twenty century Spanish American dramatists, including Florencio Sanchez, Villarreta, Usigli, Rene Marques, Cuzanne, Egon Wolff, Vodanorio, Jorge Diaz.

35:134 Spanish-American Short Story 3 s.h. Works by nineteen and twentieth-century Spanish-American male and female writers; emphasis on reading strategies, historical, cultural, literary backgrounds.

35:135 Contemporary Latin American Novel and short story 3 s.h.

35:136 Contemporary Latin American News Colloquium 2 s.h. Communication issues at international, national, and grassroots levels; emphasis on political, socioeconomic themes; contemporary affairs as reported in Latin American press, other media. Same as 130:126.

35:137 Introduction to Chicano literature and culture 3 s.h. Sociological, historical, political, democratic, linguistic, literary, artistic aspects of heterogeneous Chicano cultures in the United States; textual analysis of corridos, ballads, oral traditions, dance forms integrated with films and recordings.

35:138 Survey of Twentieth-Century Puerto Rican Literature 3 s.h. Social, cultural, literary developments from 1898; role of Puerto Rican diaspora in literature and “Newyorcan” writing in context; island and mainland authors.

35:139 Spanish-American Poetry II 3 s.h.

35:140 Mass Communication in Spanish America 3 s.h. Nature of communicative process in Spanish America and the Basic Hispanic, verification of the mass communication and democratic communication systems; Spanish-language video, film.

35:141 Hispanic Institute: Language 3 s.h. Grammar essentials, especially verb tenses in indicative and subjunctive moods; written exercises, short compositions, conversational activities. Prerequisite: 35:12 or equivalent.

35:142 Introduction to Latin American Studies 3 s.h. Contemporary issues, problems of Latin American and Spanish-speaking U.S. populations, cultural identity, survival.

35:143 The Daring Ones: Cuban-American Literature 3 s.h. Same as 48:196.

35:144 Introduction to Basque Language and Culture 3 s.h.

35:145 Latin American Cinema 3 s.h. Same as 38:107.

35:148 National Literatures and Cinemas 3 s.h. Literary and film histories of selected nations, such as Argentina, Cuba, Mexico, Peru, Chile, Spain. May be repeated.

35:150 Spanish Civilization 3 s.h. Political, religious, social, economic background; important cultural, literary movements.

35:151 Renaissance and Golden Age Literature 3 s.h. Representative works of prose, drama, poetry. Prerequisite: 35:12 or equivalent.

35:152 Modern Spanish Literature 3 s.h. Important trends from Romanticism to generation of 1927. Prerequisite: 35:12 or equivalent.

35:157 Survey of Spanish Literature I 3 s.h. Introduction to basic texts from Medieval to eighteenth century Spain.

35:159 Hispanic Fiction to Film 3 s.h. Four major literary works, as written and as film: Garcia Lorca’s Bodas de sangre, Mier’s Carmen, Delibes’ Los santos inocentes, Puig’s Baso de la mujer arana.

35:160 Invitation to Modern Spanish Poetry 3 s.h. Basic Hispanic literary criticism, introduction to key poetic works of Gustavo Adolfo Becquer, Ruben Dario, Antonio and Manuel Machado, Juan Ramon Jimenez, Federico Garcia Lorca.

35:161 Masterpieces of Modern Spanish Literature 3 s.h. Works of the last 30 years of the nineteenth century, up to the outbreak of the Spanish Civil War, Realism, Naturalism, Generation of 1898, Generation of 1913, Generation of 1927.

35:165 Contemporary Spain 3 s.h. Interdisciplinary, multimedia study of twentieth century Spain; history and culture from Civil War to present through televsional, cinematic, historiographical, literary works.

35:169 Spanish-American Literature of Fantasy 3 s.h. Principal manifestations from nineteenth-century origins to culmination in twentieth-century masterpieces; analysis of 170 The Spanish Language and Communications in Spain 3 s.h. Nature of mass communication and democratic communication systems in Spanish America, the United States, and Spain; emphasis on radio, television, press, taught with Spanish language videos and films.

35:171 Spanish Syntax 3 s.h. Theoretical explanations underlying Spanish grammatical usage; extensive practice to demonstrate, reinforce theories. Prerequisite: 35:111 or equivalent.

35:173 Latin American Women Writers 3 s.h. Focus on twentieth century; how does woman subject view herself in looking-glass of literature? Is there a textual practice specific to women? Psychoanalytic approaches, contemporary feminist criticism.

35:174 Topics in Chicano-puerto Rican Studies 3 s.h. Chicanos and Puerto Ricans in the United States. May be repeated.

35:175 Cultural Identity in Caribbean Literature 3 s.h. Main currents in twentieth century Hispanic Caribbean literature: amerindio literatos, poesia negra, testimonial narrative centered on slavery and women’s fiction; Caribbean cultural context in music, chotito, Afro-Cuban rituals. Same as 48:160.


35:177 External History of Romance Languages 3 s.h. Evolution of Romance languages from time of Roman Empire to present; emphasis on the sociopolitical context in which spoken Latin of the Roman Empire evolved into Romance languages.

35:178 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.

35:179 Testimonial Literature in Latin America 3 s.h. Concept of the testimonio, or asociatioron; gavan, authorial function, social context, reception of texts; ideology, subjectivity.

35:180 Spanish Golden Age Fiction 3 s.h. Literature, society in first centuries of Spanish Modernity; Renaissance, Baroque periods; love and the self; alienation, essential utopias; the body and morals; cultural dimensions of times.

35:181 Spanish Golden Age Poetry and Drama 3 s.h. Representative works in Spanish Renaissance and Baroque culture. Prerequisite: 35:107.

35:182 Spanish Picaresean Literature 3 s.h. Major texts on the Spanish Golden Age’s anthems; rogue and proto-autoritarios narratives; quest for property, political mobility in beginning of modern Spanish society; male, female social offenders; Lamentillo de Tommes, Guzman de Alfarcito, La hija de Celestino. Prerequisite: 35:107.

35:183 Spanish-American Novelist Since the Civil war 3 s.h. Impact of Civil War on Spanish life and literature; post-war illusion and reality; ideology and society in the novel; search of Spain; search of values in the novel; works by Cela, Laforte, Delibes, Maute, Goyvisolo; taught in Spanish.

35:184 Twentieth-Century Spanish Women writers 3 s.h. Twentieth-century Spanish women writers; selected short stories of Riera, Montero, de Mouroa, Fernandez Cuba, Ortiz, Rodriguez, supplemented by critical readings, journalistic writings.

35:185 Colonial Spanish American Literature 3 s.h. Literature of sixteenth to eighteenth centuries, particularly chronicles of discovery, conquest of the New World and recent critical studies of this period.

35:186 From Columbus to Our Days 3 s.h. Critical reading of chronicles, letters, essays from Christopher Columbus’ Diarios de Navigacion to Fidel Castro’s Segunda Declaracion de la Habana; emphasis on contrasting Latin America’s colonial position and its people’s struggles for independence.

35:187 Topics in Colonial Spanish American Literature 3 s.h.
35:200 Foreign Language Teaching Methods 3 s.h. Bibliographical tools, resources, professional organizations; comparison of first- and second-language acquisition; language proficiency versus language achievement in the four skills; history/overview of methods; techniques [small-group work, proficiency versus language achievement in the four skills; 35:207 Topics in Comparative Romance generative analyses. Prerequisite: course in phonology or 35:209 Spanish Phonology 3 s.h.

35:203 or equivalent. 
35:204 Graduate Spanish Linguistics 3 s.h. Development of genre and context of literary movements; historical and present-day perspective; oral and written literature; emphasis on Golden Age, nineteenth century, generation of 1898. 

35:250 Medieval Spanish Literature 11 3 s.h. Fourteenth and fifteenth-century. Prerequisite: 35:250.

35:252 Medieval, Renaissance, and Golden Age Spanish Poetry 3 s.h. Principal movements, genres, figures: Jorge Manrique, lyric (Middle Ages), Garcia, Fray Luis de León, San Juan de la Cruz (Renaissance); Fernando de Herrera (transitional period); Gongora, Lope de Vega, Quevedo (baroque).

35:253 Lyric Poetry of the Golden Age 3 s.h. Representative texts of great Renaissance, Baroque poets Garcia de la Vega, Fray Luis de León, San Juan de la Cruz, Gongora, Lope de Vega, Quevedo.

35:254 Drama of the Golden Age 3 s.h. Theater, spectacle; public entertainment; social conditions of Baroque theater in Spain; ideological, moral, metaphorical role of Lope de Vega’s model for mass-oriented art; depiction of ideal society; heroes, transgressors; role of women.

35:255 Fiction of the Golden Age 3 s.h. Critical analysis on social, moral, political function of fiction; subjectivity, dialogue, position of narrator in the novel; role of the reader.

35:256 The Picaroscne Novel 3 s.h. Spanish Renaissance, Baroque from perspective of the notions of deception, moral crisis, aesthetic, social dimensions of a literary work; intertextuality, subjectivity; Lazzariello, Guzman de Allarache; works by Quevedo, Cervantes, Salas Barbudillo, Castillo Solerano.

35:257 Cervantes’ Don Quixote 3 s.h. Careful reading in context of history of narrative literature.

35:258 Nineteenth-Century Spanish Novel 3 s.h. Significant novels, literary schools, movements.

35:259 Contemporary Spanish Fiction 3 s.h. May be repeated.

35:261 Twentieth-Century Spanish Poetry 3 s.h. Principal poets and their works, 1900 to present.

35:262 Jimenez, Garcia Lorca, and the Generation of ‘27 3 s.h. Poetry and poetic theory of Juan Ramon Jimenez, Federico Garcia Lorca, Rafael Alberti, Alvaro de Baeza; comparison with current critical and aesthetic developments.

35:263 Twentieth-Century Spanish Drama 3 s.h. Principal playwrights, trends to present day; works by Benavente, Garcia-Lorca, Caouna, Buenos Viejos, Sastre.

35:264 Spanish Short Story 3 s.h. Theory and history; development during middle ages; oral and written literature; emphasis on Golden Age, nineteenth century, generation of 1898.

35:266 Spanish Novel 1939-Present 3 s.h. Principal figures, trends from post Civil War period to present.

35:267 Twentieth-Century Spanish Essay 3 s.h. Representative essays 1988 to present; philosophic, political, literary movements.

35:269 Topics in Spanish American Literature 3 s.h. May be repeated.

35:281 Introduction to Contemporary Literature 3 s.h. Intellectual backgrounds of its literary periods.

35:282 Introduction to Contemporary Literary Theory 3 s.h. Major currents, how they construct literary text; structuralist, psychoanalytic, Marxist, reader response, feminist, deconstructive criticism. Same as 48:217, 8:277.

35:284 Analysis and Interpretation of Poetic Texts 3 s.h. Methodological tools for analysis, interpretation of poetry written in Spanish; selected works.

35:283 Literary Polemics in Spanish America 3 s.h. Principal literary debates in Latin America from birth of national literatures to present; political, social significance of the different polemics, as quest for individual, Latin American identity.

35:284 Types of Modern Criticism 3 s.h. Contemporary Latin American literary theory, socio-semitic, Marxist literary theory, reconstruction, feminism. Same as 48:284, 48:284.

35:245 Topics in Latin American Cultural History 3 s.h. Literary film histories of nations or regions; focus on role of writers, filmmakers as members of intelligencia. May be repeated.

35:246 Topics in colonial Spanish American Literature 3 s.h. May be repeated.
35:298 Special Work  
Consent of instructor required.
35:299 Thesis  
35:300 Seminar: Spanish Linguistics  
Same as 103:300.
35:301 Seminar: Spanish-American Narrative  
35:302 Seminar: Spanish-American Theater  
35:304 Seminar: Spanish Medieval Literature  
Intensive critical study of topics, genres.
35:305 Seminar: Spanish Golden Age Literature  
Intensive critical study of topics, genres.
35:306 seminar: Nineteenth-Century Spanish Literature  
35:307 seminar: Twentieth-Century Spanish Literature  
35:311 Introduction to Portuguese Literature  
Representative readings including Portuguese lyric and epic poetry, Renaissance theater, romantic and realist novels, and modern period, such as Lima Barreto, Mario de Andrade, Drummond, Jorge Amado, Caxias de Mido Neto, Guimarães Rosa, Lispector; conducted in Portuguese.
35:312 Topics in Luso-Brazilian Literature  
Genres, themes, movements; conducted in Portuguese. Maybe repeated. Prerequisite: 35.106 or 35.107 or consent of instructor.
38:114 Culture and Civilization of the Portuguese-Speaking World  
Modern Brazil, Portugal, Angola, Mozambique through historical background, socioeconomic and political structures, culture, literature of ethnic, national groups; conducted in English. GER: foreign civilization and culture.
38:118 Foundations in Sociolinguistics  
Dialects, speech communities, variation, choosing a code, solidarity and politeness, language and sex, language planning; conducted in Spanish. Same as 35.112.
38:119 Topics in Portuguese Linguistics  
Phonology, syntax, sociolinguistics, first- and second language acquisition, Portuguese/English bilingualism, relationship of language and culture; practical application to language pedagogy, translation, international studies, anthropology. Consent of instructor required. Maybe repeated. Same as 103:119.
38:120 Sociolinguistics  
38:122 Topics in Portuguese Language  
Oral, written language ability through new vocabulary groups, appropriateness of language use, stereotyped phrases, levels of formality, problematic grammatical points. May be repeated. Prerequisite: 38.12 or consent of instructor.
38:136 Latin American Studies Seminar  
Interdisciplinary approach. May be repeated. Recommended: Spanish or Portuguese; sufficient for background readings. Same as 35.176, 48.153, 113.132, 120.176.
38:179 Special Work  
Consent of instructor required.
38:189 Research in Sociolinguistics  
Same as 35:189.
38:210 Topics in Luso-Brazilian Literature  
May be repeated.
38:279 Special Work  
Consent of instructor required.
38:300 Brazilian and Spanish-American Literature  
Same as 35.313, 48.470.

### Portuguese

38:1 Elementary Portuguese  
4 s.h.  
Speaking, comprehension; cultural reading materials; oral communication, writing. GER: foreign language.
38:2 Elementary Portuguese  
4 s.h.  
Continuation of 38:1; oral work from Brazilian and Portuguese texts. GER: foreign language. Prerequisite: 38:1 or equivalent.
38:11 Intermediate Portuguese I  
4 s.h.  
Reading, oral, writing skills, grammar review. GER: foreign language. Prerequisite: 38:2 or equivalent.
38:12 Intermediate Portuguese II  
4 s.h.  
Continuation of 38:11. GER: foreign language. Prerequisite: 38:11 or equivalent.
38:20 Contemporary Brazilian Narrative  
3 s.h.  
Novels, short stories, other narrative forms, beginning with neorealists of 1930s; cultural background of different periods, innovative literary writings of contemporary writers, other media. GER: foreign civilization and culture, humanities. Prerequisite: 38:11 or consent of instructor.
38:53 Special Work  
Consent of instructor required.
38:100 Accelerated Elementary Portuguese  
0.5-3 s.h.  
First-year course in one semester; comprehension, speaking, reading, writing skills, grammar review. GER: foreign language.
38:101 Accelerated Intermediate Portuguese  
0.5-3 s.h.  
Second-year course in one semester; reading, oral, writing skills; grammar review. GER: foreign language. Prerequisite: 38:100 or equivalent.
38:103 Composition and Conversation  
3 s.h.  
Speaking, writing skills through discussion and oral presentations, grammar and vocabulary review, composition; materials from Brazilian newspapers, magazines, short fiction, theater, etc. Prerequisite: 38:20 or equivalent.
38:105 Brazilian Literature I  
3 s.h.  
Beginnings through close of nineteenth century; representative readings from all periods and genres; focus on works of major Brazilian authors such as Gonçalves, Távora, Castro Alves, Machado de Assis, Cruz e Sousa; conducted in Portuguese.
38:106 Brazilian Literature II  
3 s.h.  
Twentieth-century poetry, novels, short stories; modernism, regionalism, generation of 45, conciseness; works of principal figures behind these movements; focus on major writers of modern period, such as Lima Barreto, Mario de Andrade, Drummond, Jorge Amado, Caxias de Mido Neto, Guimarães Rosa, Lispector; conducted in Portuguese.
38:107 Introduction to Portuguese Literature  
3 s.h.  
Representative readings including Portuguese lyric and epic poetry, Renaissance theater, romantic and realist novels, and modern period, such as Lima Barreto, Mario de Andrade, Drummond, Jorge Amado, Caxias de Mido Neto, Guimarães Rosa, Lispector; conducted in Portuguese.
38:112 Topics in Luso-Brazilian Literature  
Genres, themes, movements; conducted in Portuguese. Maybe repeated. Prerequisite: 38.106 or 38.107 or consent of instructor.

### Speech Pathology and Audiology

Chair: Arnold M. Small

Graduate degrees: M.A., Ph.D. in Speech Pathology and Audiology

The courses and degree programs of the Department of Speech Pathology and Audiology are planned to meet the needs of students preparing for careers such as clinical practice, 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 professional programs of the department leading to the M.A. are accredited by the Educational Standards Board of the American Speech-Language-Hearing Association.

### Undergraduate Program

Since the master’s degree 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 degrees who do not want careers in this field.

### Course Requirements

The B.A. in speech and hearing science requires a minimum of 30 semester hours, as follows.

- **38:125 Introduction to Speech and Hearing Processes and Disorders**  
  3 s.h.
- **38:126 Phonetics: Theory and Applications**  
  2 s.h.
- **38:127 Basic Acoustics for Speech and Hearing**  
  3 s.h.
- **38:128 Anatomy and Physiology of Speech Production**  
  4 s.h.
3:113 Introduction to Hearing Science 4 s.h.
3:116 Basic Neuroscience for Speech and Hearing 3 s.h.
3:117 Psychology of Language 3 s.h.
3:118 Language Development 3 s.h.
7P:143/22S:102 Introduction to Statistical Methods 3 s.h.
or
7P:25 Elementary Statistics and Inference 3 s.h.
31:1 Elementary Psychology 3 s.h.
or
31:3 General Psychology 4 s.h.
103:100 Introduction to Linguistics 3 s.h.

Group A

One of the following:
31:13 Introduction to Clinical Psychology 3 s.h.
31:105 Personality 3 s.h.
31:16 Psychology of Gender 3 s.h.
31:163 Abnormal Psychology 3 s.h.
34:130 Aging and Society 3 s.h.
42:108 Basic Aspects of Aging 3 s.h.
113:136 Aging: A Cross-Cultural Perspective 3 s.h.

Group B

One of the following (courses marked with an asterisk are preferred):
*31:14 Introduction to Child Development 3 s.h.
31:103 Development of Children’s Social Behavior 3 s.h.
*31:114 Cognitive Development of Children 3 s.h.
*7P:106 Child Development 3 s.h.
31:166 Childhood Psychopathologies 3 s.h.
31:170 Behavior Modification 3 s.h.

Students seeking a B.A. also must complete or have had the equivalent of college algebra and trigonometry, college physics dealing with light and sound, and a college course in the biological sciences.

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.

Honors

The 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 senior year have completed at least 10 semester hours of course work that can be counted toward a major in the department and have earned at least a 3.20 grade-point average in all major course work and all course work at the University.

At any time during their undergraduate study, students who have earned a minimum grade-point average of 3.20 and who did not enter the University as honors students may apply to the University Honors Program and the department’s honors program upon recommendation of the department honors adviser. For graduation with honors, students must be members of the Honors Program in the College of Liberal Arts and must complete both 3:97 Honors Seminar and 3:98 Honors Thesis.

Graduate Programs

Master of Arts

The M.A. program in speech-language pathology and audiology may be a professional program to prepare the student for immediate placement in clinical service positions, or it may be a general program of graduate study leading to additional study for the Ph.D. degree. The program of study for an M.A. with professional emphasis is designed to ensure that upon graduation the student will meet requirements for immediate professional employment.

M.A. candidates usually have a background of undergraduate courses in speech and hearing science, psychology of language, and human behavior essentially equivalent to an undergraduate major in this field at The University of Iowa.

Before registering in the program, entering M.A. candidates 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 adviser in consultation with the student and the instructors of the basic science or clinical core courses.

The M.A. program with professional emphasis prepares clinicians in speech-language pathology or audiology who are able to function independently in a variety of clinical settings. Persons completing an M.A. program with professional emphasis meet all academic and practicum requirements for clinical certification by the American Speech-Language-Hearing Association and for licensure by the state of Iowa.

All M.A. students must complete at least 4 semester hours of work related to research. This may be accomplished by any combination of enrollment in seminars (at 2 semester hours 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 are not required to complete a thesis, although all students demonstrating research aptitude and interest are encouraged to do so. All candidates preparing for the M.A. without thesis are required to take final written comprehensive examinations.

M.A. with Research Emphasis (General Program)

The general M.A. program for students intending to continue to the Ph.D. usually includes a substantial portion of the courses in the professional M.A. program. Students in the general M.A. program also are required to present a thesis and successfully complete a final oral examination.

The M.A. with research emphasis requires a minimum of 38 semester hours of graduate credit. It typically takes two years to complete the required course work and thesis research.

M.A. with Professional Emphasis

A typical M.A. program with professional emphasis usually takes two 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 must take the following.
*3:100 Counseling Theories and Techniques 3 s.h.
*3:116 Basic Neuroscience for Speech and Hearing 3 s.h.
*3:135 Principles of Diagnosis 1-3 s.h.
*3:136 Principles of Intervention 1-3 s.h.
*3:140 Manual Communication 1 s.h.
*3:145 Speech-Language Pathology I: Phonological Disorders, Developmental Language Disorders, and Stuttering 1-3 s.h.
*3:146 Speech-Language Pathology II: Neurological Disorders, Voice Disorders, Cleft Palate, and Related Disorders (speech-language pathology majors only) 1-3 s.h.
*3:185 Hearing Loss and Audiometry 4 s.h.
3:244 Rehabilitative Audiology 4 s.h.
3:300 Professional Practice of Audiology and Speech-Language Pathology 0 s.h.
3:510 Seminar: Introduction to Research in Speech and Hearing 0 s.h.
Advanced seminars or research 4 s.h.

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

An equivalent undergraduate course may be accepted as meeting requirements.

Speech-Language Pathology Requirements

In addition to the core requirements, all students preparing to be speech-language pathologists must take a minimum of 14 semester hours from the following.
3:201 Principles of Voice Production 3 s.h.
3:202 Methods of Teaching Voice 3 s.h.
3:206 Speech and Language Disorders of Young Children: Birth to Five Years 2 s.h.
3:207 Speech and Language Disorders of Older Children: Five to Eighteen Years 2 s.h.
3:208 Communication Problems of Developmental Disabilities and 2 s.h.
Students preparing to become speech-language pathologists may elect to follow one of two specialty tracks: school, hospitals and health agencies, or vocology; however, selection of a specialty track is not required. Two of the tracks provide an especially strong preparation for students preparing to work in specific settings. The school track offers preparation for speech-language pathologists in preschools, elementary schools, and secondary schools. The hospitals and health agencies track prepares students for work as speech-language pathologists in hospitals, small clinics, and other health-care settings. The vocology track prepares specialists in disorders of the voice, with emphasis on disorders of professional voice users, such as singers, actors, and lecturers.

The requirements and recommended electives for each track are listed below. In addition, practicum experiences are structured to fit the needs of students within each track.

**School Track**

**Required (total of 10 semester hours):**

- 3:206 Speech and Language Disorders of Young Children: Birth to Five Years 2 S.H.
- 3:207 Speech and Language Disorders of Older Children: Five to Eighteen Years 2 S.H.
- 3:282 Phonological Development and Disorders 2 S.H.
- 3:283 Stuttering 2 S.H.
- 7E:104 Remedial Methods in Speech and Hearing 2 S.H.

**Recommended:**

- 3:208 Communication Problems of Developmental Disorders and Disabilities 2 S.H.
- 3:209 Language Disorders: Multicultural Issues 2 S.H.
- 3:260 Designing Assistive Devices 1-3 S.H.
- 3:350 Preceptorship in Augmentative Communication 1 S.H.
- 3:212 Voice Disorders 2 S.H.
- 3:231 Communication Problems Associated with Head and Neck Cancer 1 S.H.
- 3:233 Neurogenic Disorders of Language 2 S.H.
- 3:234 Neurogenic Disorders of Speech 2 S.H.
- 3:237 Cleft Palate and Related Disorders 2 S.H.

**Hospital and Health Agencies Track**

**Required (total of 11 semester hours):**

- 3:212 Voice Disorders 2 S.H.
- 3:231 Communication Problems Associated with Head and Neck Cancer 1 S.H.
- 3:233 Neurogenic Disorders of Language 2 S.H.
- 3:234 Neurogenic Disorders of Speech 2 S.H.
- 3:237 Cleft Palate and Related Disorders 2 S.H.

**Recommended:**

- 3:208 Communication Problems of Developmental Disorders and Disabilities 2 S.H.
- 3:260 Designing Assistive Devices 1-3 S.H.
- 3:282 Phonological Development and Disorders 2 S.H.
- 3:283 Stuttering 2 S.H.
- 3:350 Preceptorship in Augmentative Communication 1 S.H.

**Vocology Track**

**Required (total of 9 semester hours):**

- 3:201 Principles of Voice Production 3 S.H.
- 3:212 Voice Disorders 2 S.H.
- 3:213 Voice Training and Rehabilitation 2 S.H.
- 3:221 Instrumentation for Voice Analysis 2 S.H.

**Recommended:**

- 3:202 Methods of Teaching Voice 3 S.H.
- 3:231 Communication Problems Associated with Head and Neck Cancer 1 S.H.
- 3:234 Neurogenic Disorders of Speech 2 S.H.
- 3:237 Cleft Palate and Related Disorders 2 S.H.
- 3:283 Stuttering 2 S.H.
- 49:125 Voice for the Actor 3 S.H.

**AUDIOLeY REQUIREMENTS**

In addition to the core requirements, all students preparing to become audiologists must take the following.

- 3:219 Fundamentals of Laboratory Instrumentation 3 S.H.
- 3:240 Hearing Aids 1 3 S.H.
- 3:241 Differential Diagnosis in Audiology 2 S.H.
- 3:242 Hearing Aids 11 3 S.H.
- 3:246 Clinical Audiology 2 S.H.
- 3:247 Medical Audiology 3 S.H.

**Advanced courses selected from:**

- 3:245 Pediatric Audiology 2 S.H.
- 3:248 Hearing Aids: Advanced Clinical Techniques 2 S.H.
- 3:290 Advanced Objective Audiometry 2 S.H.
- 3:291 Central Auditory Disorders 2 S.H.
- 3:292 Advanced Rehbitivative Audiology 2 S.H.
- 7E:104 Remedial Methods in Speech and Hearing 2 S.H.

Additional practicum, research, and elective courses

Students planning to work as audiologists in a school setting must take 7E: 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.

**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 school audiologists in Iowa and most other states.

- A master's degree with professional emphasis in speech-language pathology or audiology
- Completion of the requirements in speech-language pathology or audiology and the professional education sequence, including 7E: 104 Remedial Methods in Speech and Hearing and 7E: 192 Special Area Student Teaching as a speech-language pathologist or audiologist; courses 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)
- (General education courses, e.g., introduction to psychology, sociology, history, literature, and humanities, are not credited as meeting the professional education sequence.)

- 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)

**Doctor of Philosophy**

The Ph.D. program provides flexible, comprehensive training for the scholar-researcher interested in communication processes and their disorders. Students with diverse backgrounds in the natural and
advisors. 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 as well as the comprehensive examination. They also must successfully complete and submit a dissertation based on original research.

Admission and 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 department chair.

Application Form

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 chair.

Admission to the M.A. Program

The department bases M.A. admission on applicants’ credentials relative to those presented by other applicants for the same term. While an undergraduate grade-point average above 3.00 does not ensure admission, the department admits few applicants with undergraduate grade-point averages below 3.00.

Completed applications must be received no later than February 1 for enrollment in the next summer session or fall semester. Later applications will be considered only in special situations. Applications to begin study in the spring semester will be considered only under special circumstances and only if they are received no later than the preceding November 1.

Admission to the Ph.D. Program

Completed applications should be received at least two months prior to the beginning of the term for which application is made—approximately April 1 for summer session, July 1 for fall semester, November 1 for spring semester. However, applicants who want to be considered for graduate appointments must file the admission application by the deadline for appointment applications specified below. Applicants usually are notified of action on their admission within six weeks after applications are complete.

Application for Graduate Appointments

The following information applies to all financial appointments administered by the department.

- Graduate appointments usually begin in fall semester. Students beginning study in the spring semester or summer session are considered for appointments for the following fall semester.
- Scores on the Graduate Record Examination GRE General Test are routinely required for consideration for financial assistance.
- Appointment applications must be received by February 1 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 the fact that Iowa City is the principal health center of the state, and from the ready availability of its health service facilities for the 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 Hospitals and Clinics Department of Otolaryngology–Head and Neck Surgery; speech pathology service in University hospitals' Department of Neurology; speech and hearing services in the University Hospital School; Pediatrics Regional Child Health Specialty Clinics; speech pathology service in the University Hospitals and Clinics Department of Child Psychiatry; and the audiology and speech pathology service in the Veterans Affairs Medical Center. 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, and a six-week summer residential program for 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 by arrangement with the various state area education agencies; and in supervised clinical practice in speech, language, and hearing services provided by the University Hospitals and Clinics Department of Otolaryngology–Head and Neck Surgery, Pediatrics, Neurology, and Child Psychiatry, the Regional Child Health Specialty Clinics, University Hospital School, and the Veterans Affairs Medical Center.

Public and private schools 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 audiological, psychoacoustic, and neuropsychologic studies of hearing. Mechanical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation of various departments of the 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

3:000 Speech Pathology and Audiology Cooperative Education Assignment 0 s.h.
Internships administered by the Cooperative Education Program; filled on competitive basis. Faculty approval, satisfactory completion of Cooperative Education Program requirements, and consent of the Cooperative Education Program required.

3:15 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.

3:30 Introduction to Professional Practice in Audiology and Speech-Language Pathology O s.h.
May be repeated. Open only to department majors with junior standing or above.

3:96 Research Practicum arr.
Individual or small group participation in faculty research projects. Consent of instructor required.

3:97 Honors Seminar: 3 s.h.
Readings, reports, papers, research problems in speech-language pathology, audiology. Open only to honors students. Offered fall semesters.

3:98 Honors Thesis 3 s.h.
Research problem in speech language pathology and audiology. Open only to honors students. Offered spring semesters.

3:99 Topics in Hearing, Language, Speech Processes and Disorders 1 s.h.
Contemporary issues. Consent of instructor required.

For Undergraduates and Graduates

3:100 Counseling Theories and Techniques 3 s.h.
Counseling psychological theories as they relate to adjustment and management of communication disorders; emphasis on integration of theory with specific techniques to facilitate clinical success. Offered fall semesters. Open only to M.A. professional emphasis students, undergraduate majors with junior standing or above with consent of instructor.

3:110 Phonetics: Theory and Applications 2 s.h.
Basic concepts: description of speech sounds, dialect variations, language differences; development of phonetic transcription skills with emphasis on English phonetics, clinical applications to developing and disordered speech. Offered fall semesters.

3:111 Basic Acoustics for Speech and Hearing 3 s.h.
Simple and complex acoustic waves; Fourier analysis; resonance; sound pressure and intensity; decibel; acoustical systems; transfer function, frequency response, linear and nonlinear systems; acoustic theory of speech production; acoustic measurement of speech; acoustic characteristics of speech. Offered spring semesters.

3:112 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: 3:110 or 103:310. Pre- or corequisite: 3:111 or consent of instructor.

3:113 Introduction to Hearing Science 4 s.h.
Normal auditory process; anatomy and physiology of auditory system; subjective correlates of auditory stimuli. Offered every fall semester and summer sessions of even years. Prerequisite: 3:111 or consent of instructor.

3:116 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 spring semesters. Prerequisite: course in biological sciences, zoology, or physiology; or consent of instructor. Same as 103:116.

3:17 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 fall semesters. Prerequisite: 103:100 or consent of instructor. Same as 103:172.

3:18 Language Development 1-3 s.h.
Alternative models of language acquisition; empirical data describing language development, from linguistic roots through later development in adolescence. Offered fall semesters. Pre- or corequisite: 3:11 or 3:12 or consent of instructor. Corequisite: 3:116.

3:35 Principles of Diagnosis 1-3 s.h.
Basic concepts of psychological measurement, their application to assessment of communication disorders; fundamental methods of observing, testing, diagnosing disorders in communication in children, adults. Offered fall semesters. Prerequisites: 3:15, 3:10 or 103:110; 3:112, 3:118, and 79:925; or equivalents or consent of instructor. Corequisites: 3:145.

3:36 Principles of Intervention 1-3 s.h.
Theoretical underpinnings of speech, language treatment procedures provided by speech language pathologist; historical perspective, current issues in management of individuals with speech, language, hearing disorders; focus on commonalties among intervention methods regardless of disorder. Offered spring semesters. Prerequisites: 3:115, 3:118, 3:135, and 3:145; or consent of instructor. Pre- or corequisites: 3:117.

3:40 Manual Communication I 1 s.h.
Training in use of sign systems in manual communication.

3:41 Manual Communication II 1 s.h.
American Sign Language, Deaf culture. Prerequisite: 3:146.

3:43 Introduction to American Sign Language 4 s.h.
Basic manual communication, vocabulary, syntax, grammar; psychosocial, cultural ramifications of deafness. Offered only through Saturday and Evening Class Program.

3:44 Intermediate American Sign Language 2 s.h.
Continuation of 3:43; emphasis on receptive and expressive skills, conversational situations, finger spelling, elementary interpreting skills, vocabulary, diagnosis. Offered only through Saturday and Evening Class Program.

3:45 Principles of Voice Production 3 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.

3:46 Speech-Language Pathology 1 1-3 s.h.
Phonological disorders, developmental language disorders, stuttering; behavioral characteristics, developmental patterns, theories of etiology. Offered fall semesters. Prerequisites: 3:15; 3:110 or 103:110; 3:112 and 3:118; or consent of instructor.

3:48 Phonology and Language Structure 3 s.h.
Introduction to phonology; overview of speech disorders; articulation, voice disorders, related to craniofacial anomalies such as cleft palate, or disease or trauma to the nervous system; basic concepts regarding nature, assessment, management of such disorders. Offered spring semesters. Prerequisites: 3:15; 3:110 or 103:110; and 3:112. Pre- or corequisites: 3:116 or consent of instructor.

3:65 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.

3:85 Hearing Loss and Audiology 4 s.h.
Introduction to profession of audiology; overview of hearing disorders, evaluation, treatment; basic pure-tone and speech audiometry. Offered fall semesters. Pre- or corequisites: 3:113.

3:86 Problems: Speech/Hearing Processes and Disorders 1 s.h.
Consent of instructor required.

3:186 Problem-Solving in Speech and Hearing 2 s.h.
Risk factors, medical conditions, environmental factors, social/emotional factors, etc. in the diagnosis of speech and hearing disorders. Offered spring semesters. Prerequisite: consent of instructor.

3:193 Hearing Aid Performance and User 3 s.h.
Hearing aids: hearing aid evaluation; hearing aid collection; fitting, fitting; follow-up appointments; education, counseling, hearing aid selection. Offered spring semesters. Prerequisite: 3:36 and 3:112. Recommended: 3:201.

3:201 Principles of Voice Production 3 s.h.
Basic physical, physiological, Psychological 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 25:201.

3:202 Methods of Teaching Voice 3 s.h.
Comparison of pedagogical techniques; attitude assessment, language aptitude, physical, emotional, mental images modifying respiratory, phonatory, articulatory behavior; vocal hygiene; performance anxiety; student/teacher relationships. Offered every spring semester and summer sessions of odd years. Consent of instructor required. Same as 25:202.

3:206 Speech and Language Disorders of Young Children: Birth to Five Years 2 s.h.
Disorders resulting from phonological, semantic, pragmatic, and morphophonemic deficits; receptive, expressive problems; special assessment and intervention procedures. Offered fall semesters. Prerequisites: 3:17, 3:118, 3:135, 3:116, 3:145, and 3:146; or consent of instructor.

3:207 Speech and Language Disorders of Older Children: Five to Eighteen Years 2 s.h.
Predisominant patterns of language impairment in children, adolescents; approaches to clinical management, emphasis on language skills for educational success. Offered spring semesters of odd years. Prerequisites: 3:155, 3:136, and 3:145; or consent of instructor.

3:208 Communication Problems of Developmental Disorders and Disabilities 2 s.h.
Nature, clinical management of communication problems of children and adults with mental retardation, pervasive developmental disorders, cerebral palsy. Offered spring semesters of even years. Prerequisites: 3:135, 3:136, and 3:145; or consent of instructor.

3:209 Language Disorders: Multicultural Issues 2 s.h.
Language evaluation and treatment from a multicultural perspective; how speech Language pathologists, audiologists should provide nonbiased services to clients from other cultures; dialects versus disorders. Offered spring semesters of even years. Prerequisites: 3:135, 3:136, and 3:145; or consent of instructor.

3:212 Voice Disorders 2 s.h.
Voice disorders, voice evaluation therapy procedures, rationales for clinical intervention. Offered fall semesters. Prerequisite: 3:112. Recommended: 3:201.

3:213 Voice Training and Rehabilitation 2 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 spring semesters. Prerequisites: 3:201 and consent of instructor required.

3:218 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 of odd years. Consent of instructor required. Same as 25:218.

3:219 Fundamentals of Laboratory Instrumentation 3 s.h.
Electrical circuits, emphasis on application to instrumentation used in speech and hearing; laboratory focus on instrumentation. Offered fall semesters.

3:220 Advanced Laboratory Instrumentation 3 s.h.
Circuit construction, power supplies, amplification, signal generation, switching and timing, magnetic tape recorders, transducers. Offered spring semesters of odd years. Consent of instructor required. Prerequisites: 3:219 or equivalent.

3:221 Instrumentation for Voice Analysis 2 s.h.
Use of phototropic, videotrascopic, electromyographic, aerodynamic, acoustic analysis for assessment of vocal, respiratory function; use of these techniques in conjunction with perceptual evaluation of voice. Offered summer sessions of even years. Prerequisite: 3:201 or consent of instructor.

3:224 System and Signal Theory for Speech and Hearing Sciences 3 s.h.
Basic calculus; differential equations, convolution, system functions, principles of linear systems theory applied to speech, auditory research. Offered spring semesters of odd years. Prerequisite: introductory calculus.
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3.220 Speech Perception  3 s.h.
Classical, contemporary theories; perception in auditory, visual, and tactile modalities. Offered fall semesters of even years. Prerequisites: background in phonetics, speech science, and hearing science; or consent of instructor. Same as 103.230.

3.231 Communication Problems Associated with Head and Neck Cancer  1 s.h.
Valuing of surgical alteration or removal of vocal mechanism; clinical intervention principles for other types of head, neck cancer. Offered spring semesters of odd years. Prerequisites: 3.135, 3.136, 3.145, and 3.146; or consent of instructor.

3.232 Neurogenic Disorders of Language  2 s.h.
Assessment, treatment of adult language and cognitively based communication disorders associated with disease, trauma, abnormalities of nervous system. Offered fall semesters of odd years. Prerequisite: 3.136, 3.135, 3.136, 3.145, and 3.146; or consent of instructor.

3.234 Neurogenic Disorders of Speech  2 s.h.
Assessment, treatment of adult disorders of speech production associated with disease, trauma, abnormalities of nervous system. Offered fall semesters of even years. Prerequisites: 3.116, 3.135, 3.136, 3.145, and 3.146; or consent of instructor.

3.256 Swallowing Disorders  2 s.h.
Physiology of normal, abnormal swallowing; assessment, treatment of swallowing disorders in adults, children. Offered fall semesters of odd years. Prerequisites: 3.112, 3.113, 3.116, and 3.135; or consent of instructor.

3.277 Cleft Palate and Related Disorders  2 s.h.
Nature, etiologies, principles of treatment of common disorders associated with cleft palate, associated hearing disorders. Offered spring semesters of even years. Prerequisites: 3.135, 3.136, 3.145, and 3.146; or equivalents or consent of instructor.

3.281 Hearing Aids I  3 s.h.
Hearing aids, diagnostic procedures; laboratory emphasis on measurement procedures. Offered fall semesters. Prerequisite: 3.185 or consent of instructor.

3.282 Hearing Aids II  3 s.h.
Evaluation, verification procedures; emphasis on advanced technologies, strategies. Offered spring semesters. Prerequisite: 3.281 or consent of instructor.

3.283 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 laboratory, evaluation of central auditory problems. Offered fall semesters. Prerequisite: 3.240 or consent of instructor.

3.284 Differential Diagnosis in Audiology  2 s.h.
Current research, practice; physiologic measurement of hearing loss and vestibular function, occupational audiometry, evaluation of central auditory problems. Offered fall semesters. Prerequisite: 3.240 or consent of instructor.

3.285 Neurogenic Disorders of Hearing  3 s.h.
Theory, procedures for assessment, rehabilitation of speech, hearing language deficits of people with hearing impairment. Offered spring semesters. Prerequisites: 3.185 and 3.145, or equivalents.

3.286 Pediatric Audiology  2 s.h.
Theory, procedures for assessment, rehabilitation of pediatric populations; laboratory emphasis on test administration. Offered fall semesters. Prerequisite: 3.285 or consent of instructor.

3.287 Administration and Supervision of the Auditory Speech Pathology/Communications Program  2 s.h.
Theory, procedures for assessment of hearing loss in adult and pediatric populations; experiences in test administration through supervised laboratory sessions. Offered fall semesters. Prerequisite: 3.285 or consent of instructor.

3.288 Medical Audiology  3 s.h.
Genetic, acquired, traumatic pathologies that affect auditory systems; nature, etiology, principles of assessment, treatment. Offered spring semesters. Prerequisite: 3.285 or consent of instructor.

3.289 Hearing Aids: Advanced Clinical  2 s.h.
Recent advances in hearing aid evaluation and fitting procedures, innovative circuitry, related software; emphasis on clinical strategies for hearing aid fitting and client cases through case studies. Prerequisites: 3.240 and 3.242, or consent of instructor.

3.290 Communication in Clinical Settings  1 s.h.
Use of manually coded English systems with clinic populations. Offered spring semesters. Graduate standing or consent of instructor required. Prerequisites: beginning course in signed English or signing exact English or American sign language.

3.291 Central Auditory Disorders  2 s.h.
Assessment procedures used to enhance detection of site of lesion, including those beyond the standard audiologic test battery; interpretation of clinical cases. Consent of instructor required.

3.292 Advanced Rehabilitation Audiology  2 s.h.
Current and developing procedures for assessment, habilitation of adults and children with hearing losses. Consent of instructor required.

3.300 Practical Practice of Audiology and Speech-Language Pathology  0 s.h.
Topics in the general practice. May be repeated.

3.301 practicum: Speech-Language Pathology 2 s.h.
Supervised clinical practice. May be repeated. Open only to M.A. professional emphasis-audiology students. Corequisites: 3.136, 3.145, and 3.146; or equivalents. Consent of instructor required.

3.311 Practicum: Audiology 0 s.h.
Supervised clinical practice. May be repeated. Open only to M.A. professional emphasis-audiology students. Consent of instructor required.

3.312 Practicum: Hearing Measurement 0 s.h.
Evaluation of individuals for hearing impairment and its impact; clinical practice. May be repeated. Consent of instructor required.

3.350 Preceptorship in Augmentative Communication 1 s.h.
Approaches to development of alternate modes of communication with individuals in need of augmentative communication. Consent of instructor required.

3.501 seminar: Topics in Speech-Language Pathology 2 s.h.
Current topics related to speech, language, swallowing disorders and their clinical management. May be repeated. Consent of instructor required.

3.510 seminar: Introduction to Research in Speech and Hearing 0 s.h.
Philosophy of science; base principles of research; issues in conducting research; review of research opportunities in the department. Offered fall semesters.

3.515 Proseminar 0 s.h.
Presentation of research ideas, results by faculty, students.

3.517 Seminar: Counseling Techniques and Behavior Management 2 s.h.
Techniques used with communication disordered persons and their families; group counseling, cognitive behavior modification, management of common behavior problems; efficacy of techniques evaluated through research on clinical applications. Offered spring semesters of even years. Prerequisite: 3.300 or consent of instructor.

3.518 Seminar: Adjustment to Communication Disorders 2 s.h.
Patterns of adjustment in children, adults; positive coping, adjustment to common psychosocial problems; emphasis on review of research, methods for conducting research. Offered spring semesters of odd years. Prerequisite: 3.100 or consent of instructor.

3.532 seminar: Speech Science 2 s.h.
Research, theory of acoustic, phonological, perceptual processes of speech. May be repeated. Offered summer sessions of even years. Consent of instructor required.

3.533 Seminar: Psycholinguistics 2 s.h.
Perceptual processes and language, discourse theory, pragmatics/conviviality competence, cognitive models of language. May be repeated. Offered spring semesters. Consent of instructor required. Same as 103:320.

3.535 Seminar: Psychacoustics 2 s.h.
May include temporal factors in detection, pitch perception, discrimination processes, binaural hearing and adaptation. May be repeated. Offered summer sessions of odd years. Prerequisite: 3.254 or consent of instructor.

3.536 seminar: Experimental Audiology 2 s.h.
Topics related to experimental procedures for listeners with hearing losses. May be repeated. Consent of instructor required.

3.537 seminar: Clinical Audiology 2 s.h.
Selected topics. May be repeated. Consent of instructor required.
3:53 Seminar: Auditory Physiology  2 s.h.
Topics of interest to group. May be repeated. Offered spring semesters of even years. Consent of instructor required.

3:59 Research  arr.
Consent of instructor required.

SPORT, HEALTH, LEISURE, AND PHYSICAL STUDIES

Chair: Bonnie Slatton
Professors: Susan Birrell, Donald R. Casady, Benjamin K. Hewitt, Richard D. MacNeil, Kenneth E. Mobily, Michael L. Teague
Professors emeriti: Margaret G. Fox, John A. Nesbitt
Associate professors: N. Peggy Burke, Gary F. Hanson, Christine H.B. Grant, Carolyn Latta-Braud, David K. Leslie, Bonnie Slatton
Associate professor emerita: Jeannette L. Sackell
Assistant professors: Stephen Goff, Kathleen F. Janz, Dawn Stephens
Visiting lecturers: Lynda Johnson, Catrinna Parratt Assistants in instruction: Beth Beglin, Gayle Blevins, Charles Darley, Diane L. DeMarco, Carol Giddler, Jerald M. Hassard, Peter Kennedy, Linda Schoenstedt, Vivian Stringer, Diane M. Thomason

The Department of Leisure Studies and the Department of Physical Education and Sports Studies have combined to form the Department of Sport, Health, Leisure, and Physical Studies. Students have until August 1999 to complete majors in physical education or leisure studies. For information on degrees and programs available in the new department, contact the department office, the Liberal Arts Office of Academic Programs, the Undergraduate Advising Center, or the Graduate College.

Courses

24:000 Cooperative Education internship  0 s.h.
May be repeated.

28:1 Skill Acquisition in Physical Education  1 s.h.
May be repeated.

28:10 Movement and Sport Skills  O-3 s.h.
Same as 7E:23, 7E:23.

28:11 Lifeguard and Water Safety Instruction 1-4 s.h.
Leads to American Red Cross lifeguard certification, water safety instructor's certificate. Consent of instructor required.

28:12 Basic Dance Skills  2 s.h.

28:13 Basketball  1 s.h.

28:14 Field Sports  1 s.h.

28:15 Golf  1 s.h.

28:16 Recreational Skills  1 s.h.

28:17 Non-Traditional Sports  1 s.h.

28:18 Softball  1 s.h.

28:19 Tennis  1 s.h.

28:21 Track and Field  1 s.h.

28:22 Tumbling and Apparatus  1 s.h.

28:23 Volleyball  1 s.h.

28:27 Basic Movement and Body Awareness  3 s.h.
Structure, systems of the body; how individual body design carries and shifts weight, moves with gravity, stands upright, and so forth. Same as 49:27, 137:27.

28:30 Principles of an Exercise Class  2 s.h.

28:31 Theory and Principles of Weight Training  1 s.h.
Principles, techniques, safety procedures for free/loaded weight training programs.

28:32 First Aid and CPR  2 s.h.
Leads to American Red Cross first aid and adult CPR certification. Same as 27:56.

28:33 Promotional Strategies  3 s.h.
Methods, materials, graphic design techniques for sport/wellness presentations to adult populations. Open only to majors or to others with consent of instructor.

28:35 Stress Management  2 s.h.
Stress, the stress response; causes and consequences, management.

28:60 Leisure in Contemporary Society  3 s.h.
Basic philosophical, historical, scientific foundations, developments, function, settings of organized recreation.

28:61 Recreation, Leadership, and Programming  4 s.h.
Leadership principles, techniques; programming techniques.

28:70 Perspectives on Leisure and Play  3 s.h.
Relationships between leisure and economics, sociology, and other social sciences; effect of leisure on individual, group behavior; antecedents, motives, consequences of leisure behavior. GER: social sciences.

28:72 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. GER: humanities.

28:74 Inequality in Sport  3 s.h.
Sport experiences, barriers to participation based on sexism, racism, classism, agism, heterosexism.

28:76 Psychosocial Dimensions of Sport  3 s.h.
Psychological, sociological aspects.

28:80 Administration of Intramural Athletics  2 s.h.

28:82 Psychology of Coaching  2 s.h.
Application of psychological principles to athletic coaching situations; competition, motivation, confidence, anxiety in athletics.

28:102 Introduction to Museology  3 s.h.
GER: humanities. Same as 7S:112.

28:103 Administration of Physical Education and Athletics  2-3 s.h.
Administrative issues, including theory, budgeting practices, legal liability, public relations, evaluation of personnel. Same as 7E:103, 78:103.

28:105 Physical Education Disabilities  3 s.h.
Prerequisite: 27:53.

28:112 Workshop: Sport/Health/Leisure Studies I-4 s.h.

28:114 Mental Training for Peak Performance  3 s.h.

28:117 Ancient Athletics  3 s.h.
Same as 14:104.

28:122 Teaching of Dance  2 s.h.
Methods for teaching ballet, folk, square dance at elementary, secondary, college levels; observation of classes, lesson planning, evaluation procedures, materials, teaching aids. Prerequisite: 28:102.

28:124 Physical Education Curriculum: Trends  3 s.h.
Professional preparation, K-12 programming. Same as 7E:137, 7E:137.

28:126 Methods and Practicum in School Health  3 s.h.
Methods, materials, instructional planning, management, practicum in school health programs. Prerequisite: 28:140. Same as 7E:155.

28:128 Environmental Issues in Recreation  3 s.h.
Issues in relation to outdoor recreation behavior, management; issues vis-a-vis concept of the ecosystem.

28:129 Practicum in Outdoor Recreation  arr.
Outdoor adventure trips sponsored by Division of Recreational Services.

28:130 Human Nutrition  3 s.h.
Physiology, biochemistry of human nutrition; appropriate food sources; qualitative, quantitative evaluation of diets using standard references; simple arithmetic, computer skills required.

28:131 Nutrition  3 s.h.
Offered through Guided Correspondence only. Open only to non-majors.

28:132 Fitness/Sport Nutrition  3 s.h.
Relationship between nutrition, fitness/sport performance; basic nutrition, physiology, chemisty, psychology, food preparation. Prerequisite: 28:130.

28:133 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: 28:130.

28:134 Nutrition Intervention  3 s.h.
Strategies for meeting nutritional needs of individuals with unique needs due to limitations imposed by genetics, trauma, aging, medications, and so forth. Prerequisite: 28:130.

28:135 Practicum: Health and Physical Activity 1-2 s.h.
Work with full time instructor teaching majors activity or wellness class; lesson planning, teaching, evaluation. Open only to majors. Maybe repeated. Prerequisite: one methods course.

28:136 Physical Activity and Aging  3 s.h.

28:137 Health and Sport Fitness Assessment  3 s.h.
Examination, application of measurement techniques, tests; emphasis on different measures of health status and psychomotor skills, including fitness and sports test batteries.

28:138 Exercise Testing and Prescription  4 s.h.
Field and clinical settings, exercise program design for healthy and high risk populations. Prerequisites: 27:140 or 7P:25 or 225:2 or equivalent.

28:140 Health for Living  3 s.h.
Personal health strategies; focus on disease prevention, wellness.

28:141 Health promotion Theory and Practice  3 s.h.
Multilevel health promotion strategies, including awareness, personal behavior change, environmental supports. Prerequisite: 28:140.

28:142 Health Promotion in corporate, Hospital, and Private Settings  3 s.h.
Development of health promotion programs in corporations, hospitals, community outreach centers. Prerequisite: 28:140.

28:144 Peer Health Education  2 s.h.
Students act as peer educators, assisting students in their residential areas, presenting educational outreach programs on health topics, making referrals to campus and area agencies, and serving as positive role models. Consent of instructor required.

28:146 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.

28:148 Practicum in Health Promotion  1 s.h.
Experience in planning implementing programs on health-related topics; nutrition, physical fitness, substance abuse, sexuality. Consent of instructor required. May be repeated.

241:158 Recreation Administration  3 s.h.
Personnel, finance, budgets, liability, marketing.

28:151 Liability in Sport/Health/Leisure  3 s.h.
Legal knowledge needed to manage sport, recreation and physical activity programs effectively and to avoid legal problems; strategies for addressing such issues as right to participate, liability for injuries, risk management and special legal statutes that govern sport, health and recreation organizations.

28:152 Administration of Athletics  3 s.h.
Beliefs, practices in intercollegiate athletic programs; analysis of sport organizations at institutional, conference, national, international levels. Graduate standing or consent of instructor required.

28:153 Sports and Cultural Events Management  3 s.h.
Planning managing events; resource management, liability, safety, staffing, personnel, publicity, promotion strategies.

243:154 Park and Recreation Facility Management  3 s.h.
Personnel, program, financing, design, standards.

28:155 Recreation and Sport Management  3 s.h.
Organizational skills; roles, functions of managers; strategic planning, resource allocation; budget, income strategies; economics; sport, business.

28:156 Design of Recreation Facilities  3 s.h.
Horticulture, floriculture, landscape design, agronomy, turf management; their relation to planning design of recreation and park areas and facilities.
28:158 Commercial Recreation Management 3 s.h.
Managerial skills to operate a small commercial recreation complex, smoothly, profitably, entrepreneurially, with business foundation, financial and risk management, inventory control, purchasing, marketing strategies, governmental regulation.
28:160 Introduction to Therapeutic Recreation 3 s.h.
Recreation’s role in rehabilitation; organization and development of programs, approaches to understanding patient’s behavior, adaptation of activities to basic disability areas.
28:162 Therapeutic Recreation: Clientele 3 s.h.
Human growth and development, concomitant development of recreation and leisure life-styles; focus on developmental patterns of special populations. Prerequisite: 28:164.
28:164 Therapeutic Recreation: Rehabilitation 3 s.h.
Role of therapeutic recreation in total institutional and community rehabilitation efforts; cooperative role of therapeutic recreation in total therapies program.
28:166 Exercise programs: Special Populations 3 s.h.
Anatomy, exercise physiology, training principles, common athletic injuries and treatment common medications, contraindications exercise development, implementation, instruction of exercise programs, including aerobic dance and classes.
28:168 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.
28:171 Issues In Recreation and Leisure 3 s.h.
Recreation, leisure in modern society; human, technological values related to leisure.
28:172 Women as Leaders 1-2 s.h.
Leadership styles, rules, accomplishments. May be repeated.
28:173 Work and Leisure in American Culture 3 s.h.
Methods, insights of American and leisure studies combined, applied to work/leisure relationship in American life; patterns and perceptions of work and leisure, options that shape leisure should and could have; changing American values. Same as 45:170.
2&174 Physiological Research on Women in Sport 3 s.h.
Physiological capabilities; responses to training; factors specific to pregnancy, child bearing, gender-related injuries. Same as 101:102.
28:175 Sport and the Media 3 s.h.
Reprintations of sport, television, the press, fiction, film, biographies, adolescent fiction.
2&176 Women, Sport and Culture 3 s.h.
Feminist analysis of “her” women’s sport experiences; reproduction of gender through sport, motivations, mediational representations of women in sport, feminist critiques, alternatives to sport. same as 111:115.
28:177 Western World Sport Greeks to Present 3 s.h.
Development of Western sport, relation to social, political, economic, intellectual factors.
28:178 History of Sport in the United States 3 s.h.
Growth, institutionalization of sport from colonial times to present.
28:180 Theory of Coaching 2 s.h.
Philosophical bases; theoretical, practical applications.
28:181 Officialing selected Sports 1-2 s.h.
Rules, rule interpretation, techniques of officiating.
Consent of instructor required.
28:190 Practicum in College Teaching 1 s.h.
Practical field experience; direct leadership, program planning, administrative procedures. Consent of instructor required. Prerequisite: 28:180.
28:191 Internship I arr.
Consent of instructor required.
28:193 Independent Study arr.
Problem in a specific area. Consent of instructor required.
28:194 Honors Readings arr.
Consent of instructor required.
28:195 Honors problems arr.
Consent of instructor required.
28:200 Historical and philosophical Perspectives 3 s.h.
Development of attitudes toward sport, health, leisure; emerging program patterns; current issues.
28:202 Critical Perspectives 3 s.h.
Application of critical theories to cultural meanings and issues of sport, health, leisure.
28:204 Research Methodologies 3 s.h.
Design, interpretation of research.
28:227 Physical Education: Curriculum Design 2-3 s.h.
Major, physical, psychological, biological factors that influence curriculum approaches in physical education; emphasis on current trends; investigative or creative project. Same as 75:337, 75:345.
Current literature. Maybe repeated. Consent of instructor required.
28:240 Health Promotion: Research and Models 3 s.h.
Principles of epidemiology and micro- through macro-health behavior change theory applied to health promotion.
28:242 Seminar: Work Setting Health Promotion 3 s.h.
Contemporary issues in designing, implementing health promotion in workplace settings.
28:250 Management Theory and practice 3 s.h.
Cost and experimental study of management, behavioral constraints; goal setting, leadership, communication, motivation, delegation, service management.
28:252 Management Sport/Health/Leisure service 3 s.h.
Revenues, pricing, accounting systems, inventory, control, financial ratios, rate of return; use of simulations, computer applications.
28:254 Marketing: Sport/Health/Leisure Service 3 s.h.
Methods of planning and providing services, events, products; needs assessment marketing and promotions, corporate sponsorship, production and program cycles.
28:258 The Law and Sport 2 s.h.
Legal theories, statutory regulations applicable to physical education, athletics; emphasis on how to work with an attorney.
28:262 Producers in Therapeutic Recreation 3 s.h.
Developing and producing client needs, directing therapeutic recreation activities that contribute to clients’ maximum recreational functioning. Graduate standing and consent of instructor required.
28:264 Therapeutic Recreation: Services 3 s.h.
Initiation, improvement, expansion of therapeutic recreation service for disabled persons; practice in program evaluation procedures; parallel practices in related fields. Graduate standing and consent of instructor required.
28:270 Social Psychology and Sport 3 s.h.
Social, psychological, and behavior science; personality, motivation, social influence processes in sport, physical activity.
28:274 Philosophy of Sport 3 s.h.
The meaning of sport as human experience; ethical, aesthetic dimensions.
28:276 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.
28:277 Leisure in Us. Culture 3 s.h.
Leisure as cultural form; relationship to ideology and practice in economics, politics, education, the family, the media.
28:278 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.
28:290 Graduate Internship 3 s.h.
Consent of instructor required.
24:291 Problems arr.
Consent of instructor required.
28:292 Practicum in College Teaching arr.
Same as 27:202.
28:299 Graduate Research Problems arr.
Consent of instructor required.
28:300 Research Colloquium 0-1 s.h.
Research issues, current research projects of departmental faculty, graduate students.
28:327 Seminar: Physical Education Theory 3 s.h.
Same as 7E:337, 7S:337.
28:370 Seminar in Sport Psychology 3 s.h.
Current theory, research; applied sport psychology techniques. Prerequisite: 28:270.
28:372 Social Psychology and Physical Activity 3 s.h.
Social, psychological aspects of sport-current issues, research. Prerequisite: 28:270.
28:374 seminar in Sport History 3 s.h.
Open only to graduate students or to seniors with consent of instructor. May be repeated.
28:375 Cultural Analyses of sport 3 s.h.
Analytical strategies for studying sport; quantitative, qualitative techniques; materialist, feminist, cultural studies approaches. May be repeated. Prerequisite: 28:276 or consent of instructor.
28:378 Seminar in Cultural Studies of Sport 3 s.h.
Current theoretical debates in sociology of sport; applications of cultural studies to critical analysis of sport. May be repeated. Prerequisite: 28:276 or consent of instructor.
28:380 Administration of Physical Education 3 s.h.
28:382 Advanced Coaching 2 s.h.
Coaching, officiating procedures in light of research, recent developments in sports.
23:386 Advanced Athletic Administration 3 s.h.
Organization, administration of a Division I intercollegiate athletics program; current issues and problems in detail. Prerequisite: 28:152.
28:398 Thesis: MA. 3-6 s.h.
Consent of instructor required.

Undergraduate Programs

The Bachelor of Science can be earned in actuarial science or statistics (applied or mathematical).

Bachelor of Science in Actuarial Science

Due to the popularity and difficulty of the actuarial science major, students are admitted on a selective basis. Undergraduate students who wish to major in actuarial science must submit an application for admission. Although admission is based on several factors, the primary ones are overall grade-point average and grade-point average in mathematics. Students typically submit the application during their sophomore year, after completing at least 40 semester hours including 22M:25 Calculus I, 22M:26 Calculus II, and 22M:27 Introduction to Linear Algebra, 22M:28 Calculus 111, and 22S:130 Introduction to Mathematical Statistics I.

Students should choose the pre-actuarial science major when they enter the University. Transfer students who have completed 40 semester hours and the equivalents of the courses listed above may apply for admission into the actuarial science program prior to enrolling in the University. Application forms and additional information about selective admissions are available from the Department of Statistics and Actuarial Science.

The actuarial science program prepares students for the actuarial profession. The department offers both theoretical and practice-oriented courses that help students prepare for most of the associate level examinations of the principal organizations. The required courses in the program are as follows.

Computer Science

22C:16 Introduction to Programming with Pascal 4 s.h.

Economics

6E:1 Principles of Macroeconomics 3 s.h.
6E:2 Principles of Macroeconomics 3 s.h.

Mathematics

22M:45-46 Accelerated Calculus 1-11 8 s.h.
22M:35-36 Engineering Calculus I-II 8 s.h.
22M:25-26 Calculus I-II 8 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus 111 4 s.h.

At least one of the following:
22M:50 Elements of Group Theory 3 s.h.
22M:55 Fundamental Properties of Spaces and Functions 3 s.h.
22M:100 Introduction to Ordinary Differential Equations 3 s.h.
22M:109 Classical Analysis I 3 s.h.
22M:118 Complex Variables 3 s.h.
22M:127 Matrix Theory 3 s.h.

Statistics and Actuarial Science

All of the following:
22S:110 Introduction to Financial Security Systems 3 s.h.
22S:130 Introduction to Mathematical Statistics I 3 s.h.
22S:131 Introduction to Mathematical statistics II 3 s.h.
22S:153 Mathematical Statistics I 3 s.h.
22S:154 Mathematical Statistics II 3 s.h.
22S:177 Numerical Analysis for Actuaries 3 s.h.
22S:180 Mathematics of Finance 3 s.h.
22S:181 Life Contingencies I 3 s.h.
22S:182 Life Contingencies II 3 s.h.

In exceptional cases, the adviser may grant permission to waive 22S:130 and/or 22S:131.

At least one of the following:
22S:175 Risk Theory 3 s.h.
22S:176 Credibility and Loss Distributions 3 s.h.
22S:179 Ratemaking and Loss Reserving 3 s.h.
22S:183 Life Contingencies II 3 s.h.
22S:189 Topics in Actuarial Science 3 s.h.

The following is a recommended schedule for completing the departmental degree requirements.

FRESHMAN YEAR

Fall Semester
22M:45 Accelerated Calculus I 4 s.h.
22M:35 Engineering Calculus I 4 s.h.
22M:25 Calculus I 4 s.h.
6E:1 Principles of Macroeconomics 3 s.h.

Spring Semester
22M:26 Calculus II 4 s.h.
22M:36 Engineering Calculus II 4 s.h.
22M:46 Accelerated Calculus II 4 s.h.
6E:2 Principles of Macroeconomics 3 s.h.
22C:16 Introduction to Programming with Pascal 4 s.h.

SOPHOMORE YEAR

Fall Semester
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus 111 4 s.h.
22S:130 Introduction to Mathematical Statistics I 3 s.h.

Spring Semester
Math elective 3 s.h.
22S:131 Introduction to Mathematical Statistics II 3 s.h.

JUNIOR YEAR

Fall Semester
22S:153 Mathematical Statistics I 3 s.h.
22S:177 Numerical Analysis for Actuaries 3 s.h.
22S:180 Mathematics of Finance 3 s.h.

Spring Semester
22S:154 Mathematical Statistics II 3 s.h.
22S:181 Life Contingencies I 3 s.h.

SENIOR YEAR

Fall Semester
22S:182 Life Contingencies II 3 s.h.
Required actuarial elective

Bachelor of Science in Statistics

Applied Statistics

This program is designed to prepare students for careers in applied statistics or for graduate study in applied statistics or other disciplines that incorporate statistical tools. The required courses in the program are as follows.

Computer Science

22C:7 Introduction to Computing with FORTRAN 3 s.h.
or
22C:16 Introduction to Programming with Pascal 4 s.h.

Mathematics

22M:25-26 Calculus I-II 8 s.h.
or
22M:35-36 Engineering Calculus I-II 8 s.h.
or
22M:45-46 Accelerated Calculus I-II 8 s.h.
or
22M:27 Introduction to Linear Algebra 4 s.h.
or
22M:28 Calculus 111 4 s.h.

Statistics and Actuarial Science

22S:130 Introduction to Mathematical Statistics I 3 s.h.
22S:131 Introduction to Mathematical statistics II 3 s.h.
22S:152 Regression and Design or
22S:155 Regression Analysis 3 s.h.
(Students may not receive credit for both 22S:152 or 22S:155.)
22S:153-154 Mathematical Statistics I-II 6 s.h.
22S:158 Experimental Design and Analysis 3 s.h.
or
22S:162 Analysis and Design of Experiments I 3 s.h.
(Students may not receive credit for both 22S:158 or 22S:162.)

At least two of the following:
22S:149 Statistical Analysis and Computing 3 s.h.
or
22S:156 Applied Time Series Analysis 3 s.h.
or
22S:161 Application of Multivariate Statistical Techniques 4 s.h.
or
22S:163 Nonparametric Statistical Methods 3 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
or
22S:168 Analysis and Design of Experiments II 3 s.h.
or
22S:173 Data Analysis 3 s.h.
63:163 Introduction to the Design of Sample Surveys 3 s.h.

Mathematical Statistics

This program is designed to prepare students for graduate study in statistics. The required courses in the program are as follows.

Mathematics

22M:25-26 Calculus I-11 8 s.h.
or
22M:35-36 Engineering Calculus I-II 8 s.h.
or
22M:45-46 Accelerated Calculus I-11 8 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus 111 4 s.h.
22M:55 Fundamental Properties of Spaces and Functions 3 s.h.

At least two of the following:

22M:50 Elements of Group Theory 3 s.h.
22M:70 Foundations of Geometry 3 s.h.
22M:72 Elementary Numerical Analysis 3 s.h.
22M:90 Introduction to Discrete Mathematics 3 s.h.
22M:100 Introduction to Ordinary Differential Equations 3 s.h.
22M:104 Introduction to Matrix Theory 3 s.h.
22M:109 Classical Analysis I 3 s.h.
22M:115 Introduction to Analysis I 3 s.h.
22M:116 Introduction to Analysis II 3 s.h.
22M:118 Complex Variables 3 s.h.
22M:120 Abstract Algebra I 3 s.h.
22M:123 Foundations of Set Theory 3 s.h.
22M:124 Foundations of Logic 3 s.h.
22M:126 Elementary Theory of Numbers 3 s.h.
22M:127 Matrix Theory 3 s.h.
22M:130 Elementary Topology I 3 s.h.
22M:132 General Topology 3 s.h.
22M:140 Continuous Mathematical Models 3 s.h.
22M:151 Discrete Mathematical Models 3 s.h.

Statistics and Actuarial Science

22S:120 Mathematical Statistics I 3 s.h.
22S:121 Mathematical Statistics II 3 s.h.
22S:122 Mathematical Statistics III 3 s.h.
22S:123 Mathematical Statistics IV 3 s.h.
22S:124 Mathematical Statistics V 3 s.h.
22S:125 Mathematical Statistics VI 3 s.h.
22S:126 Mathematical Statistics VII 3 s.h.
22S:127 Mathematical Statistics VIII 3 s.h.
22S:128 Mathematical Statistics IX 3 s.h.
22S:129 Mathematical Statistics X 3 s.h.
22S:130 Mathematical Statistics XI 3 s.h.
22S:131 Mathematical Statistics XII 3 s.h.
22S:132 Mathematical Statistics XIII 3 s.h.
22S:133 Mathematical Statistics XIV 3 s.h.
22S:134 Mathematical Statistics XV 3 s.h.
22S:135 Mathematical Statistics XVI 3 s.h.
22S:136 Mathematical Statistics XVII 3 s.h.
22S:137 Mathematical Statistics XVIII 3 s.h.
22S:138 Mathematical Statistics XIX 3 s.h.
22S:139 Mathematical Statistics XX 3 s.h.
22S:140 Mathematical Statistics XXI 3 s.h.
22S:141 Mathematical Statistics XXII 3 s.h.
22S:142 Mathematical Statistics XXIII 3 s.h.
22S:143 Mathematical Statistics XXIV 3 s.h.
22S:144 Mathematical Statistics XXV 3 s.h.
22S:145 Mathematical Statistics XXVI 3 s.h.
22S:146 Mathematical Statistics XXVII 3 s.h.
22S:147 Mathematical Statistics XXVIII 3 s.h.
22S:148 Mathematical Statistics XXIX 3 s.h.
22S:149 Mathematical Statistics XXX 3 s.h.
22S:150 Mathematical Statistics XXXI 3 s.h.
22S:151 Mathematical Statistics XXXII 3 s.h.
22S:152 Mathematical Statistics XXXIII 3 s.h.
22S:153 Mathematical Statistics XXXIV 3 s.h.
22S:154 Mathematical Statistics XXXV 3 s.h.
22S:155 Mathematical Statistics XXXVI 3 s.h.
22S:156 Mathematical Statistics XXXVII 3 s.h.
22S:157 Mathematical Statistics XXXVIII 3 s.h.
22S:158 Mathematical Statistics XXXIX 3 s.h.
22S:159 Mathematical Statistics XL 3 s.h.
22S:160 Mathematical Statistics XLI 3 s.h.
22S:161 Mathematical Statistics XLII 3 s.h.
22S:162 Mathematical Statistics XLIII 3 s.h.
22S:163 Mathematical Statistics XLIV 3 s.h.
22S:164 Mathematical Statistics XLV 3 s.h.
22S:165 Mathematical Statistics XLVI 3 s.h.
22S:166 Mathematical Statistics XLVII 3 s.h.
22S:167 Mathematical Statistics XLVIII 3 s.h.
22S:168 Mathematical Statistics XLIX 3 s.h.
22S:170 Mathematics of Finance 3 s.h.
22S:171 Life Contingencies I 3 s.h.
22S:172 Life Contingencies II 3 s.h.
22S:173 Probability 3 s.h.
22S:199 Seminar: Actuarial Science 1 s.h.

Honors

Qualified undergraduate students may earn their degrees with honors.

To graduate with honors in actuarial science, a student must have a grade-point average of at least 3.33 in all departmental courses numbered 130 and higher, pass certain professional exams, and complete two additional courses or an honors project.

To graduate with honors in statistics, a student must have a grade-point average of at least 3.33 in all departmental courses numbered 130 and higher, complete one 200-level course with a grade of at least B-, and complete an honors project.

More specific information about these requirements is available from the department.

Minor

Students can earn a minor in statistics by taking 15 semester hours in statistics courses, 12 of which must be in courses taken at The University of Iowa numbered 22S:120 and above. The grade-point average in departmental courses must be at least 2.00.

The minor in actuarial science is being phased out. Students who wish to earn a minor in actuarial science must complete requirements (see the 1992-94 General Catalog) and graduate by 1998.

Graduate Programs

Master of Science

Each M.S. candidate has a committee of three or four members, which is responsible for recommending action on the candidate’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 recommendation usually is based on an oral defense of the thesis, although it may be based on a single written examination over the topics covered in the candidate’s program of study.

The department requires a grade-point average of at least 2.75 for courses that appear on the plan of study. This includes all courses used to meet degree requirements plus additional courses that are relevant to the student’s program. Students who choose to earn the M.S. with thesis may earn up to 6 semester hours of credit for thesis preparation. Specific course requirements for the M.S. programs are as follows. Students must complete at least 35 semester hours of course work to earn an M.S. in Actuarial Science. The required courses are as follows.

Actuarial Science

M.S. WITHOUT THESIS

22S:175 Risk Theory 3 s.h.
22S:176 Credibility and Loss Distributions 3 s.h.
22S:177 Numerical Analysis for Actuaries 3 s.h.
22S:180 Mathematics of Finance 3 s.h.
22S:181 Life Contingencies I 3 s.h.
22S:182 Life Contingencies II 3 s.h.
22S:192 Probability 3 s.h.
22S:199 Seminar: Actuarial Science 1 s.h.

One of the following:

22S:154 Mathematical Statistics II 3 s.h.
22S:193 Statistical Inference I 3 s.h.

At least one of the following:

22S:149 Statistical Analysis and Computing 3 s.h.
22S:150 Methods of Statistical Inference 3 s.h.
22S:152 Regression and Design 3 s.h.
or
22S:155 Regression Analysis 3 s.h.
(Students may not receive credit for both 22S:152 and 22S:155.)

22S:156 Applied Time Series Analysis 3 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:194 Statistical inference I 3 s.h.
22S:196 Any 200-level course in the department

At least two of the following:

22S:110 Introduction to Financial Security Systems 3 s.h.
22S:179 Rate Making and Loss Reserving 3 s.h.
22S:183 Life Contingencies III 3 s.h.
22S:189 Topics in Actuarial Science 3 s.h.

A relevant non-actuarial science graduate course approved by the student’s adviser

Statistics

All statistics graduate students are expected to complete the following courses their first year.

Fall

22S:149 Statistical Analysis and Computing 3 s.h.
22S:190 Mathematical Methods for statistics 3 s.h.
22S:192 Probability 3 s.h.

Spring

22S:155 Regression Analysis 3 s.h.
22S:162 Analysis and Design of Experiments I 3 s.h.
22S:193 Statistical Inference I 3 s.h.

M.S. WITHOUT THESIS

22S:149 Statistical Analysis and Computing 3 s.h.
22S:155 Regression Analysis 3 s.h.
22S:162 Analysis and Design of Experiments I 3 s.h.
22S:190 Mathematical Methods for statistics 3 s.h.
22S:192 Probability 3 s.h.

At least four of the following (must include 22S:167 or 22S:173):

22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Application of Multivariate Statistical Techniques 3 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
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22S:194 Statistical inference I 3 s.h.
M.S. WITH THESIS
22S:149 Statistical Analysis and Computing 3 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Application of Multivariate Statistical Techniques 3 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:168 Analysis and Design of Experiments I 3 s.h.
22S:173 Data Analysis 3 s.h.

At least two of the following:

22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Application of Multivariate Statistical Techniques 3 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:168 Analysis and Design of Experiments I 3 s.h.
22S:173 Data Analysis 3 s.h.

A graduate course in a discipline where quantitative methods are regularly used (course must be approved by student’s adviser)

At least 6 semester hours of 22S:191 Individual Study

Experience in a computer language such as FORTRAN is required.

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, and students earn academic credit for this study by registering for 22S:191 Individual Study.

Quality Management and Productivity
This innovative M.S. program is sponsored by the Departments of Statistics and Actuarial Science in the College of Liberal Arts, Industrial Engineering in the College of Engineering, and Management Sciences in the College of Business Administration. The M.S. program requires 36 semester hours, including a course covering Statistical Quality Control (SQC) and Total Quality Management (TQM), plus the following nine courses.

22S:130-131 Introduction to Mathematical Statistics I-II 6 s.h.
22S:153-154 Mathematical Statistics 6 s.h.
22S:149 Statistical Analysis and Computing 3 s.h.
22S:155 Regression Analysis 3 s.h.
22S:162 Analysis and Design of Experiments I 3 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
6K:278 Forecasting 3 s.h.
6K:284 Manufacturing Automation 3 s.h.

6K:277 Management Science Topics 3 s.h.
or 56:171 Operations Research 3 s.h.
56:153 Engineering Administration I 3 s.h.
or 56:253 Engineering Administration 11 3 s.h.

Students must take at least 2 semester hours of seminar and/or practicum and are required to have a grade-point average of at least 3.00 for courses that appear on the plan of study. Outstanding students may write M.S. theses.

Doctor of Philosophy
To satisfy the course requirements for a Ph.D. in statistics, students must successfully complete the following.

22S:149 Statistical Analysis and Computing 3 s.h.
22S:155 Regression Analysis 3 s.h.
22S:162 Analysis and Design of Experiments I 3 s.h.
22S:173 Data Analysis 3 s.h.
22S:190 Mathematical Methods for Statistics 3 s.h.
22S:192 Probability 3 s.h.
22S:193 Statistical Inference 3 s.h.
22S:194 Statistical Inference II 3 s.h.
22S:203-204 Advanced Inference 3 s.h.
22S:254 Advanced Inference 11 3 s.h.
22S:256 Multivariate Analysis 4 s.h.
22S:264 Theory of Probability I 3 s.h.

At least 2 semester hours of any combination of the following:

22S:293 Seminar: Probability arr.

At least two of the following:

22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Application of Multivariate Statistical Techniques 4 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:168 Analysis and Design of Experiments 11 3 s.h.

At least two of the following:

22S:220 Analysis of Categorical Data 3 s.h.
22S:225 Survival Data Analysis 3 s.h.
22S:230 Introduction to the Theory of Nonparametric Statistics 3 s.h.
22S:256 Multivariate Analysis 4 s.h.
22S:265 Theory of Probability II 3 s.h.

At least 18 hours of 22 S:299 Reading Research

For each semester graduate students are registered for 6 or more semester hours, their registration must include at least one course of at least 2 semester hours offered by the Department of Statistics and Actuarial Science other than 22 S:191 Individual Study, 22 S:197 Readings in Statistics and/or Actuarial Science, or 22 S:299 Reading Research. This is in addition to the requirements stated above.

During the graduate program, students may take course work or seminars in other departments to achieve certain auxiliary goals of the doctoral degree in statistics. Those goals are 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 be able to respond in personal contacts with foreign statisticians.

Students who wish to be considered for financial assistance for their third year should request a qualifying analysis no later than the spring semester of their second year.

Students take a comprehensive examination after completing most of the course work on their approved plan of study, typically during the third year.

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:192-193-194, 22S:203-204, and 22S:255. Study guides for the core examination are available from the department.

A program that does not conform to the prescribed requirements but is of high quality may be approved by the department chair.

Special Features
Because statisticians often are teamed with other scientists in research projects, it is important that students gain experience in group efforts. The department tries to provide this experience in several courses. In addition, the department houses the Statistical Consulting Center, which offers assistance to members of the University community in planning experiments and carrying out the analysis of experimental data. Under faculty supervision, graduate students may participate in these activities as part of their training.

Although the majority of Statistical Consulting Center projects involve statistical problems arising in thesis research conducted by students in other departments, the center also seeks involvement in larger research projects and proposal writing.

Courses

Primarily for Undergraduates

Students may not receive credit for a Department of Statistics and Actuarial Science course numbered below 110 after receiving credit for one numbered above 110. Students may receive credit for only two of these courses: 22S:2, 22S:8, or 22S:25 (same as 7P:25). Credit for 22S:2 will not be given if taken after 22S:8 or 22S:25 (same as 7P:25).

22S:2 Statistim and society 3 s.h.
Statistical ideas, their relevance in public policy, business, and social, health, physical sciences; focus on critical approach to statistical evidence. GER: quantitative or formal reasoning. Prerequisite: 22M:1 or equivalent or consent of instructor.

22S:8 Quantitative Methods 4 s.h.
Descriptive statistics, elementary probability, estimation and testing, regression, correlation, statistical computer packages. GER: quantitative or formal reasoning. Prerequisite: 22M:2 or equivalent.
22S:120 Probability and Statistics 4 S.h.

Graduate techniques for testing data, descriptive statistics, correlation, regression, prediction; logic of statistical inference, elementary probability models, estimation and tests of significance. GER: quantitative or formal reasoning. Prerequisite: 22M:1 or equivalent. Same as 7P:25.

22S:154 Mathematical Statistics II 3 s.h.

Transformations of variables, point estimation, sufficient statistics, Rao-Blackwell Theorem, delta method, confidence intervals, likelihood ratio tests, applications. Prerequisite: 22S:153.

22S:155 Regression Analysis 3 s.h.

Multiple linear regression model, matrix approach, residual analysis, variable selection, dummy variables, regression diagnostics, use of computer packages. Offered spring semesters. Prerequisite: 22S:149 or consent of instructor.

22S:156 Applied Time Series Analysis 3 s.h.

General stationary, nonstationary models, autorecursion autocorrelation function, 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:155.

22S:157 Correlation and Regression 4 s.h.

Prerequisite: 22S:149 or equivalent. Same as TP:244.

22S:158 Experimental Design and Analysis 3 s.h.

Single and multifactor experiments; analysis of variance; multiple comparisons; contrasts, diagnosis; fixed, random, and mixed effects models; designs with blocking and/or nesting; two level fractional and fractions thereof; use of statistical computer packages. Prerequisites: 22S:152, and 22S:120 or 22S:131 or 22S:154.

22S:159 Design of Experiments 4 S.h.

Prerequisite: 22S: 148. Same as TP:246.

22S:161 Application of Multivariate Statistical Techniques 4 s.h.

MANOVA, discriminant analysis, factor analysis, principal components, canonical analysis, nonmetric scaling cluster analysis, categorical data analysis, use of multivariate statistical computer packages. Prerequisites: 22S:155 and 22S:162, or consent of instructor. Same as TP:245.

22S:162 Analysis and Design of Experiments I 3 s.h.

Randomization, nesting, blocking; useful experimental designs, including factorial, split-plots, crossovers, Latin squares; modeling, diagnostics, distribution theory, expected mean squares; power and sample size. Prerequisite: 22S:149. Corequisite: 22S:155.

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:148 or 22S:120 or consent of instructor. Same as TP:247.

22S:164 Introduction to Discrete Probability Models 3 s.h.

Basic probability theory; random variables; conditional probability, conditional expectation; elementary stochastic processes, applications. Prerequisites: 22S:153 or 22S:120 or equivalent.

22S:165 Introduction to Stochastic Processes 3 s.h.

Theory; application; Poison processes, Markov chains, renewal theory; continuous-time Markov chains. Offered spring semesters. Prerequisites: 22S:153 or 22S:192.

22S:168 Analysis and Design of Experiments II 3 s.h.

Factorial, fractional factorial designs; alias structure; resolution; saturated designs; response surface methods; canonical analysis; ridge analysis; simplex, composite, rotatable, orthogonal designs; empirical, mechanistic model building; nonlinear models. Prerequisites: 22S:159 and 22S:162, or consent of instructor.

2X:172 Topics in Statistics 3 s.h.

Prerequisite: 22S: 154 or consent of instructor.

22S:173 Data Analysis 3 s.h.

Realistic supervised analysis of data experiences, including statistical packages, statistical graphics, writing statistical reports, dealing with complex or messy data. Offered spring semesters. Prerequisites: 22S:155 and 22S:162, or consent of instructor.

22S:175 Risk Theory 3 s.h.

Utility, analysis of individual and collective models, ruin theory for compound processes, applications to reinsurance. Offered fall semesters. Prerequisite: 22S:153 or 22S:192.

22S:176 Credibility and Loss Distributions 3 s.h.

Application of statistical theory to development and estimation of loss distributions; truncated, censored, grouped data; Bayesian, linear credibility estimation in group rating. Offered spring semesters. Prerequisites: 22S:154 or 22S:193.

22S:177 Numerical Analysis for Actuaries 3 s.h.


22S:179 Runmaking and Loss Reserving 3 S.h.

Property and casualty ratemaking techniques, methods for trending, projecting losses and premiums, loss reserving for reported and unreported claims. Prerequisites: 22S:154 and 22S:193.

22S:180 Mathematics of Finance 3 S.h.

Advanced mathematics of finance, including annuities certain, amortization schedules, yield rates, sinking funds, bonds. Offered spring semesters. Prerequisites: 22S:153 or 22S:192, and a grade of C or higher in 22S:180.

22S:182 Life Contingencies I 3 s.h.

Continuation of 22S:181; net premiums and reserves, multiple decrement and multi-life models. Offered fall semesters. Prerequisite: grade of C or higher in 22S:181.

22S:183 Life Contingencies II 3 s.h.

Continuation of 22S:182; pensions, gross premiums, modified reserves, cash values, asset shares, applications. Prerequisite: grade of C or higher in 22S:182.

22S:188 Actuarial Exam Preparation 1s.h.

May be repeated.

22S:190 Topics in Actuarial Science 3 s.h.

Representative topics include survival analysis, demography, graduation, pension funding, valuation, asset/liability management. May be repeated. Consent of instructor required.

22S:191 Individual Study 3 s.h.

Consent of adviser required.

22S:192 Probability 3 s.h.

Combination analysis, probability spaces, conditional probability, independence, random variables (includes standard distributions), joint distributions, expectation, limit theorems. Prerequisites: 22M:27 and 22M:28.

22S:193 Statistical Inference I 3 s.h.

Prerequisite: 22S:192.

22S:194 Statistical Inference II 3 s.h.

Hypothesis tests, interval estimation, decision theory. Prerequisite: 22S:193.

22S:197 Readings in Statistics and/or Actuarial Science 3 s.h.

Consent of instructor required.

22S:198 Seminar: Actuarial Science 1 s.h.

Prerequisites: two from 22S:175, 22S:176, 22S:182; or consent of instructor.

Primarily for Graduates

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, Lebesque integrals, product measure and independence, Boole Cantelli lemma, modes of convergence. Prerequisites: 22S:190 and 22S:192.

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.

Log-linear models as a basis for study of categorical data; models for discrete data, distribution theory, maximum likelihood and weighted least squares estimation for cross-classified Categorical data, Tests of fit, model selection. Prerequisites: 22S:155 and 22S:194, or consent of instructor. Same as 63:262.

22S:255 Survival Data Analysis 3 s.h.

Santé as 63:261.

22S:256 Introduction to the Theory of Nonparametric Statistics 3 S.h.

Techniques for making tests of hypotheses distribution-free, U statistics, asymptotic efficiency, exact methods, point and interval estimation. Prerequisites: 22S:190 and 22S:194.
22S:253 Advanced Inference I 3 s.h.
Decision theoretic principles, group and exponential families, unbiased estimation, Fisher information and the information inequality, invariance and equivariance principles; MLE, Bayes, minimax estimation. Prerequisites: 22S:194 and 22S:204.

22S:254 Advanced Inference II 3 s.h.
Continuation of 22S:253; hypothesis testing, large sample theory, asymptotic optimality, asymptotic efficiency, statistical functions; U, M, L, and R statistics. 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:155, 22S:162, and 22S:194.

22S:256 Multivariate Analysis 4 s.h.
Multivariate distributions, tests and estimates, multivariate general linear model, MANOVA, discriminant analysis, canonical correlation, factor analysis, principal components. Prerequisite: 22S:255.

22S:264 Theory of Probability I 3 s.h.
Martingale theory, weak convergence of probability measures, applications to stochastic processes and statistics. Prerequisite: 22S:204. Same as 22M:302.

22S:265 Theory of Probability II 3 s.h.
Stochastic process theory at a measure theoretic level; empirical processes, quantile processes, partial sum processes, with applications to statistics; may include ergodic theory, diffusion processes, stochastic integrals. Prerequisite: 22S:264.

22S:272 Topics in Theory of Probability and statistics 3 s.h.
May be repeated. Consent of instructor required.

22S:291 Seminar: Mathematical Statistics 1 s.h.
Consent of instructor required.

22S:293 Seminar: Probability 1 s.h.
Consent of instructor required.

22S:295 Seminar: Applied Statistics 1 s.h.
Consent of instructor required.

22S:299 Reading Research 1 s.h.
Consent of adviser required.

THEATRE ARTS

Chair: Alan Mokler MacVey
Professors: Shelley Beric, Cosmo A. Catalano, Eric Forsythe, David Thayer
Professors emeriti: Hsi Cheng, Lewin Goff, David Schal
Associate professors: Alan MacVey, Lavonne Mueller
Assistant professors: Art Borreca, Joe Gilday, Trish Hawkins, Dale Jordan, Kim Marra, Ellen McCartney, Anita Stewart
Adjunct assistant professors: Carol MacVey, Rachelle Tsachor
Head of acting, directing: Eric Forsythe
Head of design: David Thayer
Head of playwriting: Lavonne Mueller
Undergraduate degree: B.A. in Theatre Arts; minor in Theatre Arts
Graduate degree: M.F.A. in Theatre Arts

Undergraduate Program

Bachelor of Arts

The undergraduate major in theatre arts rests 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 education. Workshop courses in acting, directing, design, technical theater, and playwriting are complemented by classes in dramatic literature, history, and criticism, and students are actively encouraged to explore a range of courses throughout the university. Dozens of productions each year provide additional opportunities to learn the theater craft and to develop a personal artistic vision.

The department is also interested in educating students who will enter other fields where an understanding of the arts and experience with theater skills will be useful.

Degree Requirements

The following courses compose the basic experience for all undergraduate theatre arts majors. Students who want to be considered for a special emphasis program must consult with the head of the appropriate program.

MINIMUM REQUIREMENTS

Students must maintain a 2.00 grade-point average for all courses taken in the major. The following course work is required (total of 29 semester hours).

49:25 Acting I 3 s.h.
49:43 Elements of Design 3 s.h.
49:44 Theatre Crafts 3 s.h.
49:45 Production I 1 s.h.
49:46 Production II 1 s.h.
49:47 Production III 1 s.h.
49:48 Production IV 2 s.h.
49:60 Play Script Analysis 3 s.h.
49:112 History of Theatre and Drama I 3 s.h.
49:113 History of Theatre and Drama II 3 s.h.
49:114 Contemporary Theatre and Drama 3 s.h.
49:130 Directing I 3 s.h.
or
49:194 Dramaturgy 3 s.h.
or
An upper-level playwriting course

Courses 49:25 and 49:43 are normally completed within the first year of study in the major; 49:44 Theatre Crafts is co- or prerequisite to 49:45 Production I and is prerequisite to 49:46-48 Production II, 111, and IV.

Students normally enroll in no more than one production course in any one semester.

THEATRE ARTS LABORATORY

All theatre arts students, faculty, and staff meet regularly for guest presentations, discussion, and theatre arts class presentations. The department encourages attendance by theatre majors.

AUDITIONS

All productions are open to anyone who wishes to audition. Each play is cast on the basis of who tries out and who is best suited to the available roles; no preference is given to graduate or upper-class students.

Theatre arts majors are encouraged to audition in general auditions at the beginning of the fall semester. They normally present a four-minute audition consisting of two contrasting pieces. From this audition, call-back lists are posted for major productions offered during the first semester.

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.

SPECIAL EMPHASIS PROGRAMS

Students who have special aptitude and readiness may wish to pursue one of the following emphasis programs. Achievement of a passing grade in the prior course is not a guarantee of admission to more advanced courses. To culminate the emphasis, the student presents a final project to the faculty.

Acting Emphasis

49:120 Acting II 3 s.h.
49:125 Voice for the Actor 3 s.h.
49:127 Movement for the Actor 3 s.h.

Two of these (total 6 s.h.):

49:121 Advanced Scene Study 3 s.h.
49:122 Acting with Verse 3 s.h.
49:123 Alternative Approaches to Acting 3 s.h.

Two of these (total 4-6 s.h.):

49:28 Basic Stage Combat 2 s.h.
49:126 Voice for the Actor II 3 s.h.
49:128 Movement for the Actor II 3 s.h.
49:156 Stage Makeup 2 s.h.

Directing Emphasis

49:120 Acting II 3 s.h.
49:125 Voice for the Actor 3 s.h.
49:127 Movement for the Actor 3 s.h.
49:130 Directing I 3 s.h.
49:131 Directing II 3 s.h.
49:133 Stage Management 3 s.h.

Two of these (total 6 s.h.):

49:28 Basic Stage Combat 2 s.h.
or
49:172 Playwrights, Directors, and Designers 3 s.h.
or
49:194 Dramaturgy 3 s.h.

Design Emphasis

49:41 Costume Practicum 3 s.h.
49:147 Technical Production I 3 s.h.

Two of these (total 6 s.h.):

49:134 Scene Design I 3 s.h.
49:135 Costume Design I 3 s.h.
49:136 Lighting Design I 3 s.h.

Two of these:

49:137 Scene Design II 3 s.h.
49:138 Costume Design II 3 s.h.
49:139 Lighting Design II 3 s.h.

One of these:

49:144 Drafting for Designers I 3 s.h.
49:145 Drafting for Designers II 3 s.h.

Final project: an independent advanced design project in area of specialization

Undergraduates in the design emphasis may meet with the graduate designers in 49:255 Studio in Theatrical Design.

Playwriting Emphasis

49:62 Basic PlayWriting 3 s.h.
49:165 Advanced PlayWriting 3 s.h.
49:120 Acting II 3 s.h.
49:130 Directing I 3 s.h.
Three of these (total 9 s.h.):

- 49:131 Directing II 3 s.h.
- 49:163 Adaptation 3 s.h.
- 49:164 Playwriting for Other Media 3 s.h.
- 49:166 Playwriting: The Docudrama 3 s.h.
- 49:167 Experimental Play-Writing 3 s.h.
- 49:168 The One-Person Play 3 s.h.
- 49:169 Children’s Plays 3 s.h.
- 49:170 Political Plays 3 s.h.
- 49:194 Dramaturgy 3 s.h.

History/Literature/Dramaturgy Emphasis

- 49:180 Greek Drama in Translation 3 s.h.
- 49:194 Dramaturgy 3 s.h.
- 49:199 Independent Study (practical dramaturgy project) 2 s.h.

One of these:

- 49:182 Shakespeare 2-3 s.h.
- 49:183 Shakespeare: Selected Plays 3 s.h.
- 49:184 English Renaissance Drama 3 s.h.
- 49:185 Restoration Drama 3 s.h.

One of these:

- 49:117 American Drama Since 1945 3 s.h.
- 49:118 American Women Playwrights: 19th and 20th Century 3 s.h.
- 49:188 Contemporary British Drama 3 s.h.

One of these:

- 35:133 Spanish-American Drama 3 s.h.
- 49:190 Black Action Theatre 3 s.h.
- 49:192 Afro-American Drama 3 s.h.
- 129:103 African Drama 3 s.h.

Graduate Program

Master of Fine Arts

The M.F.A. programs are dedicated to the creative development of theater 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 theater in society. Interactions among the various theater 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 theater. Students who demonstrate exceptional ability in acting, directing, playwriting, design, or production 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 artistic work; the undergraduate record, other records or proof of artistic accomplishment; and letters of recommendation.

Submission of playscripts is the most important element in selection of students to enter the Playwrights Workshop.

Degree Requirements

Students normally must complete six semesters in residence (internships may be substituted), the requisite number of graduate credits in the individual programs, a 3.00 grade-point average, and a record of substantial creative work of high quality. They also must make normal progress toward completion of the degree requirements to remain in the program. Normal progress is defined as maintenance of a 3.00 grade-point average in all course work attempted and 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 theater complexes in the country. The Theatre Building offers four theaters and up-to-date facilities for classroom, laboratory, shop, and performance work.

The E.C. Mabee Theatre, a continental-style, 477-seat proscenium playhouse, is one of the finest theatres of its type in the United States. Theatre A 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 theater dedicated primarily to the production of new and experimental works from the Iowa Playwrights Workshop. The flexible studio theater seats 50. All four theaters are equipped with state-of-the-art electronic lighting control and sound reproduction systems.

In addition to special classrooms for acting and directing, several spaces are designed for teaching particular aspects of dramatic studies. The movement room is for study of movement and motion by acting students. The intelligent classroom is equipped with videotape, laser disc, closed circuit and cable television, audio systems, and computer information retrieval systems.

The Arnie Gillette Design Studio, named for a former professor of design and head of Iowa’s theater program, serves as classroom and studio workshop for technical and design students. The Computer-Aided Design Lab provides professional-quality, computer-aided design (CAD) programs for use by designers and technical directors.

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 Theatre Arts Department presents 30-40 public productions each year. These include a subscription series of five or six plays, a festival of six new works by students, Iowa Summer Rep, and roughly two dozen other productions, most 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, 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

- 49:000 Cooperative Education Internship 0 s.h.
- 49:1 Art of the Theatre 3 s.h.

Purpose, principles, disciplines, practitioner and their methods, conditions of performance. GER: humanities.
49:2 Theatre and Society 3 s.h.
Historical investigation of relationship between theater and society in Europe and America, early nineteenth century to present; modern theatrical movements (e.g., naturalism, surrealism, Epic Theatre). Their ideas, their work as response conditions of society and of theater itself. GER: historical perspectives.

49:20 Basic Acting 3 s.h.
Concentration, relaxation, imagination, observation, sensory awareness; development of theatrical creativity through objectives, obstacles, action, conflict, spontaneity; development of a scene from scripts. Open only to non-theatre arts majors. GER: humanities.

49:21 Basic Acting II 3 s.h.
Continuation of 49:20; emphasis on development of scenes. GER: humanities.

49:22 Acting for Opera 3 s.h.
Techniques for opera students.

49:23 Improvisation for the Theatre 3 s.h.
Techniques; focus on spontaneity, increased physical, mental, emotional awareness; "improv" genre.

49:27 Basic Movement and Body Awareness 3 s.h.
Body structures and systems, personal body design; how body carries weight, moves with gravity, shifts weight, stands upright, etc. Same as 28:27, 137:27.

49:28 Basic Stage Combat 2 s.h.
Principles, safety, techniques of nonviolent stage combat for actor, director, choreographer. Prerequisite: 49:25 or consent of instructor.

49:41 Costume Practicum 3 s.h.
Construction, dying, texturing of costumes.

49:43 Elements of Design 3 s.h.
Design, color, media, creative process.

49:44 Theatre Crafts 3 s.h.
Backstage operations; wardrobe, scenery, properties, lighting, sound.

49:45 Production I 1 s.h.
Running crews for major season productions. Pre or corequisite: 49:44.

49:46 Production II 1 s.h.
Construction, setup crew for major season production. Prerequisite: 49:44.

49:47 Production III 1 s.h.
Running or construction crew for major season production. Prerequisite: 49:44.

49:48 Production IV 2 s.h.
Advanced production responsibility for major production; experience on build crew in assigned area required.

49:60 Play Script Analysis 3 s.h.
Historical and contemporary, variety of genres; dynamics of play structure; challenges of playscripts for directors, actors, designers, technicians.

49:62 Basic Playwriting 3 s.h.
Emphasis on one act play; original student writing. GER: humanities.

49:63 Basic Playwriting II 3 s.h.
Continuation of 49:62, which is prerequisite; emphasis on demands of writing one act play.

49:72 Shakespeare 3 s.h.
Same as 8:72.

49:93 Voice Improvement 3 s.h.
Voice and speech for speaking in public, lecturing, broadcasting, non theater major acting.

49:94 Oral Interpretation of Literature 3 s.h.
Principles, practice of reading literary prose and poetry to audiences; analysis, interpretation, performance, evaluation. GER: humanities.

For Undergraduates and Graduates

Acting and Directing

49:25 Acting I 3 s.h.
Creativity and imagination; exercises to engage mind, body, voice in theatrical play; focus on improvisation, openness; development of scenes from scripts. Major in theater arts or consent of instructor required.

49:102 Workshop in the Teaching of Acting 3 s.h.
Techniques; improvisation, theater games, creativity exercises, group dynamics. Offered summer sessions.

49:120 Acting II 3 s.h.
Scene study; focus on realistic material, development of collaborative dynamic in two-character and group situations. Prerequisite: 49:25 or consent of instructor.

49:121 Advanced Scene Study 3 s.h.
Development of characterizations, personal research, advanced approaches to realistic material, difficult scenes. Prerequisites: 49:120 and 49:125.

49:122 Acting with Verse 3 s.h.
Approaches to poetic material; emphasis on Shakespearean contemporary scenes written in poetic or abstract styles. Prerequisites: 49:120 and 49:125 or consent of instructor.

49:123 Alternative Approaches to Acting 3 s.h.
Methods of acting expression that differ from standard principles, story theater, working within and against type, use of psychophysical techniques. Prerequisites: 49:120 and 49:127, or consent of instructor.

49:125 Voice for the Actor 3 s.h.
Basic stage voice; speech; techniques to develop relaxation, centered breath, efficient warm-up, resonance, articulation, muscular flexibility; mature, versatile, nonregional voice and speech. Prerequisite: 49:25.

49:126 Voice for the Actor II 3 s.h.
Continuation of 49:125, which is prerequisite.

49:127 Movement for the Actor 3 s.h.
Awareness through application of techniques to relax stress, tension while freeing energy for ease, flexibility in expressiveness; relation to self as character through movement. May be repeated. Prerequisite: 49:25.

49:128 Movement for the Actor II 3 s.h.
Continuation of 49:127, which is prerequisite.

49:129 Advanced Stage Combat 3 s.h.
Principles, safety, techniques of nonviolent stage combat for actor, director, choreographer. Consent of instructor required.

49:130 Directing I 3 s.h.
Basic elements: exercises in composition, emphasis, movement, rhythm, directional analysis; director's role in production process; short scenes. Consent of instructor required. Prerequisites: 49:25, 49:43, 49:60, and 49:120.

49:131 Directing II 3 s.h.
Continuation of 49:130; advanced exercises in theatrical direction; focus on theatrical, storytelling style; development of concept; building, direction of theater projects. Prerequisite: 49:130 or consent of instructor.

49:133 Stage Management 3 s.h.
Duties and procedures for stage managers; work on a production as stage manager or assistant. Offered fall semesters. Prerequisites: 49:44 and one semester of production, or consent of instructor.

49:220 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 modern style, on camera, development of professional work habits and skills, audition and interview. Consent of instructor required.

49:225 Vocal Technique 3 s.h.
Skills training; may include voice and speech for the actor, phonetics, text analysis, sound exploration, contemporary and classical text interpretation, dialects. Consent of instructor required.

49:227 Movement Technique 3 s.h.
Awareness through application of techniques may include improvisational choreography, pantomime, rhythm/tap, period court dances, Alexander technique. Consent of instructor required.

49:230 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; collaboration with designers, playwrights, actors. Consent of instructor required.

49:233 Stage Management Seminar 1 s.h.
Practice, techniques. May be repeated. Prerequisite: 49:133 or consent of instructor.

Design

49:134 Scene Design I 3 s.h.
The design process, including research, rendering, model building. Prerequisite: 49:43. Same as 19:134.

49:135 Costume Design I 3 s.h.
Historical orientation; the design process, including research, rendering, swatching. Prerequisite: 49:43.

49:136 Lighting Design I 3 s.h.
Visual perception, optical control of light, introduction to design, procedure and responsibilities. Prerequisite: 49:43.

49:137 Scene Design II 3 s.h.
Designer's research; development of production concepts for projects in sets, property design. Prerequisites: 49:60, 49:134, and 49:144.

49:138 Costume Design II 3 s.h.
Continuation of 49:136; emphasis on designer's research, production concepts. Prerequisites: 49:60 and 49:135.

49:139 Lighting Design II 3 s.h.
Designer's research; development of production concepts for projects in lighting design. Prerequisites: 49:60 and 49:136 and 49:144.

49:140 Sound Design for the Theatre 3 s.h.
Creation, development of sound scores for performance of dramatic works; sound studio equipment, technique.

49:144 Drafting for Designers I 3 s.h.
Tools, conventions of theatrical drafting for design and technical drawing; two-dimensional CAD.

49:145 Drafting for Designers II 3 s.h.
Three-dimensional CAD. Prerequisite: 49:144.

49:146 Drawing and Rendering for the Theatre 3 s.h.
Presentation techniques for scene, costume, lighting design. May be repeated. Pre or corequisite: 49:43 or admission to M.F.A. design program.

49:147 Technical Production I 3 s.h.
Scene construction techniques, theatrical rigging.

49:148 Technical Production II 3 s.h.
Continuation of 49:147, which is prerequisite. Offered spring semesters of odd years.

49:149 Technical Problems for Designers 3 s.h.
Developing technical solutions for design problems.

49:151 Scenic Art for Designers 3 s.h.
Scene painting, model building, construction, finishing.

49:152 Costume Crafts I 3 s.h.
Pattern development from theatrical designs; fitting problems; corsets and other body shaping garments; millinery, armor, footwear, and so on.

49:153 Costume Crafts II 3 s.h.
Continuation of 49:152. Prerequisite: 49:152 or consent of instructor.

49:156 Stage Makeup 2 s.h.
Application and design.

49:157 Life Drawing II 3 s.h.
Same as 19:157.

49:158 Environmental Design I 3 s.h.
Same as ID: 137.

49:237 Scene Design III 3 s.h.
Advanced projects. Prerequisites: 49:194 or 49:215, admission to M.F.A. design program, and consent of instructor.

49:238 Costume Design III 3 s.h.
Advanced projects in drama, opera, dance. Admission to M.F.A. design program, consent of instructor required. Prerequisite: 49:194 or 49:215.

49:239 Lighting Design III 3 s.h.
Advanced projects. Admission to M.F.A. design program, consent of instructor required. Prerequisite: 49:194 or 49:215.

49:240 Scene Design IV 3 s.h.
Advanced projects. Consent of instructor required.

49:241 Costume Design IV 3 s.h.
Advanced projects. Consent of instructor required.

49:242 Lighting Design IV 3 s.h.
Advanced projects. Consent of instructor required.

49:243 Scene Design V 3 s.h.
Portfolio development; collaborative. Consent of instructor required.
Courses in Drama and Theatre Arts

49:181 American Women Playwrights: 19th and 20th Century
3 s.h.
American women's gender studies approach to 200-year tradition of playwrights and plays representing diverse configurations of race, ethnicity, class, and sexuality. GER: humanities.

49:180 Greek Drama in Translation
3 s.h.
GER: humanities. Same as 14:108.

49:181 Medieval Drama
3 s.h.
Same as 8:144.

49:182 Shakespeare
2-3 s.h.
Same as 8:122.

49:183 Shakespeare: Selected Plays
3 s.h.
Same as 8:135.

49:184 English Renaissance Drama
3 s.h.
Same as 8:145.

49:185 Restoration Drama
3 s.h.
Same as 8:146.

49:186 Modern Drama: Ibsen to Shaw
3 s.h.
Same as 8:148.

49:187 Modern Drama: Brecht to Stoppard
3 s.h.
Same as 8:149.

49:188 Contemporary British Drama
3 s.h.
Same as 8:155.

49:189 Indian Theater
3 s.h.
Two millennia of South Asian performance traditions, from classical Sanskrit dramas to contemporary folk pageants; emphasis on ritual, aesthetic, social contexts. Same as 39:194.

49:190 Black Action Theatre
3 s.h.
Offered fall semesters. Same as 129:175.

49:191 Black Action Theatre
3 s.h.
Offered spring semesters. Same as 129:176.

49:192 Afro-American Drama
3 s.h.
Same as 8:150, 8:154.

49:193 Studies in Drama
3 s.h.
Same as 8:156.

49:194 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, script cutting and adaptation, season planning; evaluation, advocacy development of new plays; audience relations and education. Consent of instructor required. Prerequisite: 49:60.

49:213 Shakespeare: Later Plays
3 s.h.
Same as 8:253.

49:215 Advanced Playwright Analysis
3 s.h.
Common analytical approach to structural analysis; play as blueprint for performance; theoretical; production approaches to text; focus on modern plays.

49:216 Graduate Survey of Western Drama to 1850
3 s.h.
Representative plays; historical circumstances of original productions; textual analysis; implications for contemporary theatrics writing, design, acting, directing.

49:217 Performance Theory
1-4 s.h.
Influential documents of dramatic, theatrical theory; classical Greece, Rome; early Christian and Renaissance Europe; romantic, modern, postmodern, feminist.

49:218 Studies in Contemporary Performance
3 s.h.
Live performance across artistic disciplines, from experimental plays to conceptual art and gallery installations; comparison with video art, film, broadcast media.

49:261 History of Criticism Plato to 1700
3 s.h.
Same as 8:261, 48:261, 14:261.

49:242 History of Criticism 1700-Present
3 s.h.
Same as 8:262, 48:262.

49:100 Workshop in Theatre Arts
3 s.h.
Improvisation, theater games, scene study, acting style; production or scene presentations; two-week workshop. Offered summer sessions. Open only to high school students.

49:101 Workshop in Scenery and Prop Construction
2 s.h.
Construction of stage scenery and props: flats, platforms, steps, use of plastics and foam, legging and rigging techniques; ways to cut construction time and expense, solve problems. Offered summer sessions.

49:103 Workshop in Voice and Movement
2 s.h.
Integration of voice, body for performers or teachers; practical exercises, basic theory. Offered summer sessions.

49:104 Workshop in Stage Directing
An Introduction
arr.

49:105 Repertory Theatre
3 s.h.
Theater experience. May be repeated. Offered summer sessions. Consent of summer repertory director required.

49:109 Introduction to Arts Management
3 s.h.
History, theory, practice of arts administration; emphasis on contemporary theater management.

49:195 senior Project
1 s.h.
Faculty evaluation.

49:196 Projects in Theatre
1 s.h.
Consent of instructor required.

49:197 Honors Theatre Arts
arr.

49:198 Projects in Media
3 s.h.
Writers, directors, actors develop, produce a new work for film or television.

49:199 Independent Study
arr.

49:264 American Drama
3 s.h.
Same as 8:237.

49:297 M.F.A. Production
1-4 s.h.
Assignments in all aspects of play production. Consent of instructor required.
Many foreign students who have graduated from the program have returned to jobs in their home countries, some to inaugurate development support communication programs in their national universities or in the institutional frameworks of their countries' governments. Others have taken positions with organizations such as UNICEF, FAO, WHO, the World Bank, the Peace Corps, and the Academy for Educational Development.

Graduate Program

Third World Development Support offers a graduate degree, in conjunction with the Program for International Development, the Center for International and Comparative Studies, and the Graduate College. Students may pursue a Master of Arts degree through a program of study designed especially for individuals planning to pursue or already pursuing careers in forming and implementing development strategies.

Master of Arts

Students may choose from two tracks. The academic track, known as development support studies, is a research-based option intended for students planning to pursue doctoral studies at The University of Iowa or another institution. The academic track requires a thesis.

The professional track is practice based. It is intended for students who seek a terminal M.A. and are planning to pursue careers in which they will apply social scientific knowledge to problem solving in development. Students who choose the professional track may opt for an emphasis in development support communication or in development support social work. The professional track requires completion of a final project and a written comprehensive examination.

REQUIRED CORE

The following courses on development theories, policies, and strategies are required for both tracks.

19:207 Third World Development Support 3 s.h.
44:275 Development Policy and Planning in the Third World (same as 7F:275, 34:275, 42:275, 102:275, 113:275) 3 s.h.
150:202 Contemporary Issues in Development Seminar 2 s.h.
150:210 Third World Research Methodology 3 s.h.

Development Support studies (DSS)

Academic track students take 32 semester hours of courses, divided as follows.

Eleven semester hours of core courses (see “Required Core”);
Nine semester hours of conceptual courses selected from the list below (students may take courses within one topic area to approximate a disciplinary major, or they may choose courses from several areas);
Six semester hours of electives (with at least 3 semester hours selected from the list of development support communication or development support social work professional courses);
Six semester hours for thesis with oral defense.

DSS CONCEPTUAL COURSES

Political Economy and Public Policy
30:350 Political Economy and Public Policy in Developing Countries 3-4 s.h.
44:262 Political Economy of Regional Development 3 s.h.

Peasant Culture/Economy
44:264 Agrarian Change and Rural Development in the Third World 3 s.h.

Urban/Industrial Development
102:291 Urban and Regional Development 3 s.h.

Women in Development
42:273 Women, Men, and Global Social Change: International Development Perspectives 3 s.h.
113:175 Gender and Development Studies 3 s.h.

Social and Educational Policy
7F:104 Education in the Third World 2-3 s.h.
42:186 Comparative Social Policy 3 s.h.
113:151 Sociology of the Third World (same as 34:151) 3 s.h.

Spatial and Geographic Perspectives
44:194 Geographic Perspectives on Development 3 s.h.

Problems in Social Work
42:285 Travel/Study Seminar (No Poverty in Mexico) arr.

International Economic Development
6E:125 International Economics 3 s.h.
6E:129 Economic Growth and Development 3 s.h.

Regional Development
141:146 African Development (same as 30:146, 44:161) 3 s.h.
141:157 Peoples and Cultures of Africa (same as 113:120, 129:157) 3 s.h.

Development Support Communication (DSC)

DSC students merge knowledge and skills from the social sciences with expertise in communication theory and practice. They acquire an analytical basis for identifying problems, designing practical development projects, and planning effective implementation strategies. This emphasis requires 32 semester hours of courses, as follows.

Eleven semester hours of core courses (see “Required Core”);
Nine semester hours of professional courses (listed below);
Six semester hours of conceptual courses (3 from the list below and 3 from the list of development support studies conceptual courses);
Six semester hours for the project, comprehensive exam, and oral defense.
Associated Courses

AFRICAN STUDIES
141: 146 African Development 3 s.h.
141: 157 Peoples and Cultures of Africa 3 s.h.

ANTHROPOLOGY
113: 120 Peoples and Cultures of Africa 3 s.h.
113: 151 Sociology of the Third World 3 s.h.
113: 275 Development Policy and Planning in the Third World 3 s.h.

ART
ID: 133 Graphic Design II 3 s.h.
ID: 240 Individual Instruction in Design 3 s.h.
ID: 249 Advanced Problems in Design 3 s.h.

BUSINESS
6M: 236 Advertising and Promotion Strategy 3 s.h.
6M: 238 Contemporary Topics in Marketing 3 s.h.

COMMUNICATION STUDIES
36D: 95 Radio Production I 3 s.h.
36D: 96 Television Production I 3 s.h.
36D: 97 Film Production I 4 s.h.
36M: 231 Theories of Mass Communication 3 s.h.
36R: 507 Seminar: Rhetoric and culture 1-4 s.h.

ECONOMY
6E: 122 International Economics 3 s.h.
6E: 129 Economic Growth and Development 3 s.h.

EDUCATION
7F: 104 Education in the Third World 3 s.h.
7F: 275 Development Policy and Planning in the Third World 3 s.h.
7W: 120 Introduction to Instructional Design and Technology 3 s.h.

GEOGRAPHY
44: 161 African Development 3 s.h.
44: 194 Geographic Perspectives on Development 3 s.h.
44: 262 Political Economy of Regional Development 3 s.h.
44: 264 Agrarian Change and Rural Development in the Third World 3 s.h.
44: 275 Development Policy and Planning in the Third World 3 s.h.

JOURNALISM AND MASS COMMUNICATION
19: 131 Publication Design Workshop 4 s.h.
19: 150 Visual Communication 3 s.h.
19: 200 Visual Communication 3 s.h.
19: 207 Third World Development support 3 s.h.
19: 240 Media Workshop 3 s.h.
19: 242 Photojournalism Workshop 3 s.h.
19: 280 Master's Tutorial arr.

POLITICAL SCIENCE
30: 146 African Development 3 s.h.
30: 350 Political Economy and Public Policy in Developing Countries 3 s.h.

SOCIAL WORK
42: 143 Social Welfare Policy and Practice 3 s.h.
42: 145 Organization and Community Practice 3 s.h.
42: 186 Comparative Social Policy 3 s.h.
42: 204 Human Services Administration 2 s.h.
42: 273 Women, Men, and Global Social Change 3 s.h.
42: 275 Development Policy and Planning in the Third World 3 s.h.
42: 277 Organizational and Community Planning 2 s.h.
42: 285 Travel/Study Seminar 3 s.h.
42: 286 Social Welfare Seminar 1 s.h.

SOCIOMETRY
34: 151 Sociology of the Third World 3 s.h.
34: 275 Development Policy and Planning in the Third World 3 s.h.

URBAN AND REGIONAL PLANNING
102: 146 Women and the City 3 s.h.
102: 212 Planning Information and Communication 2-3 s.h.
102: 275 Development Policy and Planning in the Third World 3 s.h.
102: 291 Urban and Regional Development 3 s.h.

WOMEN'S STUDIES
131: 146 Women and the City 3 s.h.

Courses
150: 200 Readings in Development Support Studies arr.
Independent, supervised readings that focus on a special problem or issue.

150: 201 Special Topics in Development Support am.
Research, projects, and readings chosen to fit needs, interests of students. Consent of instructor required.

150: 202 Contemporary Issues in Development Presentations by visitors, faculty members, students. 1 s.h.

150: 210 Third World Research Methodology 3 s.h.
Modes of social scientific observation and data gathering, processing analysis, and reporting in conditions characterized by lack of sampling frames customary in industrialized countries.

150: 250 Master's Research 6 s.h.
Consent of sponsoring faculty member and department director.

Transportation Studies

Director: David J. Forkenbrock
Professors: David J. Forkenbrock (Urban and Regional Planning), John W. Fuller (Urban and Regional Planning/Geography/Economics), Gerard Rushton (Geography)
Associate professors: Marc P. Armstrong (Geography), James W. Stover (Civil and Environmental Engineering)
Assistant professor: John Shaw (Urban and Regional Planning)

Graduate degree: certificate

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 analysts and planners must draw on a number of skills to respond to the challenges they face. They are required to 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.

Graduate Programs

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, three academic units at The University of Iowa participate in an interdisciplinary transportation program. The Department of Civil and Environmental Engineering, the Department of Geography, and the Graduate Program in Urban and Regional Planning have established a graduate certificate program that enables students in these academic units to obtain an additional credential along with their graduate degrees.

The Transportation Certificate Program is coordinated by the Public Policy Center in conjunction with the Graduate College. Completion of the requirements for a certificate is documented on the student’s transcript. The certificate is awarded in conjunction with the established degree requirements of the individual academic units, described in this section of the Catalog.

Students who enroll in a course of study leading to transcript certification also may wish to apply within their academic department for selection as graduate scholars of the Midwest Transportation Center (MTC). The MTC, a special consortium of The University of Iowa and Iowa State University, is administered through the Public Policy Center. Scholars are required to complete an integrated seminar course offered jointly by the two consortium universities. They also must work with a faculty mentor in a year-long research effort that culminates in a publishable paper. A competitive stipend is provided.

Degree Programs in Civil and Environmental Engineering

The Department of Civil and Environmental Engineering offers degrees in transportation at both the Master of Science and Doctor of Philosophy levels. The M.S. may be earned either without thesis (requiring a minimum of 30 semester hours of credit) or with thesis (a 30-semester-hour program that includes up to 6 semester hours of credit for thesis research). Nonthesis students usually are required to complete a research paper based on independent study and must defend the paper in an oral examination.

The Ph.D. degree involves a minimum of 72 semester hours beyond the B.S. degree, with up to 18 semester hours earned for dissertation research. A minimum of one year of campus residency is required.

Individuals with degrees in transportation-related disciplines as well as in civil engineering are encouraged to apply. Depending on the student’s background, it may be necessary to complete courses in statistics, computer programming, simulation, mathematics, and operations research without being able to apply the course credit to semester hours needed for the degree program.

A typical master’s program includes the following courses.

First Semester
53:262 Transportation Demand Analysis 3 s.h.
102:260 Transportation Policy and Planning 3 s.h.
102:269 Transportation Program Seminar 1 s.h.
Technical elective 3 s.h.

Second Semester
53:163 Simulation Application to Transportation 3 s.h.
102:266 Transportation and Land Use Planning 3 s.h.
102:268 Seminar in Transportation Issues 1 s.h.

One of the following:
53:199 Research: Civil and Environmental Engineering M.S.
Thesis 3 s.h.
Statistics course 3 s.h.
Planning elective 3 s.h.

Third Semester
53:198 Individual Investigations: Civil and Environmental Engineering 3 s.h.
53:199 Research: Civil and Environmental Engineering M.S.
Thesis 3 s.h.
Technical elective 3 s.h.

Technical electives are advanced courses in engineering operations research, computer-aided design, urban and regional planning, or economics. Specific course requirements are sufficiently flexible to conform to a student’s graduation schedule and desired area of specialization. Applications should be made through the Graduate College and the Department of Civil and Environmental Engineering.

Degree Programs in Geography

The Department of Geography offers Master of Arts and Doctor of Philosophy degrees with a specialization in transportation systems analysis. The transportation specialty draws on the resources of the College of Engineering, the Graduate Program in Urban and Regional Planning, the Department of Economics, and the Department of Geography. The specialty has a strong quantitative orientation and is designed to provide students with a broad range of skills relevant to transportation and urban and regional analysis. It also helps students develop an appreciation of political and organizational considerations affecting transportation systems and of the exigencies of practical problem solving.

M.A. students typically take five courses in transportation and urban and regional analysis, three quantitative methods courses, and four additional courses in geography or economics. The M.A. degree is available with or without a thesis. If a thesis is prepared, it can substitute for two of the courses. Students who have studied calculus as undergraduates can complete the master’s program in four semesters. Students who have not studied calculus as undergraduates or who have research or teaching assistantships may require an additional one or two semesters to complete the program.

A typical master’s program includes the following courses.

First Semester
102:260 Transportation Policy and Planning 3 s.h.
102:264 Transportation Planning Process 3 s.h.
102:269 Transportation Program Seminar 1 s.h.

Second Semester
6E:184 Introduction to Econometrics 3 s.h.
102:268 Seminar in Transportation Issues 1 s.h.
44:265 Transportation Regulation and Finance 3 s.h.
44:350 Research Seminar: Staff 1 s.h.
44:137 Economic Theory of Location 3 s.h.

Third Semester
6E:213 Managerial Economics 3 s.h.
102:262 Transportation Demand Analysis 3 s.h.
44:175 Locational Conflict 3 s.h.
44:350 Research Seminar: Staff 1 s.h.

Fourth Semester
44:350 Research Seminar: Staff 1 s.h.
44:285 Methods of Regional Analysis: Regional Science 3 s.h.
or
44:293 Advanced Location Theory 3 s.h.

Ph.D. students, in addition to taking the courses recommended for master’s students, are strongly encouraged to take advanced courses in areas such as economics, operations research, regional development, and location theory and analysis. Ph.D. students also are required to undertake original research leading to the preparation of a dissertation. Applications should be made through the Graduate College and the Department of Geography.

Degree Programs in Urban and Regional Planning

The Graduate Program in Urban and Regional Planning offers Master of Arts and Master of Science degrees with a sectoral major in transportation. During the first year, students
Third Semester

A typical transportation sectoral major program consists of courses in planning economics and public finance, analytic methods, planning theory, collective decision making, law, and information presentation. The second year is devoted to a sectoral major, such as transportation, where core concepts are applied to a chosen area of specialization. The planning curriculum is intended to provide students with the capability to examine policy issues in transportation, devise workable options, evaluate these optional courses of action, and work toward the implementation of policy solutions.

Planning students complete a total of 48 semester hours and an internship. Twenty-seven semester hours are accounted for by the core; the sectoral major constitutes a minimum of 9 semester hours; and electives are taken to complete the remaining hours. If the thesis option is selected, up to 6 semester hours of sectoral major credit are awarded. Students may elect to complete an additional 2 semester hours of course work in lieu of an internship, bringing the total to 50 semester hours.

A typical transportation sectoral major program includes the following courses.

First and Second Semesters

Core courses (See “Urban and Regional Planning” in this section of the Catalog.)

Third Semester

102:260 Transportation Policy and Planning 3 s.h.
102:262 Transportation Demand Analysis 3 s.h.
102:264 Transportation Planning Process 3 s.h.
102:269 Transportation Program Seminar 1 s.h.
Planning elective 3 s.h.

Fourth Semester

102:215 Field Problems in Planning 3 s.h.
102:268 Seminar in Transportation Issues 1 s.h.

Three of the following:

102:263 Simulation Application to Transportation 3 s.h.
102:265 Transportation Regulation and Finance 3 s.h.
102:266 Transportation and Land Use Planning 3 s.h.
Planning Elective 3 s.h.

Students select optional transportation courses according to their individual interests. Elective courses typically include the following.

102:234 Project Impact Analysis 3 s.h.
102:236 Capital Facilities Planning and Finance 3 s.h.
102:245 Energy and Public Utility Policy and Planning 3 s.h.
102:295 Economic Development Policy 3 s.h.
102:298 Development Finance and Fiscal Analysis 3 s.h.

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

UNIFIED PROGRAM

Coordinator: Richard Sjolund
Faculty: William Albrecht (Economics), Louis Frank (Physics and Astronomy), Miriam Gilbert (English), William Heald (Philosophy), Jay Holstein (Religion), Robert Keteter (Classics), Douglas Madsen (Political Science), David Schoenbaum (History), Richard Sjolund (Biological Sciences)

Unified Program (UP) is a four-semester series of integrated general education courses for a small group of students who begin the program as entering freshmen. UP satisfies all of the College of Liberal Arts General Education Requirements except the foreign language and physical education requirements, and each UP course is interchangeable with an equivalent approved course. Students may leave the program at any time and satisfy the General Education Requirements in other ways, but only first-year freshmen may enter UP. To enter UP, students must be eligible for 10:3 Accelerated Rhetoric, and must have taken a higher mathematics course in high school or have achieved an ACT mathematics subscore of 23 or above. Higher mathematics courses are courses beyond second-year algebra (advanced algebra). Course titles may include precalculus, advanced math, senior math, statistics, college algebra, or calculus.

Courses

140:40 Human Biology 4 s.h.
General principles of biology, with examples drawn from the biology of human beings; for non-science majors. GER: natural sciences.
140:42 Chemistry and Physics of the Environment 3 s.h.
Ecology of our planet; air, earth, water, noise pollution; return of pollutants to man; chemistry, physics of balance of nature. GER: natural sciences.
140:43 Humanities I 3 s.h.
Development of major ideas about the human beings and the divine in Western religion, philosophy, and literature. GER: humanities.
140:44 Humanities II 4 s.h.
Literary tradition from the Roman world to the modern, with emphasis on the Middle Ages and Renaissance. GER: humanities.
140:45 Quest for Human Destiny 3 s.h.
Quests for destiny in terms of perceived options; goals and ability to recognize, pursue, achieve them. GER: humanities.
140:46 Principles of Reasoning 3 s.h.
Logic and its applications. GER: quantitative or formal reasoning.
140:47 Political Science 3 s.h.
Focus on patterns, basis of political behavior; emphasis on common elements across social, organizational, institutional settings. GER: social sciences.
140:49 Historical Perspectives 3 s.h.
The American, French, industrial revolutions; how they have changed the world and people’s lives during past 200 years. GER: foreign civilization and culture, historical perspectives.
140:50 civilizations of Asia 3 s.h.
GER: historical perspectives.
140:55 Rhetoric 4 s.h.
Accelerated writing. reading, speaking. GER: rhetoric.
140:87 Principles of Microeconomics 3 s.h.
Organization, working of modern economic systems; role of markets, prices, competition in efficient allocation of resources and promotion of economic welfare; alternative systems; international trade. GER: social sciences.

URBAN AND REGIONAL PLANNING

Chair: Cheryl K. Contant
Professors: David J. Forkenbrock, John W. Fuller
Professor emeritus: James L. Harris
Associate professors: Cheryl K. Contant, Peter S. Fisher, James W. Stoner, James A. Throgmorton
Assistant professors: Heather L. MacDonald, Alan H. Peters, John G. Shaw
Adjunct lecturer: Karin A. Franklin

Graduate degrees: M.A., M.S. in Urban and Regional Planning

Urban and regional planning is a dynamic field encompassing the development of public policy alternatives to improve the quality of life in cities and regions. Today’s planners find themselves in demand for such diverse jobs as urban transit planner, zoning administrator, environmental analyst with a state pollution control agency, economic development planner for rural communities, regional solid waste management coordinator, state public health planner, nonprofit neighborhood housing organization planner, state legislative analyst, and transportation consultant.

The University of Iowa planning program is a two-year master’s program fully accredited by the Planning Accreditation Board. The program 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.

As an independent academic unit administratively aligned with the Graduate College, the program has benefited from an opportunity to develop its curriculum and faculty interests without the constraints imposed by affiliation with another discipline or professional field.

Faculty and students in the University’s planning program bring to each other a wide range of experience and education. Academic backgrounds of the faculty include planning, public policy, economics, geography, and engineering. The program’s students have diverse undergraduate majors, including economics, political science, geography, architecture and landscape architecture, environmental sciences, engineering, anthropology, sociology, urban studies and planning, English, biological sciences, history, classics, and philosophy. Usually, about 40 percent of the program’s 50 to 60 graduate students are women. Largely because of the common core of courses, students get to know each other quickly; a significant portion of the educational experience takes place in informal discussion.

Recent graduates of Iowa’s planning program have taken positions with city, metropolitan, and regional planning agencies, in state and federal government, in nonprofit organizations, and in private consulting firms. Recent graduates have taken positions in all geographic regions of the United States and in several foreign countries.
Graduate Programs

The planning curriculum is a 48-50 semester-hour program encompassing two academic years. It includes 27 semester hours of core courses, 9 semester hours of sectoral major courses, and 12-14 semester hours of free electives. The curriculum is based on the philosophy that planners must develop the theoretical and analytical skills that will permit them to analyze social problems and evaluate public policies, as well as the professional skills (e.g., report writing, presentations, team management) that will allow them to function effectively in various organizational and political environments.

Core Curriculum

At the heart of The University of Iowa planning program is a unique integrated core curriculum, which occupies the first academic year. The function of the core is to help 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. The core also is designed to help students develop the ability to identify social goals and normative concepts and skills developed in the core to specific problem area. Students fulfill the sectoral major requirement by completing 9 semester hours of credit in courses offered in the planning program and by other departments and schools of the University.

Currently, there are five sectoral majors supported by faculty and course offerings within the planning program: transportation planning, housing and community development, economic development, environmental planning, and infrastructure planning. Students may design other sectoral majors, subject to faculty approval. For example, a student can major in health services planning with appropriate course work in the Department of Hospital and Health Administration or Preventive Medicine and Environmental Health, or in human services planning with courses in the School of Social Work. Other sectoral majors developed by students include land use, public utility and energy planning, and urban management.

Options

Thesis

A thesis is not required, although students may petition to write one. Students may register for up to 6 semester hours of thesis credit. In addition, they may take up to 8 semester hours of readings to develop a thesis topic and prepare a literature review. Students may apply 3 semester hours of readings to the sectoral major requirement and substitute the thesis for the portfolio.

Internship

Students are encouraged to complete an internship in a planning-related agency or organization. To obtain the 2-semester-hour credit reduction, the student must submit a brief paper summarizing and evaluating the experience. Internships usually are paid staff positions and are completed during the summer between the first and second years.

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 spring of the first year and/or the fall semester of the second year. The practicum carries 3 semester hours of course credit and substitutes for the required field problems course, 102:215, as well as permitting the 2-semester-hour reduction in degree requirements for the internship.

Other Requirements

Students who complete the optional internship must earn 48 semester hours of credit for the planning degree. Students may complete an additional 2 semester hours in lieu of the internship, bringing the total to 50 hours. All core and sectoral major courses must be completed with a grade of B- or better, and students must attain an overall graduate grade-point average of 3.00 or better.

Joint Programs

Law

The Urban and Regional Planning Program and the College of Law cooperate in administering a program that satisfies the degree requirements leading to an M.A. in planning and a J.D. in law. The program usually requires four years to complete, a reduction of one academic year from the total requirements of the two programs taken separately. It may be completed in less time if the student chooses the accelerated law program. Separate admission to each academic unit is required.

Law is the most popular of the joint degree programs. Students in the planning and law program typically seek employment as attorneys, especially in law firms that specialize in land use or environmental law; as city managers; as city planners or planning administrators; or in advocacy organizations.

Engineering

A program combining a bachelor’s degree in engineering with a master’s degree in urban and regional planning has been developed for students who want to pursue a planning career in the public or private sector. Students in the program may earn a B.S. in engineering and an M.A. or M.S. in planning in a total of five or more academic years.

Students should apply for the joint program when they apply for admission to the engineering college or before they complete their sophomore year following matriculation. Applicants should submit a letter requesting admission to the program to the College of Engineering, The University of Iowa.

Students apply to the graduate planning program near the time when they are completing their engineering bachelor’s degree requirements. They should be prepared to meet the admission requirements of the graduate program at that time.

Engineering students complete the planning core in the last two years of their undergraduate program. After graduating from the College of Engineering and while enrolled in the graduate program in urban and regional planning, students fulfill the sectoral major requirement by completing 9 semester hours of credit in courses offered by various departments and schools of the University, including the graduate planning program and the engineering college.

Each combined degree student is assigned an adviser from engineering and one from planning. During the first four years of the program, students work primarily with their engineering adviser and a designated person in the office of the College of Engineering. For the fifth year, students confer with their graduate planning adviser.

Preventive Medicine and Environmental Health

Students may elect a joint master’s degree option with urban and regional planning and the Department of Preventive Medicine and Environmental Health in the College of Medicine. This option results in an M.A. in...
planning and an M.S. in preventive medicine and environmental health. 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. A total of 61 to 62 semester hours of credit is required; the two degrees generally can be earned in two and one-half years. Separate admission to each academic unit is required.

Hospital and Health Administration

Students interested in health planning may wish to enroll in a joint program between urban and regional planning and the Department of Hospital and Health Administration in the College of Medicine. This three-year program, which requires 69-74 semester hours, leads to an M.A. in planning and an M.A. in hospital and health administration. Course work is reduced by one year from the separate requirements of the two programs. Separate admission to each academic unit is required. The hospital and health administration 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 degree program typically find employment in hospitals, state departments of health, and other private, nonprofit, or public health agencies.

Economics

Planning students who wish to strengthen their skills in economic analysis may enroll in the joint program with the Department of Economics. The combination of economics and applied policy analysis and planning is valuable for students who want to obtain jobs such as state economic development planner, analyst with a public utility regulatory commission, or fiscal analyst for a state legislature or revenue department. The program requires a total of 60 to 63 semester hours of credit and usually can be completed in five semesters. Students earn an M.A. in planning and an M.A. in economics.

Social Work

For those interested in a career in social service delivery or human services planning, a joint program is offered in 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. Planning positions are available with city planning agencies, nonprofit social service agencies, and state human services departments. A total of 86 semester hours is required for the two degrees. This is a reduction of 22 semester hours from the requirements of the two programs taken separately. It is possible to complete the program in three years, although some students may require an additional semester. Separate admission to each academic unit is required.

Transportation

The Transportation Studies Program is administered through the University’s Public Policy Center. A transportation certificate is awarded to students who satisfactorily complete a prescribed set of courses in transportation. These courses are taught in urban and regional planning, engineering, geography, and economics. The certificate program allows planning students with sectoral majors in transportation to extend their training and obtain an additional credential. For more information, see “Transportation Studies” in this section of the Catalog.

Financial Aid

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 research assistantships. Assistantships typically require ten hours of work per week under the direction of a faculty member. A limited number of tuition scholarships also is 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 a majority of its students.

Students applying for financial aid are encouraged to submit application materials and aid requests in January or February, and no later than March 15. Students who apply after that date will be considered only as remaining funds permit. Financial aid is not usually available for students beginning the program in spring semester.

Admission

Admission to the Urban and Regional Planning Program is open to students from any undergraduate major or area of concentration. Admission is based on Graduate Record Examination (GRE) General Test scores (verbal, quantitative, and analytical), letters of recommendation, previous academic performance, and a written statement of purpose.

Applicants should submit the application form, GRE General Test scores, recommendation letters, statement of purpose, and transcripts early in the spring for fall admission (although applications are still accepted until July 15), or by December 1 for spring admission. Fall admission is strongly preferred. Students applying for financial aid should submit their materials by March 15 or earlier (see “Financial Aid” in this section of the Catalog).

Courses

102:000 Cooperative Education Internship 0 s.h.
102:101 Introduction to Planning and Policy Development 3 s.h.
102:210 Introduction to Environmental Policy and Planning 3 s.h.
102:212 Introduction to Environmental Policy and Planning 3 s.h.
102:235 Land Use Controls Seminar 1.3 s.h.
102:236 Urban Transportation 3 s.h.
102:237 Economic Analysis for Planning 3 s.h.
102:238 Environmental Planning and Policy 3 s.h.
102:244 Women and the City 1.3 s.h.
102:280 Economic Principles for Planning 3 s.h.
102:301 Urban and Regional Planning 3 s.h.
102:302 Urban and Regional Planning 3 s.h.
102:303 Urban and Regional Planning 3 s.h.
102:304 Urban and Regional Planning 3 s.h.
102:305 Urban and Regional Planning 3 s.h.
102:306 Urban and Regional Planning 3 s.h.
102:307 Urban and Regional Planning 3 s.h.
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102:363 Urban and Regional Planning 3 s.h.
102:364 Urban and Regional Planning 3 s.h.
102:365 Urban and Regional Planning 3 s.h.
102:366 Urban and Regional Planning 3 s.h.
102:367 Urban and Regional Planning 3 s.h.
102:244 Advanced seminar in Environmental Policy 3 s.h.
Current environmental issues, approaches to problem solving, methodologies, ethical concerns; topics vary.

102:245 Energy and Public Utility Policy and Planning 3 s.h.
Function and organization of public utilities; planning techniques and procedures related to regulated utilities; historic, legal, and economic background necessary for informed utility planning.

102:246 Nonpoint Pollution Policy 3 s.h.
Causes and consequences of nonpoint sources of pollution; emphasis on alternative mechanisms to control urban and rural pollution sources; current programs, keys to success.

102:254 Introduction to Environmental Processes and Policy 1-2 s.h.
Natural environmental processes and systems; contemporary policies and programs to protect environmental systems and resources.

102:260 Transportation Policy and Planning 3 s.h.
Institutional setting for transportation services, changing roles of the various levels of government; impact of alternative pricing and investment policies on efficiency and equity; financing options and user charges; theory and case studies.

102:261 Problems in Transportation and Land Use 1-3 s.h.
Policy problems of local or state interest in Iowa such as highway finance, truck user fees, inland waterway investment, cost-benefit analysis of major freeway segments, railroad branch line abandonment, rural transit evaluation; individual projects from issue identification to presentation of results to potential clients.

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 53:262.

102:263 Simulation Application to Transportation 3 s.h.
Same as 53:263.

102:264 Transportation Planning Process 2-3 s.h.
Technical issues, political interface, citizen involvement, intermodal questions, public versus private roles; critiques of transportation plans.

102:265 Transportation Regulation and Finance 3 s.h.
Theoretical and methodological approaches to regulation and financing public transit, rail transit, and intermodal transportation; effects of deregulating surface and air transport modes and of changing finance and pricing policies, including privatization and impact fees. Same as 44:265.

102:266 Transportation and Land Use Planning 3 s.h.
Transportation theories and models; land use relationships; political, legal, institutional frameworks; neighborhood traffic controls; land use impacts on transit and alternative transportation modes.

102:268 Seminar in Transportation Issues 1 s.h.
Students from diverse departments interact with faculty, business executives, public sector leaders, and other speakers with specialized knowledge in transportation.

102:269 Transportation program Seminar 1 s.h.
Transportation finance, safety and economic regulation, planning processes, management, government policy issues at the federal, state, and local levels. May be repeated.

102:271 Housing Policy and Finance 3 s.h.
Critical analysis of housing policy at the federal, state, and local levels; low income housing finance and development; public housing management; problems in low income housing preservation; trust funds and land trusts; public/private partnerships, community development organizations.

102:273 Community Housing Strategies 3 s.h.
State and local housing policy; role of nonprofit sector, public/private housing partnerships; non federal housing strategies for affordable and low income living; special needs housing; neighborhood/small town preservation.

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 34:275, 42:275, 44:275, 113:275, 7F:275.

102:291 Urban and Regional Development 3 s.h.
Urban and regional economics: from the sectoral, and locational perspectives; emphasis on modern theories of industrial location and spatial theories of firm growth. Prerequisite: 202:206 or consent of instructor.

102:295 Economic Development Policy 3 s.h.
Analysis of policies and programs at the national, regional, state, and local levels that address problems of economic growth, development, decline. Prerequisite: 202:206 or consent of instructor.

102:298 Development Finance and Fiscal Analysis 1-3 s.h.
Financial markets and institutions, discounting, bonds, financial statements, evaluation of improvement projects, participation in small business financing; state and local government budgeting and finance; evaluation of tax and expenditure programs; fiscal impact assessment.

102:305 Readings  arr.

102:315 Independent Study in Planning 3-6 s.h.
Research and analysis of a special planning problem; opportunity for student to apply knowledge in area of specialization.


102:333 Program seminar 1 s.h.

**Undergraduate Study**

Undergraduates interested in women's studies may develop programs of study in relation to course work in a major, as part of an area of concentration within the Bachelor of Arts in interdepartmental studies, as a minor, or as a set of electives to satisfy general interest.

It is strongly recommended that students contemplating a concentration in women's studies take 131:101 Introduction to Women's Studies.

**Minor**

Undergraduate students may complete a minor in women's studies by taking 15 semester hours of courses associated with the program, including at least 12 semester hours taken at The University of Iowa in 100-level courses; they must maintain a 2.00 grade-point average in these courses.

It is strongly recommended that students minoring in women's studies take 131:101 Introduction to Women’s Studies and 131:151 Feminist Theory. Only one section of 131:150 Topics in Women’s Studies may be counted toward the minor.

Since women's studies is an interdisciplinary program, students contemplating a minor should choose their women's studies course work from several different disciplines.

**Graduate Study**

Graduate students in master’s or doctoral programs may choose a comprehensive area in women's studies within existing disciplines. Graduate students who wish to pursue the Ph.D. in women's studies should file a plan of study for the ad hoc interdisciplinary Ph.D. through the Graduate College. Students first must be granted admission by a department of the University.

Information on faculty members in various departments who direct graduate study is available from the Women’s Studies Program.

**Associated Courses**

The departmental courses listed below are associated with the Women’s Studies Program and may be applied toward a concentration or a
minor in women’s studies. Women’s studies courses for University credit also are offered by the Saturday and Evening Class Program and by Guided Correspondence Study.

In addition to the following courses, many departments sometimes offer additional courses focusing on women.

AFRICAN-AMERICAN WORLD STUDIES
256 Liberal Arts

ANTHROPOLOGY

In addition to the following courses, many departments sometimes offer additional courses focusing on women.

BUSINESS ADMINISTRATION
6j 242 Managing and Valuing Diversity

COMMUNICATION STUDIES

*80-602 Seminar: History of Rhetorical Theory (rhetoric, feminisms, and social change)

ENGLISH

8G:15 Women and Literature
8:74 Selected American Authors: Zora Hurston and Gloria Naylor
8:99 Undergraduate Seminar: Women’s Fiction in Latin America
*8:110 Selected Authors: Woolf and Lessing
8:130 Postcolonial Studies (Women’s Writings of the Anglophone Caribbean)
8:160 Selected Themes in Literary Works: Women in Medieval Literature
8:177 Literature and Art: Virginia Woolf and the Bloomsbury Group
8:246 Modernist Crosscurrents: Modernism and Gender
*8:432 Seminar Victorian Literature: Victorian Women Poets
*8:434 Seminar: Twentieth-Century British Literature
*8:435 Seminar: Twentieth-Century British and American Literature: Breaking the Sequence: Modern and Post-Modern Women’s Experimental writing

HISTORY

16:15 Issues: Women in Historical Perspective
*16:159 Medicine, Science and Social Change
16:210 Readings: Medieval Women
16:258 Readings: Women in European History
16:259 Seminar: Women in European History
16:269 Readings on the American South: Gender and Race in American History
16:281 Feminist Legal Harms Seminar: History and Theory

JOURNALISM

19:256 Gender and Mass Communication
19:281 Master’s Practicum (Women and the Media)
19:381 Ph.D. Research Practicum (Women and the Media)

PSYCHOLOGICAL AND QUANTITATIVE FOUNDATIONS

*7P:354 Seminar: Experimental Approaches in Counseling Research

RELIGION

32:71 Sexual Ethics

Rhetoric

*10:199 Special Projects (Rhetorics of American Feminisms)
10:604 Seminar: Contemporary Rhetorical Theory: Rhetoric and French Feminism

SPANISH AND PORTUGUESE

35:173 Latin American Women Writers
35:184 20th Century Spanish Women Writers

THEATRE ARTS

49:118 American Women Playwrights: 19th and 20th Century

*Only certain sections of these courses are women’s studies courses.

Courses

Core Courses

131:55 (Jender, Race, and Class in the United States) 3 s.h.
How the interaction of gender, race, class affects individual experience, national ideology, social institutions; interdisciplinary perspective.
131:101 Introduction to Women’s Studies 4 s.h.
Introduction to feminist interdisciplinary study of women’s lives, including work, family, sexuality, political and social change, race, class, sexual orientation, cultural traditions.
131:105 Women’s Studies Practicum 1 s.h.
To acquire practical experience in dealing with feminist issues, students work as volunteers for a selected group of organizations providing services for women. May be repeated. Consent of instructor required. Prerequisite: 131:101.
131:135 Women, Medicine, and Society 3 s.h.
Interdisciplinary 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 healing process. Offered only through Guided Correspondence Study.
131:148 Psychology of Gender 3 s.h.
Feminist theories, research on nature of gender differences, their development influence on human behavior.
131:149 International Feminism 3 s.h.
International perspective on women’s social, political, economic lives and on women’s efforts to examine and challenge conditions affecting their lives.
131:150 Topics in Women’s Studies 3 s.h.
Representative topics: feminism and the family, ecofeminism, American girls’ fiction, women of color, women and aging. May be repeated. Prerequisite: 131:101.
131:151 Feminist Theory 3 s.h.
Historical and contemporary feminist analysis of the position of women in culture and society: variety of theoretical approaches and political perspectives, contemporary issues, controversies. Prerequisite: 131:101.
131:179 Independent Readings and Research in Women’s studies 1-3 s.h.
131:198 Honors Senior Thesis 3 s.h.
Supervised research, writing. Open only to honors students who have completed course work for minor in Women’s Studies. Consent of instructor required.
131:199 Senior Research Seminar 3 s.h.
Individual research projects designed around a shared theme, such as violence against women, or women and the law. Consent of instructor required. Prerequisite: 131:101 and three additional Women’s Studies courses.

Cross-Listed Courses

131:40 Gender in the U.S. 3 s.h.
Sex roles, gender relations in monogamous and same-sex relationships; cross-cultural perspectives.
131:44 Women in the U.S. 3 s.h.
Women in American workplace, pink collar, housework; gender and division of labor; sexual harassment; affirmative action.
131:44 Lesbian Lives in the U.S. 3 s.h.
Diversity of lesbian experience in America; focus on issues of race, class, ethnicity, gender and personal relationships. Same as 4544.
131:52 Gender and Film 3 s.h.
Position of women in Hollywood, alternative cinema; contributions of feminist film scholars, critics to field. Same as 340:52.
131:87 Gender Roles and Communication 3 s.h.
Analysis of research and theory on sex roles and communication processes, including function of communication in sex role development Same as 36C:87.
131:102 Physiological Research on Women in Sport 3 s.h.
Physiological capabilities, responses to training, factors specific to pregnancy, childbirth, gender-related injuries. Same as 28:174.
131:108 Women and Society 3 s.h.
Role and status of women in society; sex differences, sex role socialization, theories about origin and maintenance of sexual inequalities, changes its social life cycles of women, implications for social institutions and processes; focus on contemporary United States. Same as 34:108.
131:111 Religion and Women 3 s.h.
Sexism and its disavowal in biblical narrative, law, wisdom texts, Gospels, epistles; contemporary impact. GER: humanities. Same as 32:131.
131:119 Women, Marriage, and Family in Medieval Europe 3 s.h.
GER: foreign civilization and culture. Same as 16E:119.
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. Same as 44:124.
131:127 Black Women Writers 3 s.h.
Same as 8:118, 129:127.
131:128 The Black Woman in America 3 s.h.
Position, experience, cultural interpretations, mythology, societal roles of Black women, especially in the Caribbean and the United States, through literary, historical, sociological, psychological, anthropological sources. Same as 129:128.
131:150 Dance as Cultural Practice 3 s.h.
Social, popular, theatrical forms since the 1960s; emphasis on relationship between aesthetics, cultural politics. Graduate standing or consent of instructor required. Same as 45:130.
131:140 The Culture of American Women 3 s.h.
Women’s experience in America; focus on relationship between individual lives and broad social and cultural context. Same as 45:140.
131:146 Women and the City 1.3 s.h. Implications of changing family structure and gender roles for the urban environment and for planning and urban policy; where women live and why, restructuring housing and neighborhoods for women, economic development and employment, the feminization of poverty, child care policy, transportation and accessibility for women, in the global economy. Same as 102: 146.

131:147 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; introduction to relevant principles of linguistic theory, analysis. Same as 103: 150, 113: 173.

131:153 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 and alternatives to sport. Same as 28:176.

131:156 Women's Roles in Cross-Cultural Perspective 3 s.h. Theory, research on origins of women's oppression, current status of women, work and family roles, links between sex, race, class inequalities. 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 Graduate standing or consent of instructor required. Same as 45:157.

131:159 Regional Women Writers 3 s.h. Writings of women whose consciousness has been shaped through association with cultural, political, and/or linguistic pressures of a particular geographical location. Same as 8:159.

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 8:161.


131:166 Themes and Modes in Literature by Women 3 s.h. Specific theme, such as women and sexuality, or a particular formal mode, such as experimental novel. Same as 8: 166.

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 eighteenth through nineteenth centuries, or changes in dramatic presentation of women from Middle Ages through Renaissance. Same as 8:169.

131:171 Women in America: Colonial Period 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.

131:173 U.S. Women's Legal History 3 s.h. Same as 16A:173.

131:180 Women and the Law 3 s.h. How laws classify, construct, affect women; readings span subfields including criminal, family, labor, constitutional law; selected works of feminist jurisprudence. Same as 30: 174.

131:181 Society and Gender in Europe, 1200-1789 3 s.h. How ideas about community were influenced by gender ideas inscribed in patterns of authority-household, church, state; ranges of human endeavor-intellectual, psychological, biological; community organization-societal, economic, legal, sexual. GER: foreign civilization and culture. Same as 108E: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 pretense (feminism, socialism). GER: foreign civilization and culture. Same as 16E:148.

131:18B 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 8:188.

131:190 Feminist Perspectives on Biology and Culture 3 s.h. Feminist anthropological writings on gender in past cultures; evolution and function of gendered roles; importance of gender in human evolution; beginnings of state-type societies and Subordination of women; cross-cultural variations in division of labor; biological versus culturally constructed differences between men, women. same as 113:190.

131:194 Introduction to Feminist Criticism 3 s.h. Precursors, early formulations, debates between feminist critics, feminist challenges to other theoretical models. Prerequisite: 110:1 or consent of instructor. Same as 8:194, 48:194.

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 39:197.

131:220 Seminar: Feminist Anthropology 3 s.h. Contemporary, traditional anthropological issues from a feminist perspective. Prerequisite: background in feminist theory, anthropology. Same as 113:220.

131:229 Feminist Ethics 3 s.h. Same as 32:229.

131:240 Women and Television in American Culture 3 s.h. Relationships between women and television through feminist critical scholarship, cultural analysis. Same as 39M:240, 45:240.

131:245 Seminar: Feminist Ethnography 3 s.h. Feminist critiques of traditional ethnographies; analysis of ethnographies informed by contemporary feminism. Consent of instructor required. Same as 113:221.

131:246 Difference in Latin American Literature: The Representation of Gender Arrangements 3 s.h. Construction of female identity In Latin American narratives, essays, poems, films, investigation of possibilities, impossibilities of the feminine in Latin American literature. Same as 35:246.

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 sport participation. Same as 28:278.

131:245 Feminist Criticism 3 s.h. Central topic, such as new French feminists, Marxism feminism, feminism and popular culture. Same as 8:265, 48:265.

131:269 Feminist Legal Thought 3 s.h. Contemporary feminist critiques of legal doctrine, analysis, method; redefinition of legal problems through application of diverse feminist approaches; interdisciplinary comparison of feminist legal thought to feminist scholarship in social sciences, humanities. Same as 91:269.

131:270 Readings in American Women's History 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 workplace, gender and deviance, feminism and politics, women's history as intellectual history. Same as 16:270.

131:283 Feminist Theory: Historians' Perspectives arr. Same as 16:283.


131:355 Women and Politics 3-4 s.h. Same as 30:355.
College of Business Administration

Accounting . . . . . . . . . . . . . . . . . . 265
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Dean: Gary C. Fethke
Acting senior associate dean, academic affairs:
Colin E. Bell
Associate dean, undergraduate programs: Duane
E. Thompson
Associate dean, graduate programs: W. Bruce
Johnson
Assistant dean, operations: Myron P. Mustaine, Jr.
Assistant dean, management and business
development: Nancy C. Noth
Degrees: B. B.A., M. B.A., M.A., Ph.D.
The College of Business Administration is composed of six academic departments: accounting, economics, finance, management and organizations, management sciences, and marketing.

The undergraduate and graduate programs of the college are accredited by the American Assembly of Collegiate Schools of Business.

Research, executive development, and continuing education activities are supported by the centers and institutes of the college: the Office of Management and Business Development, Financial Markets Institute, Industrial Relations Institute, Institute for Economic Research, Management Center, Manufacturing Productivity Center, Institute for Entrepreneurial Management, Ira B. McGladrey Institute for Accounting Research, and Small Business Development Center.

Undergraduate Program

Bachelor of Business Administration

The college offers the Bachelor of Business Administration (B.B.A.) in all six departments and in business administration. B.B.A. students complete background studies either in the College of Liberal Arts at The University of Iowa or at another institution and usually enter the College of Business Administration as juniors.

The B.B.A. degree currently requires 120 semester hours of credit, of which at least 48 semester hours must be earned in business courses and at least 48 in nonbusiness courses. Students admitted to the University in fall 1994 and after must earn at least 48 of the 120 semester hours in business courses and at least 60 semester hours in nonbusiness courses.

The last 30 consecutive (or 45 of the last 60) semester hours must be earned in residence following admission to the College of Business Administration. At least 24 semester hours of credit in courses offered by the College of Business Administration and at least two-thirds of the semester hours of credit 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 and all work by correspondence, including University of Iowa Guided Correspondence Study courses.

To graduate, B.B.A. candidates must have a cumulative grade-point average of at least 2.00 in all college course work attempted, all college course work attempted in business, and all college course work attempted in the major. They also must have a grade-point average of at least 2.00 at The University of Iowa in all course work attempted, all business course work attempted, and all course work attempted in the major.

Common Requirements

B.B.A. candidates admitted to the college fall 1994 and after must satisfy the following minimum common requirements or approved equivalents.

- **Rhetoric 10:1 and 10:2, or 10:3** 4-8 s.h.
- **22M:17 and 22S:4 Quantitative Methods I and II** 8 s.h.
- **or 22M:25, 22M:26, and 22S:120** 12 s.h.
- **Natural science (excluding math)** 3 s.h.
- **Historical perspectives** 3 s.h.
- **Foreign civilization and culture** 3 s.h.
- **Humanities (including 8G:1 Interpretation of Literature)** 6 s.h.
- **Social sciences (excluding 6E:1 and 6E:2)** 6 s.h.
- **6A:1 Introduction to Financial Accounting** 3 s.h.
- **6A:2 Introduction to Managerial Accounting** 3 s.h.
- **6B:155 Business Policy** 3 s.h.
- **6E:1 Principles of Macroeconomics** 3-4 s.h.
- **6E:2 Principles of Macroeconomics** 3-4 s.h.
- **6E:100 Economics for Business Decision Making** 3 s.h.
- **6F:100 Introductory Financial Management** 3 s.h.
- **6J:47 Introduction to Law** 3 s.h.
- **6J: 100 Administrative Management** 3 s.h.
- **6K:70 Computer Analysis** 3 s.h.
- **6K:71 Statistical Analysis** 3 s.h.
- **6K: 100 Operations Management** 3 s.h.
- **6M: 100 Introduction to Marketing** 3 s.h.

In addition, students must complete a major area of study. The majors offered by the college are business administration, accounting, economics, finance, industrial relations and human resources, management sciences, and marketing. With the exception of the major in business administration, the requirements for each are established by the departments of the college.

**Students with Associate of Arts Degrees**

Students who receive Associate of Arts (A.A.) degrees from Iowa Area Community Colleges participating in the Iowa Community College Regents’ Articulation Agreement are considered to have met the rhetoric, natural science, historical perspectives, and humanities requirements, but not the foreign civilization and culture (effective fall semester 1992) or social sciences requirements. The program of study for which the A.A. was awarded must have included:

- a minimum of 60 semester hours (90 quarter hours) of credit acceptable toward graduation from the University of Iowa (mathematics courses comparable to 22M:1 Basic Algebra I, 22M:2 Basic Algebra II, and 22M:3 Basic Geometry are not accepted toward graduation);
- completion of the agreed-upon group of courses at the community college;
- and a 2.00 minimum grade-point average.

Students who use the provisions of the articulation agreement are granted a maximum of 60 semester hours of transferable credit from all sources toward the 120 semester hours required for a B.B.A. If a student has earned more than 60 semester hours of credit in completing the A.A., the excess credit is used in computing the grade-point average and may be used to satisfy course requirements, but it does not count toward the bachelor’s degree.

Transfer credits for business courses taken during the freshman and sophomore years are counted toward the B.B.A. only if such courses are usually offered as lower-division courses at The University of Iowa.

**Transfer Students**

Transfer students who have taken courses elsewhere that are similar to those approved for the common business requirements at Iowa may request that these courses be evaluated. Students who transfer fewer than enough hours to meet a common 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 requirements numbered 100 and above.

**Major in Business Administration**

This major permits students to pursue a less specialized curriculum than is provided by any of the other majors in the college. It also allows students to concentrate in areas in which majors are not available but in which courses are offered in departments within the college (e.g., international business). The requirements for the major in business administration are as follows.

Six business courses (total of 18 semester hours) numbered above 100, including at least four of these:

- **6A:113 Taxes and Business Decisions** 3 s.h.
- **6F:117 Intermediate Financial Management** 3 s.h.
- **6J:151 Human Resource Management** 3 s.h.
- **6J:161 Individual Behavior in Organizations** 3 s.h.
- **6K:183 Applied Information Systems** 3 s.h.
- **6M:134 Marketing Research** 3 s.h.
- **6E:125 International Economics** 3 s.h.
- **6E:130 International Finance** 3 s.h.
- **6E:146 International Business Environment** 3 s.h.
- **6M:151 International Marketing** 3 s.h.

*Students may choose only one of these four courses (total of 3 semester hours).

In addition to the required grade-point averages listed above, students in this major must have a 2.00 minimum grade-point average on all courses taken from the list above and on all business courses numbered above 100 (excluding 6B:165 Business Policy). Students in this major may not take business courses numbered above 100 pass/nonpass.

The business administration major may not be combined with any other business major.

**Minors**

**Nonbusiness Minors**

Undergraduate students in the College of Business Administration may elect to complete a minor in another college of the University. For example, students interested in international business might choose a foreign language as a minor. For the minor requirements, students should consult with an adviser in the relevant
department. To have the minor recorded on their transcripts, students must complete the “minor” section on the B.B.A. degree application form before submitting it 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 majoring in another college of the University may elect a minor in business administration. The courses listed below, or their equivalents, satisfy all requirements for the minor. At least 15 semester hours of courses taken for the minor must be completed in residence at The University of Iowa. Principles of Macroeconomics 3-4 s.h.

Business calculus (22M:16, 22M:17, 22M:25, or 22M:35) 3-4 s.h. Statistics (22S:8 or 22S:120) 3-4 s.h.

6A:1 Introduction to Financial Accounting 3 s.h.

6A:2 Introduction to Managerial Accounting 3 s.h.

6E:1 Principles of Macroeconomics 3-4 s.h.

6E:2 Principles of Macroeconomics 3-4 s.h.

*6F:100 Introductory Financial Management 3 s.h.

6J:47 Introduction to Law 3 s.h.

*6J:100 Administrative Management 3 s.h.

5K:70 Computer Analysis 3 s.h.

*6M:100 Introduction to Marketing 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 form before submitting it to the registrar’s office early in their final semester, or when they apply for the degree using the ISIS system.

Recognition for Academic Achievement

Dean’s List

Students who achieve grade-point averages of 3.50 or higher on 12 or more semester hours of graded work during a given semester and who have no hours of I or O are recognized by inclusion on the dean’s list for that semester.

President’s List

Students who earn a 4.00 grade-point average for two consecutive semesters (excluding summer sessions) on at least 12 or more semester hours of graded work during a given semester and who have no hours of I or O those semesters, are recognized by inclusion on the president’s list.

Honors

The College of Business Administration Honors Program provides outstanding students in the college the opportunity to undertake advanced work and independent study in their majors and to work closely with faculty and other honors students. Its purpose is to challenge superior students to reach their academic potential. All juniors and seniors in the program participate in honors seminars. Successful completion of departmental and college requirements leads to a B.B.A. with honors (see “Graduation Honors,” below).

Probusiness students interested in the honors program are encouraged to participate in the University Honors Program until they are admitted to the College of Business Administration. This permits them to take advantage of the services offered by the Shambaugh House Honors Center. They also are encouraged to join the Association of Iowa Honors Students, which plans a variety of social and educational activities each year.

Students should apply for admission to the College of Business Administration Honors Program when they apply for admission to the college, and they must apply no later than the first semester of the junior year. For more information, students should contact the College of Business Administration Undergraduate Programs Office.

Graduation Honors

High scholastic achievement is recognized in two ways upon graduation: 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 semester hours in residence as an undergraduate at The University of Iowa 45 of which must be completed prior to the final registration.

Graduation with Distinction

The Office of the Registrar certifies to the dean of the college the names of students eligible to graduate with distinction. The college awards degrees “with highest distinction” to students in the highest two percent of the graduating class, “with high distinction” to students in the next highest three percent, and “with distinction” to the next highest five percent. Ranking is based on students’ grade-point averages for all college-level study undertaken prior to their final registration.

Admission

Admission standards are set by the undergraduate program committee. The college usually admits undergraduate students at the beginning of their junior year. Students are eligible for admission to the college after they have completed 60 semester hours; have satisfied the common requirements in quantitative methods, accounting, and economics; and have submitted an application by the deadline (May 1 for summer or fall admission, December 1 for spring admission).

Students are guaranteed admission to the College of Business Administration if they meet the above admission requirements and have a 2.60 minimum grade-point average on the common requirements in quantitative methods, accounting, and economics; all college-level courses taken (including transfer courses); and all courses undertaken at The University of Iowa.

Students who have grade-point averages below 2.60 for one or more of the categories and above 2.25 for each of the categories are considered for comparative admission. The college considers the following factors in a comparative evaluation of applicants for admission:

- grade-point averages for each of the categories listed above;
- the pattern of grades over time; and
- other factors relevant to predicting success in the college.

The college provides information about characteristics of recently admitted students, thus enabling those interested in the program to judge how they are progressing toward admission.

Credit and Grading

Credit by Examination

Students may earn up to 32 semester hours of credit by examination. Selected tests from the College-Level Examination Program (CLEP) and the Advanced Placement Program (APP) of the College Entrance Examination Board are used. It is possible to receive credit for some of the common requirements of the college. Information on the CLEP and APP examinations is available from the University’s Evaluation and Examination Service.

Maximum Schedule

Course schedules of more than 18 semester hours for a semester or 9 semester hours for a summer session require approval of the associate dean for undergraduate programs.

Adding and Dropping Courses

Courses may be added during the first three weeks of the semester or first five weeks of the summer session with approval of the adviser and instructor. Courses may be dropped during the first ten weeks of the semester or first five weeks of the summer session with approval of the adviser and instructor. Students must have the approval of the associate dean for undergraduate programs in order to add or drop a course after these deadlines. Approval for adds or drops after these deadlines is granted only in extraordinary circumstances.

Undergraduates will receive the mark of W for any course dropped after the third week of the semester or first one and one-half weeks of the summer session.

Pass/Nonpass

Of the total semester hours required for a B.B.A., up to 16 may be taken on a pass/nonpass basis with the consent of the adviser and instructor. However, students may not count more than 8 semester hours of pass/nonpass credit in the last 60 semester...
hours 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, common, or major business requirements. (Major business requirements include any course that could serve to fulfill a major course requirement.) Pass/nonpass registration must be completed during the first three weeks of a semester or the first one and one-half weeks of a summer session. It requires the approval of the instructor and the academic adviser. For courses taken on a pass/nonpass basis, an earned grade of C- or above is recorded as a P; an earned grade of D+ or below is recorded as an N.

Second-Grade-Only Option

This option is not available to students who were admitted to the college for spring semester 1990 or thereafter.

Correspondence Course work

B.B.A. candidates may not satisfy any requirement—general education, common, or major—through correspondence courses. Credit earned by correspondence study does not count toward the residency requirement.

Proclamation 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.

When all of the above grade-point averages equal or surpass 2.00, students are removed from probation. Usually, students are allowed only one session to return to good academic standing. Students on academic probation who withdraw registration after the deadline for dropping courses are automatically dismissed.

Students may be dismissed from the college at any time for unsatisfactory scholarship. While some probationary period usually precedes a dismissal, even students in good academic standing who complete a term with extremely unsatisfactory grades may be dismissed immediately. Students dropped from the college for poor scholarship may petition for permission to reregister, but usually only after the expiration of one calendar year following the end of the term in which the dismissal took place.

International Business Certificate

The College of Business Administration and the College of Liberal Arts offer a joint program leading to a Certificate in International Business. This program entails study of international business and economics, international relations and institutions, a foreign language, and related area studies.

It has been 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 electives in the program permits students to tailor areas of specialization suited to their individual interests and to complement majors in both liberal arts and business administration.

Completion of requirements results in the notation “Certificate in International Business” on the student’s transcript. Questions should be directed to the College of Business Administration Undergraduate Programs Office.

Application Information

Interested students must declare their intention to pursue the certificate and file a plan of study at the Undergraduate Programs Office. In order to receive the Certificate in International Business, students must receive an undergraduate degree from The University of Iowa with a minimum grade-point average on all course work taken for the certificate, and take at least 20 semester hours of course work (other than language) for the certificate at The University of Iowa or in approved study-abroad programs. A course may not be used to satisfy more than one certificate requirement.

Requirements

A complete listing of courses satisfying the following requirements is available from the Academic Programs Office.

INTERNATIONAL BUSINESS

6E:1 Principles of Macroeconomics
6E:2 Principles of Macroeconomics
Three courses in international business

INTERNATIONAL RELATIONS AND INSTITUTIONS

Two courses in international relations and institutions

FOREIGN LANGUAGE

Two to three years of college-level work (or equivalent) in one of the following languages: Chinese, French, German, Hindi, Italian, Japanese, Portuguese, Russian, Spanish, or Swahili

AREA STUDIES

Two courses that pertain to countries or areas in which the chosen language is spoken

Combined Degree in Business and Liberal Arts

The Colleges of Liberal Arts and Business Administration offer a combined degree program whereby students earn two University of Iowa baccalaureate degrees. Successful candidates are awarded a Bachelor of Business Administration (B.B.A.) by the College of Business Administration 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.) by the College of Liberal Arts.

To enter the combined degree program, students must be eligible for admission to the College of Business Administration. Interested students should schedule an appointment with an adviser in the Undergraduate Programs Office in the College of Business Administration. Students must be approved for candidacy in the combined degree program by the College of Business Administration and must be admitted to both the College of Business Administration and the College of Liberal Arts.

Students who enter the program are required to complete the General Education Requirements and the requirements for the chosen major in the College of Liberal Arts.

To qualify for both degrees in the combined degree program, candidates must complete an overall total of 150 semester hours, including at least 30 in courses offered by the College of Business Administration and at least 30 in courses offered by the College of Liberal Arts.

Interdepartmental Graduate Programs

The following interdepartmental graduate programs are offered in the College of Business Administration: Master of Business Administration (M.B.A.); Master of Arts (M.A.) in accounting, industrial relations and human resources, and management information systems; and Doctor of Philosophy (Ph. D.) in business administration. Dual degree options allow M.A. or M.B.A. candidates to pursue a second graduate degree in another college. For information on M.A. programs, see the respective departmental listings in this section of the Catalog. For information on graduate programs in economics, see “Economics” in this section of the Catalog.

School of Management-Master of Business Administration

The University of Iowa School of Management offers a Master of Business Administration (M.B.A.) degree program that provides students with a foundation for future growth and flexibility in professional management. The program, which is fully accredited by the American Assembly of Collegiate Schools of Business (AACSB), enables students to build broad-based personal portfolios of analytical skills, knowledge, and professional experiences. The curriculum is rigorous, yet learning takes place in a collaborative environment that builds teamwork skills and encourages independent problem solving.

The M.B.A. requires 60 semester hours, including four courses in an area of concentration and four elective courses in business or from another area of the University. Students may transfer up to 9 semester hours from another AACSB-accredited institution.

Students in the Iowa M.B.A. program come from every region of the United States and from
countries throughout the world. They represent a variety of backgrounds, undergraduate majors, and prior professional experience. The curriculum is designed for college graduates in any field-previous course work in business is not required. Interested students should review a current M.B.A. brochure available from the School of Management, for complete program requirements.

Plan of Study

First Semester
- 6N:210 Models for Decision Support 3 s.h.
- 6N:211 Marketing Management 3 s.h.
- 6N:212 Administrative Science I 3 s.h.
- 6N:213 Managerial Economics 3 s.h.
- 6N:215 Accounting for Managers I 3 s.h.

Second Semester
- 6N:225 Managerial Finance 3 s.h.
- 6N:226 Statistical Methods 3 s.h.
- 6N:227 Administrative Science II 3 s.h.
- 6N:228 The Economic Environment of the Firm 3 s.h.
- 6N:229 Operations Management 3 s.h.

Third Semester
- 6N:230 Applied Strategic Analysis 2 s.h.
- 6N:235 Accounting for Managers II 1 s.h.
- Electives 6 s.h.
- Concentrations 6 s.h.

Fourth Semester
- 6N:240 Strategic Management and Business Policy 3 s.h.
- Electives 6 s.h.
- Concentrations 6 s.h.

CONCENTRATION OPTIONS

M.B.A. students choose an individual area of concentration after the first-year curriculum is completed. The concentration consists of 12 semester hours in a specific discipline. Main areas of concentration include accounting, corporate finance, investments, human resources management, leadership quality and teams, management information systems, production and operations, and marketing. Individual students may devise their own concentration area, subject to approval by the School of Management.

ELECTIVES

The student chooses 12 semester hours of graduate-level electives. Courses outside the College of Business Administration must be approved by the School of Management.

DROP POLICY

The School of Management has an early deadline for students to drop any 6N departmental course. The last day to drop is the University’s last day to add courses. This typically falls at the end of the third week of fall or spring semester and at the end of the first week-and-a-half of the summer session. Drops after this date will be allowed only upon successful petition to the School of Management.

Daul Degree Programs

Dual-degree programs allow students to pursue concurrently an M.B.A. in the College of Business Administration and a J.D. in the College of Law, an M.A. in library and information science in the School of Library and Information Science, an M.A. in nursing in the College of Nursing, or an M.A. in hospital and health administration in the College of Medicine. These programs allow students to earn both degrees—a minimum of 72 semester hours-more rapidly than if each degree were pursued independently. Interested students must make separate applications to each degree program.

Accelerated Professional Track

Highly qualified undergraduate students in the Colleges of Liberal Arts or Engineering at The University of Iowa may be admitted to the Accelerated Professional Track (APT) program. These students begin taking the M.B.A. core courses as electives in their undergraduate program so they can earn both the bachelor’s and M.B.A. degrees in less time than would usually be required. APT students must complete a cooperative education experience while in the program.

Interested students must have completed 60 semester hours of undergraduate study, earned a 3.50 minimum grade-point average, and indicated the intent to pursue both degree programs on a full-time basis. Students admitted to the program are required to complete at least 30 semester hours of graduate-level course work upon completing the undergraduate degree. More information on the APT program is available from the School of Management.

Part-time Evening M.B.A.

A part-time evening M.B.A. program is available with instruction offered in Cedar Rapids and the Quad Cities. This program, sponsored jointly by the College of Business Administration and the Division of Continuing Education, is identical to the full-time, on-campus program. Courses in Cedar Rapids are offered in conjunction with the Continuing Education Association; those in the Quad Cities are offered through the Quad Cities Graduate Study Center in Rock Island, Illinois.

Students pursuing the part-time evening M.B.A. program are able to complete the 60-semester-hour program in four years, taking five courses each academic year. A limited number of M.B.A. courses are offered in Iowa City during the evening. Students admitted to the part-time evening program may take classes in Iowa City as space is available.

Executive M.B.A. Program

The Executive M.B.A. also leads to the Master of Business Administration degree. Admission is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. Course work is presented in two academic years. Classes begin with one full week in Iowa City followed by classes one day a week on alternating Fridays and Saturdays. Participants progress through the program together as a single group.

Information about the program, fees, and application procedures may be obtained by writing or calling the School of Management.

Master of Arts

The Master of Arts program in business administration is designed for students seeking specialization in one of three areas of business administration. It permits a research emphasis that qualifies students for professional positions in business.

The program is available with or without thesis and is flexible, permitting specialization according to students’ interests and objectives. Students may select a major in accounting, industrial relations and human resources, and management information systems. A minor may be developed from approved course combinations within the College of Business Administration or from outside the college.

Specific program requirements are stated in the individual departmental listings in this section of the Catalog. Interested students should contact the department sponsoring the degree for complete program information.

Doctor of Philosophy

The Ph.D. program 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 area of specialization according to their interests. Sufficient course work and related experience are provided, enabling students to achieve competence in economic theory, statistical methods, and behavioral science, as well as expertise in a major and minor area of study. Students also have opportunities to develop research and teaching skills.

Course work in the Ph.D. program consists of prerequisites (as necessary), the Ph.D. core, major and minor areas of study, and dissertation research. Most students (including all with master’s degrees from AACSB-accredited programs) take 60 semester hours of course work. Additional course requirements may be imposed to guarantee satisfaction of business prerequisites or the Graduate College minimum total credit-hour requirement (72 semester hours of graduate credit, including courses taken before entering The University of Iowa Ph.D. program). Interested students should contact the sponsoring department for complete program information.

PREREQUISITE COURSES

The common body of knowledge requirements of the AACSB must be satisfied by undergraduate or graduate courses. These include courses in accounting, finance, management, marketing, organizational behavior, quantitative methods, and the economic and legal environment pertaining to profit and/or nonprofit organizations.
CORE COURSES
Core courses are designed to develop competence in research and to provide necessary background for study in more specialized courses. Graduate courses are required as follows: behavioral sciences (3 semester hours), economics (6 semester hours), issues in scientific inquiry (3 semester hours), and research methods/statistics/quantitative analysis (12 semester hours).

To reflect the background and interests of individual students, doctoral candidates consult with their advisers to establish satisfaction of core requirements.

MAJOR AREA OF STUDY
A minimum of 12 semester hours of approved doctoral-level courses must be completed in one of the following areas: accounting, finance, human resources management, industrial relations, management science, marketing, or organizational behavior.

MINOR AREA OF STUDY
A minimum of 9 semester hours of doctoral-level courses beyond the Ph.D. core course requirements must be taken. Available areas include all major areas of study listed in addition to concentrations outside the College of Business Administration.

COMPREHENSIVE EXAMINATIONS
Students must successfully complete a written examination in both the major and minor areas of study. The examination committee is made up of a minimum of three faculty members. Upon satisfactory completion of the written comprehensive examinations, students must pass an oral comprehensive examination encompassing subject matter in the major, minor, and related areas. The examination committee is made up of at least five faculty members.

DISSERTATION
A dissertation proposal must be presented before a forum attended by dissertation committee members and open to interested faculty and graduate students as established by departmental procedures. Students are required to complete 15 semester hours of dissertation credit. The completion of research and writing associated with the dissertation usually requires one year of full-time effort.

FINAL EXAMINATION
The completed dissertation must be defended in an oral examination attended by the dissertation committee members. It also is open to other interested faculty and graduate students.

Admission
Applicants to the M.B.A. program must submit the School of Management application form and fee, official transcripts of all graduate and undergraduate course work, official Graduate Management Admission Test (GMAT) scores, and letters of reference. For some departments, the Graduate Record Examination (GRE) Aptitude Test scores may be submitted in place of GMAT scores for applicants to the Ph.D. program in business administration. Students should contact the sponsoring department and consult the Graduate College section of the Catalog for more information.

Application Information
A complete application file requires the following:
- a completed application form and fee;
- official transcripts of all undergraduate and graduate work submitted to the Office of Admissions by each institution attended;
- official Graduate Management Admission Test (GMAT) scores submitted to the Office of Admissions;
- the completed supplemental application form with essay responses and a résumé (for MBA applicants); and
- at least three references from former instructors or employers.

Foreign nationals whose primary language is not English must submit an official score of 600 or higher on the Test of English as a Foreign Language (TOEFL). Application packets may be obtained from the Office of Admissions.

Application Deadlines
The application deadlines for M.B.A., M.A., and Ph.D. programs in business administration are as follows.

M.B.A. Full-Time On-Campus Program (Fall Entrance Only)
- April 15–Foreign applicants for fall (August). March is the latest acceptable GMAT test date.
- April 15–priority deadline for fall (August) applications; U.S. citizens' and permanent residents' for fall admission after this date are reviewed on a space available basis. March is the latest acceptable GMAT test date.

M.B.A.–Part-Time Evening Program (Fall and Spring Entrance)
- November 15–U.S. citizens and permanent residents, and foreign applicants for spring (January). October is the latest acceptable GMAT test date.
- April 15–Foreign applicants for fall (August). March is the latest acceptable GMAT test date.

JULY 1–U.S. citizens and permanent residents applying for summer enrollment.
- October 1–Foreign applicants for spring enrollment.
- December 1–U.S. citizens and permanent residents applying for spring enrollment.
- March 1–Foreign applicants for summer or fall who are applying for financial aid. Applications received by February 1 receive priority in consideration for financial aid.
- October 1–Foreign applicants for spring enrollment.
- October 1–U.S. citizens and permanent residents applying for spring enrollment.

Other Graduate Programs

M.A. in Accounting, Industrial Relations and Human Resources, and Management Information Systems
See “Accounting” in this section of the Catalog.

M.A. and Ph.D. in Economics
See “Economics” in this section of the Catalog.

M.A. in Industrial Relations and Human Resources
See “Management and Organizations” in this section of the Catalog.

M.A. in Management Information Systems
See “Management Sciences” in this section of the Catalog.

Facilities
The College of Business Administration is located in the John Pappajohn Business Administration Building, at the heart of the campus. The Pappajohn Building contains
seminar and conference moms, a computer laboratory, two auditoriums, two computer classrooms, a behavioral laboratory, a restaurant, a business library, and a variety of classroom facilities, and an underground parking facility.

Extensive research materials for business and economics are maintained in the Main Library, and the facilities of the Weeg Computing Center are available to all students. Students also have direct access to a large computer laboratory in the Panpohlan Building. The laboratory serves the instructional programs of the college, and the staff maintains a current library of computational programs and data tapes to accommodate user’s needs.

Management and Business Development

Executive Development Center

The Executive Development Center conducts training and developmental conferences for executives and senior-level management personnel in Iowa the Midwest, and the nation. The programs, ranging from two days to two weeks, offer the latest research and strategy-based knowledge in the functional aspects of business as well as the economic, social and international issues and forces that affect American business and industry. In addition to these public programs, specially tailored executive programs are offered for particular industries and/or businesses.

Financial Markets Institute

The Financial Markets Institute has two primary objectives: to disseminate recent advances in knowledge about the operation of financial markets to the academic and financial communities, and to support basic research that investigates the risks and returns of financial assets and the trading environment in which these assets are exchanged.

Industrial Relations Institute

The Industrial Relations Institute is designed to bring faculty and students together with people in industrial relations to explore curriculum matters and do research. It also conducts continuing education seminars and workshops for practitioners in the field of industrial relations.

Institute for Economic Research

The Institute for Economic Research engages in continuing 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, service, and advice on a continuous basis 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 Entrepreneurial Management

The Institute for Entrepreneurial Management helps and guides potential and present entrepreneurs in planning, evaluating, and starting new business ventures. It offers individual counseling and the participation of graduate students guided by faculty members in projects such as assessing the size and viability of a market, producing pro forma financial statements, and writing the business plan. The institute also offers noncredit courses on how to manage the entrepreneurial process.

Management Center

The Management Center is a major continuing education branch of the college that provides relevant information to management and government representatives in Iowa. It disseminates current administrative, behavioral science, and management knowledge related to the working life of people in organizations through on- and off-campus conferences.

Manufacturing Productivity Center

The Manufacturing Productivity Center facilitates contractual arrangements with Iowa manufacturing firms. The agreements enable business faculty and graduate students, working with the firms’ managers and engineers, to jointly address ways to improve manufacturing productivity.

Ira B. McGladrey Institute for Accounting Research

The Ira B. McGladrey Institute for Accounting Research facilitates efforts of the college’s accounting faculty by providing staff and financial support.

Small Business Development Center

The Small Business Development Center was created in 1981 to provide management assistance without charge to small business owners and persons interested in starting a small business. The center provides individual counseling to small businesses and conducts workshops on topics related to small business management.

Placement Services

The placement needs of the college are served by the Office of Business and Liberal Arts Placement, located in Phillips Hall. A placement media library, student career planning advising, and interview facilities provide students and recruiting organizations with a full range of placement services. M.B.A. students also have access to placement resources in the School of Management.

Alumni Relations

The college maintains an Office of Alumni Relations to act as host during visits from alumni, friends, recruiters, and others interested in the college.

Interdepartmental Courses

For Undergraduates

6B:000 Cooperative Education Internship 0 s.h.
6B:000 Cooperative Education Internship I 0 s.h.
6B:099 Orientation to Business 1 s.h.
6B:165 Business Policy 3 s.h.
6B:188 Honors Project arr.
6B:189 Undergraduate Honors Seminar 1 s.h.

For M.B.A. Students

See individual department listings for M.B.A. elective courses.

6N:000 Cooperative Education Internship-M.B.A. 0 s.h.
6N:210 Models for Decision Support 3 s.h.
6N:211 Marketing Management 3 s.h.
6N:212 Administrative Science 1 3 s.h.
6N:213 Managerial Economics 3 s.h.
6N:215 Accounting for Managers I 3 s.h.
6N:222 Statistical Methods 3 s.h.
6N:227 Administrative Science II 3 s.h.
6N:226 Interdepartmental Courses
6N:228 The Economic Environment of the Firm 3 s.h.
Measurement of economic activity; determinants of national income, investments, business fluctuations; money, prices, inflation; monetary and fiscal policy and forecasting. Prerequisite: 6N:213.

6N:229 Operations Management 3 s.h.
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: 6N:210.

6N:230 Applied Strategic Analysis 2 s.h.
Development of tools for modeling and analyzing managerial decisions with a strategic component; applications to functional areas via cases and complex problems. Prerequisite: 30 semester hours of M.B.A. core courses or consent of instructor. Corequisite: 6N:235.

6N:235 Accounting for Managers II 1 s.h.
Appropriate techniques for assigning costs, performance evaluation of managers, development of accounting systems for managerial use, and impact of income taxation on performance evaluation. Prerequisite: last 15 hours of M.B.A. program.

6N:240 Strategic Management and Business Policy 3 s.h.
Nature, scope, complexity of chief executive’s job; functional integration of all managerial activities. Prerequisite: last 15 hours of M.B.A. program.

Accounting
Head: Willis R. Greer, Jr.
Professors: Daniel W. Collins (Henry B. Tippie Professor), Douglas V. De Jong (Director, Ira B. McGladrey Institute), Willis R. Greer, Jr., W. Bruce Johnson (Arthur Andersen Professor), Valdean C. Lembke (Director, Professional Program Accounting) Associate professors: Ramamurthy Balakrishnan, Joyce E. Berg, Richard A. Grimald, Morton Pincus, Albert A. Schebok, Richard M. Tubbs Assistant professors: Thomas J. Carroll, Amy E. Dunbar Undergraduate degree: B.B.A. in Accounting Graduate degree: M.A. in Accounting; Ph.D. in Business Administration

The Department of Accounting offers a broad education that prepares undergraduate and graduate students for careers as academics and practitioners of accounting.

Professional Program
The professional program in accounting at The University of Iowa is a three-year, undergraduate and graduate program that leads to a B.B.A. in Accounting and a Master of Arts (M.A.).

The program draws on curricula that provide a strong base of traditional technical subject matter and a comprehensive perspective on decision making for complex business problems. This framework of study enables students to continue professional growth over the entire span of their careers. The professional program provides the academic background required for leadership positions in business, government, and public accounting. It also qualifies students to sit for the Certified Public Accountant (CPA) and Certified Management Accountant (CMA) examinations.

Completion of prebusiness course work and acceptance to the College of Business Administration are required before entry into the professional program in accounting. Separate applications to the College of Business Administration and the professional program in accounting are made at the end of the sophomore year. If an applicant is accepted into the program at the beginning of his or her junior year, the student receives a B.B.A. after the successful completion of the first two years of the program. The nonthesis M.A. requires 30 graduate semester hours beyond the 120 undergraduate semester hours required for the B.B.A. in accounting. For more information, see “Program I,” below.

The first and second years of the professional program, taken during the junior and senior years, provide concentrated coverage of professional accounting subjects and closely related topics in economics, commercial law, business, and information systems.

The third year, taken during M.A. candidacy, emphasizes the conceptual and economic foundations of accounting. The program consists of a series of courses that merge concepts and techniques with applications to current and potential problems of professional practice. Graduate accounting courses are structured to encourage dialogue and interaction between students and accounting faculty members. Oral and written communication skills are emphasized during the third year through class presentations and papers.

Students in the first and second years of the professional program must maintain a 2.00 grade-point average in all courses and in upper-division accounting courses. Students in the third year of the professional program must maintain a 3.00 grade-point average in both graduate-level accounting courses and all other course work. Students who do not maintain these grade requirements are placed on departmental academic probation for one semester. If the minimum grade requirements are not met by the end of that semester, the student’s academic record is reviewed by the department faculty to determine whether the student will be permitted to continue in the program. Accounting majors also are subject to probation and dismissal rules for the college described in the College of Business Administration introductory section of the Catalog.

Students who seek admission to the third year of the professional program must apply to The University of Iowa’s Graduate College. Candidates applying for admission to the Graduate College must include scores attained on the Graduate Management Admission Test (GMAT). Admissions are considered throughout the calendar year.

Students accepted into the master’s program in accounting enter the third year of Program 1 (B.B.A. in accounting), Program 2 (B.B.A. in business but not in accounting), or Program 3 (undergraduate degree not in business). All programs are adjusted to reflect the particular academic background or deficiencies of the successful applicant.

Program 1
This program is for students who have completed their preprofessional program at The University of Iowa or qualified students from other institutions.

Undergraduate students entering the professional program must complete 60 semester hours of course work and be admitted to the College of Business Administration. The following general prebusiness core courses must be completed prior to admission to the professional program.

6A: 1 Introduction to Financial Accounting (with a grade of B- or higher) 3 s.h.
6A: 2 Introduction to Managerial Accounting (with a grade of B- or higher) 3 s.h.
6E: 1 Principles of Macroeconomics 3-4 s.h.
6E: 2 Principles of Macroeconomics 3-4 s.h.
22M: 17 Quantitative Methods I 4 s.h.
22S: 8 Quantitative Methods II 4 s.h.
6K: 70 Computer Analysis 3 s.h.
6K: 71 Statistical Analysis 3 s.h.

After successful completion of the first two years of the professional program, students receive the B.B.A. During the first two years in the program, undergraduate accounting students are expected to complete the Graduate Management Admission Test (GMAT). If they have been highly successful during the first two years of the program and have completed the GMAT with a sufficient score, they are admitted to graduate study and the third year of the program. After successfully completing the third year of the professional program (including an oral exam), students receive the M.A. in accounting.

First Year (Junior)
Fall Semester
6A: 131 Income Measurement and Asset Valuation 3 s.h.
6A: 133 Introduction to Taxation 3 s.h.
6F: 100 Introductory Financial Management 3 s.h.
6J: 100 Administrative Management 3 s.h.
6K: 100 Operations Management 3 s.h.

Spring Semester
6A: 130 Accounting for Management Analysis and Control 3 s.h.
6A: 132 Valuation of Financial Claims 3 s.h.
6E: 100 Economics for Business Decision Making 3 s.h.
6J: 47 Introduction to Law or 6M: 100 Introduction to Marketing 3 s.h.
6K: 183 Applied Information Systems 3 s.h.

Second Year (Senior)
Fall Semester
6A: 144 Auditing 3 s.h.
Accounting Elective* 3 s.h.
6M: 100 Introduction to Marketing (if not previously taken) 3 s.h.
or Electives 9 s.h.

Spring Semester
6A: 148 Business Law 3 s.h.
6B: 165 Business Policy 3 s.h.
Accounting Elective* 3 s.h.
Electives 6 s.h.

* Students choose two of the three following accounting courses during their senior year.
6A: 141 Advanced Tax Topics 3 s.h.
6A:145 Accounting for Multi-Segment Enterprises 3 s.h.
6A:146 Government and Not-For-Profit Accounting 3 s.h.

THIRD YEAR (GRADUATE)

These courses may be taken only after unconditional admission to the third year of the professional program. A total of 30 semester hours beyond the B.B.A. is required. At least 15 semester hours must be graduate-level accounting courses. A total of at least 21 semester hours of 200-level courses must be completed.

Fall Semester
6A:220 Design and Use of Cost Management Systems 3 s.h.
6A:221 Financial Reporting: Theory and Practice 3 s.h.
Electives* 6 s.h.

Spring Semester
6A:230 Advanced Auditing 3 s.h.
6A:231 Taxes and Business Strategy 3 s.h.
Eelectives* 6 s.h.

Summer Session
Electives* 6 s.h.

*Students must take a minor area of at least 6 semester hours chosen from elective categories. One of the following elective accounting courses, (which have not been taken during the first two years of the program), must also be completed.

Jnt Program in Accounting and Law
A joint program with the College of Law permits up to 12 hours of law courses to be applied as electives in the Professional Program in Accounting and up to 12 hours of graduate accounting courses to be applied as electives in the Juris Doctor (J.D.) degree program. A minimum of 18 semester hours of graduate course work in the accounting program is required for the joint J. D.-M.A. degree.

Graduate Program
Doctor of Philosophy
See “Interdepartmental Graduate Programs” in the College of Business Administration section of the Catalog.

Faculty
The department’s faculty members maintain currency through active participation in the production and dissemination of accounting-related knowledge. They keep abreast of the latest developments in the field of education and the profession.

Courses
Primarily for Undergraduates
6A:9000 Cooperative Education Internship 0 s.h.

6A:1 Introduction to Financial Accounting 3 s.h.
External financial reporting in society; generally accepted accounting procedures for transactions of business entities; emphasis on accounting concepts, economic decisions. Sophomore or higher standing required.

6A:2 Introduction to Managerial Accounting 3 s.h.
COGS behavior, measurement, accumulation, use cost data for relevant cost analysis, budgeting, performance evaluation. Prerequisites: 6A:166:1 and 22M:17.

For Undergraduates and Graduates
6A:1.13 Taxes and Business Decisions 3 s.h.
Tax concepts; emphasis on recognizing tax-planning opportunities, pitfalls inherent in common management decisions. Prerequisite: 6A:2 or equivalent.

6A:120 Financial Accounting 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. Open only to nonmajors or to others with consent of adviser. Prerequisite: 6A:2 or equivalent.

6A:130 Accounting for Management Analysis and Control 3 s.h.
Advanced topics in cost estimation, measurement, accumulation; use cost data for decision-making, performance evaluation in multi unit organizations. Admission to professional program in accounting required. Corequisite: 6E:100.

6A:131 Income Measurement and Asset Valuation 3 s.h.
Accounting rules that determine how economic events and transactions are described in published financial statements; emphasis on revenue and expense recognition, asset Valuation, accrual accounting model. Admission to professional program in accounting required.

6A:132 Valuation of Financial Claims 3 s.h.
Current and long-term liability and stockholders’ equity sections, off balance sheet financing, cash flow statement; earnings per share, financial instruments. Prerequisite: 6A:131.

6A: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. Admission to professional program in accounting required.

6A:141 Advanced Tax Topics 3 s.h.
Taxation of corporations, partnerships from organization through liquidation; relative merits of conducting business through partnership, corporation, proprietorship, subchapter S corporation. Senior standing required. Prerequisite: 6A:133.

6A: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: 6A:132 and 6K:183. Senior standing required.

6A:145 Accounting for Multi-Segment Enterprises 3 s.h.
Accounting and reporting standards, practices for business combinations and segments, consolidations, multinational enterprises, joint ventures, partnerships, other organizational forms, Senior standing required. Prerequisite: 6A:132.

6A:146 Government and Not-For-Profit Accounting 3 s.h.
Accounting, financial reporting procedures, analysis of financial statements and reports, role of SEC in accounting regulation. Prerequisites: 6A:132 or 6A:240.

6A:148 Business Law 3 s.h.
Uniform commercial code, forms of business organization, types of contracts, other aspects of law applied to business. Senior standing required. Prerequisite: 6A:47.

6A:170 Special Topics in Accounting 3 s.h.
Consent of instructor required.
Primarily for Graduates

6A:220 Design and Use of Cost Management Systems 3 s.h.
Product costing, performance evaluation in modern manufacturing environments; activity based costing, management. Graduate standing in business required. Prerequisite: 6A:130.

6A:221 Financial Reporting: Theory and Practice 3 s.h.

6A:230 Advanced Auditing 3 s.h.
Historical emergence of auditing; advanced issues such as ethics, independence, regulation and litigation, audit evidence, models of audit testing. Graduate standing in business required. Prerequisite: 6A:144.

6A: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. Graduate standing in business required. Prerequisite: 6A:133.

6A:232 Contemporary Issues in Accounting 3 s.h.
Consent of instructor required.

6A:233 Organization Design and Control 3 s.h.
Modern organization, role of information in organization design; performance evaluation, goals, schemes. Graduate standing in business required. 6A:220 recommended.

6A:236 Management Planning and Control Systems 3 s.h.
Product costing, performance evaluation roles of management accounting systems; activity based costing systems, impact of production philosophies such as JIT manufacturing, TQM on cost management systems. Prerequisites: 6N:215 or 6N:225 or equivalent.

6A: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: 6N:215.

6A:245 Financial Information and Capital Markets 3 s.h.
Use of corporate financial statements for investment, lending decisions; strengths, limitations of corporate accounting data in light of research in finance, accounting. Prerequisite: 6A:240 or equivalent.

6A:280 Seminar in Accounting Thought 3 s.h.
Research methods germane to accounting literature. Open only to doctoral students.

6A:281 Advanced Research Seminar 3 s.h.
Literature on economics of accounting choice, capital markets, audit policy and methods, behavioral accounting, principal agent/agency modeling, experimental economics. Open only to doctoral students.

6A:286 Seminar in Accounting Research 1 arr.
Focus on current research in accounting, related disciplines: faculty, student, graduate, Ph.D. dissertation proposals. Open only to doctoral students.

6A:287 Seminar in selected Accounting Topics 1 arr.
Individual study, research paper preparation. Consent of instructor required.

Consent of instructor required.

Chair: Robert Forsythe
Professor emeritus: Anthony Costantino
Adjunct professor: J. Richard Zecher
Associate professors: Michael Balch, Naryana Kocherlakota, John Solow
Assistant professors: Andreas Blume, Dean Corbae, Beth Ingram, Yong-Gwan Kim, Barbara McCutcheon, Robert Tanura

Graduate Programs

Master of Arts
The Master of Arts is offered only to students working toward a Ph.D. or to those who earn a joint M.A. with geography or a joint M.A.-J.D. with law.

Joint M.A. Programs
The department collaborates with the Department of Geography in a joint M.A. and with the College of Law in a joint M.A.-J.D. In these programs, the economics department accepts up to 9 semester hours of course work from the other departments as credit toward the M.A. in economics, and the other departments accept graduate credits in economics toward their degrees.

Doctor of Philosophy
The Ph.D. program is designed to provide rigorous training in macroeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, students select a major area for intensive study and specialization. The program has three components: a coordinated sequence of core courses, a set of major area courses, and a dissertation.

Core Sequence
First Semester

6E:105 Macroeconomics 3 s.h.
Two field courses numbered from 6E:170 through 6E:189 6 s.h.

Graduate Programs

Bachelor of Business Administration
In addition to the common requirements of the College of Business Administration, the B.B.A. in economics requires 15 semester hours in 100-level economics courses, including the following:

Mathematics for Economists I 3 s.h.
6E:203 Macroeconomics I 3 s.h.
6E:204 Macroeconomics I 3 s.h.

Second Semester

6E:201 Statistical Methods 3 s.h.
6E:205 Macroeconomics II 3 s.h.
6E:206 Macroeconomics II 3 s.h.

Third Semester

6E:221 Econometrics 3 s.h.

Fourth Semester

6E:222 Applied Econometrics 3 s.h.

Written examinations in macroeconomics and macroeconomics before the second year and a substantial research paper before the beginning of the third year complete the core requirements.

Field Component
Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 semester hours of intensive study in a field and in courses that enable students to understand the relationship between their specialty and related fields. Students must achieve a 3.20 minimum grade-point average in the major area courses.
Dissertation

Students must present and defend a dissertation prospectus during their third year. Admission to candidacy is granted upon successful defense of the prospectus. Submission of the completed dissertation and oral defense of the dissertation research completes the Ph.D. program.

Courses

Primarily for Undergraduates

Note: 6E:1 and 6E:2 may be taken in either order or simultaneously.

6E:000 Cooperative Education Internship 0 s.h.

6E:1 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. GER: social sciences (except B.B.A. students).

6E:2 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. GER: social sciences (except B.B.A. students).

6E:7 Contemporary Economic Problems and Policy 3 s.h.
Economic concepts developed and applied to analysis of current social problems, issues; policies; representative topics include jobs versus unemployment, free trade versus protectionism, the war on drugs, American competitiveness, health care delivery costs and choices.

6E:50 Introduction to Economic and Social Statistics 3 s.h.
Statistical methods applied to problems in economics, other social sciences; graphical methods, descriptive statistics, sampling and inference, regression analysis, simple forecasting methods. Same as 44:85.

6E:99 Internship 0 s.h.
Open only to students participating in the Washington Center for Learning Alternatives, other approved internship programs. Consent of undergraduate director required.

6E:100 Economics for Business Decision Making 3 s.h.
Economic theories of consumer demand, producer behavior, and market equilibrium, with emphasis on applications to business decision making; organization and incentives; market imperfections and government policy; input markets. Prerequisites: 6E:1 and 6E:2, or senior standing; or consent of undergraduate director.

6E:104 Microeconomic Theory 3 s.h.
Microeconomic 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: grade of C or higher in 6E:1 and 6E:2, or consent of undergraduate director.

6E:105 Macroeconomic Theory 3 s.h.
Measurement of national product, unemployment, inflation; determination of full and potential output, role of stabilization policies; economic growth, dynamics of inflation. Prerequisites: grade of C or higher in 6E:1 and 6E:2, or consent of undergraduate director.

6E:111 Labor Economics 3 s.h.
Macroeconomic 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. Prerequisite: 6E:1 or consent of instructor.

6E:113 Health Economists 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, and role of government. Prerequisites: 6E:1 and 6E:2, or senior standing.

6E: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: 6E:1 and 6E:2, or senior standing.

6E: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, distributor of income, economic growth, stability. Prerequisites: 6E:1 and 6E:2, or consent of instructor.

6E:125 International Economics 3 s.h.
Foreign exchange, balance of payments; international monetary arrangements, policy; theory of international trade; role of tariffs, restrictions in international trade. Prerequisites: 6E:1 and 6E:2, or senior standing.

6E:129 Economic Growth and Development 3 s.h.
Determinants of rising living standards; accumulation of physical, human capital; predictions of economic growth models compared to changes in living standards. Prerequisite: 6E:1 or consent of instructor.

6E:133 Environmental and Natural Resource Economics 3 s.h.
Environmental, resource use problems; efficient mechanisms and other policies for environmental protection, management of common property resources. Prerequisites: 6E:1 and 6E:2, or senior standing, or consent of instructor.

6E: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: 6E:1 and 6E:2, or senior standing.

6E:141 Economics of American Industries 3 s.h.
Structural evolution, resource allocation, development of public policy on monopoly; selected industries. Prerequisites: 6E:1 and 6E:2, or senior standing.

6E:145 introduction to the Economics of Transportation 3 s.h.
Same as 102:133, 144:133.

6E:150 Introduction to Economic History 3 s.h.
Western economic development from antiquity to present; evolution of population, technology, business organization, production, trade; dynamics of economic systems; methodology. Prerequisite: 6E:1 or equivalent.

6E:163 Comparative Economies 3 s.h.
Comparative study of organization, operation, performance of major economies around the world; private versus collective ownership, administrative versus market coordination, centralized versus decentralized decision making; privatization of industries, growth of globalization of markets, apparent triumph of capitalism. Prerequisites: 6E:1 and 6E:2.

6E:164 Economics in Transition 3 s.h.
Theory, experience of central economic planning; causes of collapse of communism in eastern Europe, former Soviet Union; major episodes of economic reform; current problems of transformation to the market system. Prerequisites: 6E:1 and 6E:2.

6E:171 Antitrust, Legal and Economic Analysis 3 s.h.
Federal policy, competition, predatory pricing, collusion, vertical restraints and resale price maintenance, enforcement; case law, economics literature. Prerequisite: 91:208 or 6E:100 or 6E:104 or consent of instructor. Same as 91:201.

6E:172 Law and Economics 3 s.h.
Law examined through analytic tools of microeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic wellbeing. Prerequisite: 6E:100 or 6E:104 or consent of instructor. Same as 91:205.

6E:173 Advanced International Economics 3 s.h.
Neoclassical model of international trade, theory of comparative advantage, role of trade barriers, balance of payments, foreign exchange, macroeconomic policy in an open economy. Prerequisites: 6E:100 or 6E:104, and 6E:105; or graduate standing.

6E:174 Monetary Economics 3 s.h.
Demand for, supply of money; money's role in economy; empirical studies of money's impact; problems with monetary control. Prerequisite: 6E:105 or consent of instructor.

6E:175 Economic Analysis of Labor Markets 3 s.h.
Labor supply and demand, decision-making in human capital, compensating wage differentials, discrimination, long-term contracts, occupational choice, family decisions, unions, management. Prerequisites: 6E:100 or 6E:104, and elementary Calculus and Statistics.

6E:176 Public Sector Economics 3 s.h.
Economic functions, budgetary processes of government; effects of government expenditures, taxation on resource allocation, income distribution, economic growth and stability. Prerequisites: 6E:100 or 6E:104, and 6E:105; or consent of instructor.

6E: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. Prerequisite: 6E:100 or 6E:104.

6E:178 American Economic History 3 s.h.
Emphasis on role of population, technology. Prerequisites: 6E:100 or 6E:104 for economics majors; 6E:1 and 6A:61 for non-economics majors. Same as 16A:144.

6E:179 History of Economic Thought 2-3 s.h.
Economic concepts, development of economic as a science; ideas of Smith, Ricardo, Malthus, Walras, Marshall, Keynes, and their major critics. Prerequisite: 6E:100 or 6E:104 or 6E:105.

6E: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 variable emphasis on interpretation, application of econometric models, methods, use of computers. Prerequisite: 22S:120 or equivalent.

6E:187 Introduction to Mathematical Economics 3 s.h.
Mathematical structure of economic principles, problems in economic systems; may include constrained optimization; choice under uncertainty; general equilibrium and welfare economics; dynamical systems and control theory; game theory. May be repeated. Prerequisite: 6E:100 or 6E:104 or consent of instructor.

6E:189 Topics in Economics 3 s.h.
Consent of instructor required.

For Advanced Undergraduates

6E:197 Honors Seminar 3 s.h.
Consent of instructor required.

6E:198 Senior Thesis in Economics 3 s.h.
Consent of instructor required.

6E:199 Readings and Independent Study in Economics 3 s.h.
Consent of instructor required.

Primarily for Graduates

With consent of the department chair, qualified undergraduate students may enroll in courses listed for graduate students.

6E:200 Mathematics for Economists I 3 s.h.
Constrained optimization, difference equations, differential equations, dynamic optimization.

6E:201 Statistical Methods 3 s.h.
Probability theory, statistical inference, linear regression model, econometric methods. Prerequisite: one year of calculus and multivariable calculus.

6E: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. Consent of instructor required.

6E:204 Macroeconomics I 3 s.h.
Economic growth, business cycles, money and inflation. Offered fall semesters. Consent of instructor required.

6E:205 Macroeconomics II 3 s.h.
Neoclassical paradigm; axioms, essential conclusions; limitations of paradigm, alternative theories. Offered spring semesters. Prerequisite: 6E:200 or 6E:203 or one year of calculus.

6E:206 Macroeconomics III 3 s.h.
Dynamic macroeconomic models, stochastic macromonies, time consistency, equilibrium business cycle theory. Offered spring semesters. Prerequisite: 6E:204 or consent of instructor.
6E:211 Mathematical Economics I 3 s.h.
Convex analysis in economic theory; ordinal, cardinal preference relations; concave numerical representation; separation principle for convex sets; linear programming; concave programming; Brouwer fixed point theorem, existence of competitive equilibrium. Prerequisites: 6E:205 and 6E:201.

6E:212 Mathematical Economics II 3 s.h.
Theories of two-person games, noncooperative or cooperative; applications to general economic equilibrium analysis. Prerequisite: 6E:211.

6E:217 The Economics of Uncertainty 2-6 s.h.
Information, informational equilibrium; risk and risk aversion; temporal resolution of uncertainty. Prerequisite: 6E:221.

6E:221 Econometrics 3 s.h.
Statistical inference in single, multiple equation stochastic models, models with non-independent or non-identically distributed errors; dynamic models; OLS, GLS, IV, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests Prerequisite: 228S:154 or equivalent.

6E: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: 6E:221.

6E:223 Econometric Theory 1 3 s.h.
Statistical theory underlying econometric inference; emphasis on estimation, hypothesis testing in linear models. Prerequisite: 6E:221.

6E:226 Travel Demand Modeling 3 s.h.
Mathematical, statistical background; choice theories; random utility models; econometric methods for multinomial logit, related models; random utility models applied to travel demand forecasting, demand/performance evaluation. Prerequisites: 6E:184 or 6E:221. Same as 44:236.

6E:231 Economic Development and Policy Alternatives 3 s.h.
Emphasis on theories of development, policy alternatives. Consent of instructor required.

6E:234 International Business - MBA 3 s.h.
Problems in international business; how to export, how to deal with import competition; international joint ventures; country studies. Consent of instructor required.

6E:235 International Trade Theory 3 s.h.
Tariff theory, policy. Consent of instructor required.

6E:236 International Monetary Economics 3 s.h.
Balance of payments adjustment; exchange controls; international investment; macro policy in an open economy. Consent of instructor required.

6E:241 Macroeconomics II 2-6 s.h.
Current research in macroeconomics; development of research topics with emphasis on theoretical, empirical analysis. Prerequisites: 6E:205 and 6E:221.

6E:245 Monetary Theory 2-3 s.h.
Optimal quantity of money, models of monetary growth; overlapping generation models with applications to monetary economies; determinants of interest rates; effects of anticipated, unanticipated money supply changes; empirical estimates of money's impact. Consent of instructor required.

6E:250 Labor Economics 3 s.h.
Problems, models, including neoclassical 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: 6E:205, and 6E:221 or 6E:184.

6E:251 Labor Economics 3 s.h.
Current research, with emphasis on prospects for original research; may include life cycle models of labor supply, dynamic labor demand models, compensating wage differentials, labor turnover, cyclical employment fluctuations, aspects of collective bargaining. Prerequisites: 6E:205, and 6E:221 or 6E:184.

6E:263 Economic History 3 s.h.
Western economies; emphasis on population trends and labor force growth, evolution of capital markets, patterns of capital accumulation, resultant rates of economic growth; analyses of technological progress, growth of open economies. Consent of instructor required.

6E:268 History of Economic Thought 3 s.h.
Development of neoclassical, Keynesian thought; American economic thought, including institutional economics; various of socialist economists; ultra-traditionalism. Consent of instructor required.

6E:271 Industrial Organization 2-4 s.h.
The firm, monopolistic competition, oligopoly and perfect competition; industrial organization, nature of equilibrium under uncertainty. Prerequisites: 6E:205 and 6E:211.

6E:272 Economics of Organization 2-4 s.h.
Design of industrial organizations; incentive mechanisms; achieving efficient allocations; not-for-profit activities, their welfare implications. Prerequisite: 6E:205.

6E:281 Economics of the Government Sector: Taxation 3 s.h.
Role, effects of major taxes on allocation of resources, distribution of income, economic growth and stability; debt finance as an alternative to tax finance.

6E:289 Contemporary Topics in Economics 3 s.h.
Topics not offered in other courses. Consent of instructor required.

6E:300 Readings in Economics 1-3 s.h.
Consent of instructor required.

6E:301 Thesis in Economics 1-3 s.h.
Consent of instructor required.

6E:302 Dissertation seminar 1-3 s.h.
Approval of prospectus required.

6E:305 Economics Seminar 1-3 s.h.

Advanced Graduate Seminars

6E:310 seminar in Economic Theory 1-3 s.h.
Consent of instructor required.

6E:321 Workshop in Macroeconomics 1-3 s.h.
Consent of instructor required.

6E:322 Workshop in Macro and Monetary Economics 1-3 s.h.
Consent of instructor required.

FINANCE

Undergraduate Program

The undergraduate finance program deals with the theory, organization, and operations of the financial system from social and managerial viewpoints. Students are expected to develop analytical abilities and to present their analyses in both written and oral form.

Students graduating with a major in finance may look forward to positions in controllership or treasury work in nonfinancial businesses, in the entire range of financial businesses, or in nonprofit or government organizations. The education received is consistent with progress toward responsible managerial positions.

Requirements for the Bachelor of Business Administration with a finance major are as follows.

6F:111 Investments 3 s.h.
6F:117 Intermediate Financial Management 3 s.h.
6F:126 Real Estate and Urban Land Economics 3 s.h.
6F:13 Financial Markets and Institutions 3 s.h.

6F:102 General Insurance 3 s.h.
6F:105 Introduction to Financial Markets 3 s.h.
6F:111 Investments 3 s.h.
6F:112 Security Analysis 3 s.h.
6F:113 Financial Institutions 3 s.h.
6F:114 Commercial Banking 3 s.h.
6F:115 Corporate Finance 3 s.h.
6F:117 Intermediate Financial Management 3 s.h.
6F:126 Real Estate and Urban Land Economics 3 s.h.
6F:127 Entrepreneurship and New Business Formation 3 s.h.

Primary for Upper-Division Undergraduates

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Courses

Graduate Program

See “Interdepartmental Graduate Programs” in the College of Business Administration section of the Catalog.
46:128 Managing the New or Small Business 3 s.h.
Role of small business in economy; problems confronting small business entrepreneur.

46:130 International Finance 3 s.h.
Multinational business, international monetary system, basis for world trade, development of "developed" countries, foreign investment; emphasis on distinctions between international, domestic business operations. Prerequisite: 46:100 or consent of instructor.

Primarily for Graduates

46:201 Directed Readings in Finance 1 s.h.
Open only to nonthesis M.A. candidates. Consent of instructor required.

46:202 M.A. Research Report 1 s.h.
Open only to nonthesis M.A. candidates. Consent of instructor required.

46:205 Contemporary Topics in Finance 1 s.h.

46:212 Investment Management 3 s.h.
Types of securities available for investment; analysis of financial statements, evaluation of securities; methods of managing an investment portfolio. Prerequisite: 6N:225.

46:213 Options 3 s.h.
Use of options, futures, and options on futures in financial management; emphasis on pricing and applications of these instruments to hedging and the management of financial risk. Prerequisite: 6N:225.

46:214 Real Estate Investment Management 3 s.h.
Analytical techniques applied to problems of structuring real estate investments; feasibility analysis, constraints of federal tax law, sources and methods of financing property risk characteristics, alternative ownership forms. Prerequisite: 6N:225 or consent of instructor.

Structured problems and cases: decision models; current and fixed asset administration, raising funds, cost of funds, capital budgeting, dividends, mergers. Prerequisite: 6N:225 or equivalent.

46:216 Fixed Income Securities 3 s.h.
Behavior of asset returns; term structure of interest rates; market efficiency; asset pricing models, theories of fixed income security valuation; value of contingent claims. Prerequisite: 6N:225 or consent of instructor.

46:217 Portfolio Theory and Planning 3 s.h.
Modern theory in portfolio management for financial institutions; portfolio models and construction, performance measurement, risk. Prerequisites: 46:212, and 6N:271 or consent of instructor.

46:218 Seminar in Finance 1 s.h.
Consent of instructor required.

46:219 Managing the Entrepreneurial Process 3 s.h.
To evaluate business opportunities, acquire necessary resources, evaluate existing businesses, manage new ventures.

46:220 Management of Financial Institutions 3 s.h.
Case study approach to problems, operations of major U.S. financial institutions, including commercial banks, insurance companies, savings and loan associations, mutual savings banks, credit unions, industry, regulatory considerations. Prerequisite: 6N:225 or consent of instructor.

46:223 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. Open only to doctoral students.

46:226 Advanced 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. Open only to doctoral and advanced master's degree candidates.

46:227 Finance Theory II 3 s.h.
Continuous 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. Open only to doctoral students.

46:228 Advanced Empirical Finance 3 s.h.
Market efficiency and term structure theory tests; tests of asset pricing models, dividend policy and financial structure issues. Open only to doctoral students.

46:230 International Finance 3 s.h.
Problems in operation of business in a foreign environment, in framework of financial decision making. Prerequisite: 6N:225.

46:270 Research in Finance 1 s.h.
Consent of instructor required.

46:290 Thesis in Business 1 s.h.
Consent of instructor required.

Graduate Programs

Master of Arts

A Master of Arts with a major in industrial relations and human resources is available as a special nonthesis program for students who seek a professional degree in the field. The degree provides concentrated graduate study in labor relations, organizational behavior, and personnel management.

The M.A. requires 36 to 42 semester hours, depending on the student’s previous academic work, and is designed to allow maximum flexibility in developing a plan of study that meets the student’s needs. Courses are organized in five basic groups: a major area, an optional minor area, foundation courses, common body courses, and a research requirement.

MAJOR AREA

The student’s career goals and previous academic work are considered in the selection of courses for the major area of study. With the approval of the adviser, six courses are selected from the following graduate courses in industrial relations and human resources, for a total of 18 semester hours.

46:241 Total Quality Management 3 s.h.
46:242 Managing and Valuing Diversity 3 s.h.
46:245 Training and Development 3 s.h.
46:250 Industrial Relations Systems 3 s.h.
46:251 Concepts of Fair Employment 3 s.h.
46:252 Collective Bargaining 3 s.h.
46:254 Public Sector Labor Relations 3 s.h.
46:255 Managerial Decision Making 3 s.h.
46:256 Dynamics of Negotiations 3 s.h.
46:257 Legal Issues in Human Resource Management 3 s.h.
46:259 Labor Arbitration 3 s.h.
46:260 Personnel Selection 3 s.h.
46:262 Interpersonal Process in Administration 3 s.h.
46:271 Compensation Management 3 s.h.

OPRATIONAL MINOR

With the consent of their advisers, students may take 6 of the 18 semester hours for the major area from a minor area outside the department. Minor areas of study maybe arranged in related fields, such as law, management sciences, psychology, sociology, economics, or history.

FOUNDATION COURSES

A maximum of 13 semester hours of foundation courses are required of all master’s students in the College of Business Administration. These requirements may be met through completion of courses in administrative management, economics, and statistics. Students who have fulfilled these requirements through previous course work may reduce their total required semester hours to the 36-semester-hour minimum.

COMMON BODY COURSES

Students with insufficient previous course work in accounting, finance, and economics must complete two 3-semester-hour courses in two of the three areas. Students who have previously
course work in these areas may take additional electives or reduce their total required semester hours to the 36-semester-hour minimum.

**RESEARCH REQUIREMENT**

A critical part of each student’s graduate education is the development of research skills. The program’s research component consists of a 3-semester-hour research methodology course and two 1-semester-hour independent research study courses, for a total of 5 semester hours. The product of these two 1-semester-hour courses is a research paper that is evaluated by a panel of three faculty members, who also serve as the student’s oral examination committee.

**Doctor of Philosophy**

Students seeking a Ph.D. in industrial relations and human resources will find degree requirements specified under “Interdepartmental Graduate Programs” in the College of Business Administration section of the Catalog.

**Courses**

### Primarily for Upper-Division Undergraduates

**6J:000 Internship in Management and Organizations**

0 s.h.

**6J:47 Introduction to Law**

General history, structure of law; law’s action in guiding changing economic, social patterns. Prerequisites: 6E:1 and 6E:2, or junior standing.

**6J:100 Administrative Management**

3 s.h.

Principles of management, organizational structure, decision making, leadership line staff relationships, administration of organizations. Junior standing required. Prerequisites: 6E:1 and 6E:2.

**6J:161 Directed Readings in Industrial Relations and Human Resource Management**

Arr.

Consent of instructor required.

**6J:146 International Business Environment**

3 s.h.

Differences between international, domestic business; cultural, legal, political factors for managers. Junior or higher standing required.

**6J:150 Protective Labor Legislation**

Laws regulating safety, health in business, industry; employment discrimination, unemployment and retirement benefits, other work-related statutes. Prerequisite: 6J:47.

**6J:151 Human Resource Management I**

3 s.h.

Legal, social organizational contexts of staffing; job analysis techniques; validation strategies; employment planning, recruiting, psychological tests, interviews, personality measures, performance appraisal, ethical issues. Prerequisite: 6J:100.

**6J:152 Human Resource Management II**

3 s.h.

Legal, ethical, strategic implications of compensation; job evaluation methods; establishing external competitiveness; pay for performance, other reward systems; administration of employee benefits; career development; training techniques, principles. Prerequisite: 6J:151.

**6J:153 Collective Bargaining**

3 s.h.

Historical, political, social, economic, legal aspects of public policy governing collective bargaining, labor management relations. Prerequisite: 6J:47.

**6J:154 International Industrial Relations**

3 s.h.

Labor organizations; their structures, interrelationships with social and economic systems in Western, Eastern, Third World nations. Junior or higher standing required. Prerequisite: 6J:100.

**6J:155 Managerial Decision Making**

3 s.h.

Techniques for identifying evaluating, improving managers’ decision-making policies; social judgment theory, multistable utility theory, signal detection theory.

**6J:156 Dynamics of Negotiations**

3 s.h.

Predictable aspects, dynamics of all bargaining experiences; simulations, experiential exercises to foster skills needed to negotiate effectively in almost any situation.

**6J:256 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.

**6J:259 Labor Arbitration**

3 s.h.

Arbitration tracing; legal, institutional aspects; concepts underlying the rationale, purpose of arbitration; applications to current procedures, techniques in lab grievance, arbitration. Same as 91:310.

**6J:260 Personnel Selection**

3 s.h.

Personnel selection, including professional and legal standards, job analysis techniques, validation strategies, criterion development, selection techniques, psychological tests, interviews, biographical data, assessment centers, ethical issues.

**6J:262 Interpersonal process in Administration**

3 s.h.

Structural practice in managing interpersonal relationships in a work setting.

**6J:263 Organizational Design, Change, and Transformation**

3 s.h.

Organization theory applied to management of small and large companies; impact of changing technologies, environmental factors on organizational operations, effectiveness, case studies.

**6J:264 Human Resources Management**

3 s.h.

Role of human resources in organizations, the economy, personnel theories, research applied to organizational problems, such as selection, training, performance evaluation, compensation, employment rights.

**6J:266 Behavioral Science and Business Organizations**

1 s.h.

Individual behavior, organizational aspects of individual behavior, group behavior in organizations; focus on basic research reports, research related issues.

**6J:267 seminar in Organizational Theory**

3 s.h.

Organizational theory, design; impact of changing environmental, technological factors on organizational structure, effectiveness, power, conflict, interorganizational networks, organizational life cycles, population ecology.

**6J:268 Seminar in Behavioral Science Problems in Organizations**

3 s.h.

Theoretical, methodological topics in behavioral science; applied measurement techniques; behavioral economics, human information processing theories of motivation, principles of rationality.

**6J:269 Meta-Analysis in Behavioral and Social Sciences**

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.

**6J:270 Research Seminar: Management and Organizations**

3 s.h.

Industrial relations, human resources, organization behavior, organizational theory and strategy, model and hypothesis development, research design, data search collection, management, dissemination of findings.

**6J:271 Compensation Management**

3 s.h.

Government and union influences, equity in compensation, labor markets, job pricing and evaluation, wage and salary structures, individual wage determination, employee benefits, issues in compensation administration.

**6J:273 Measurement Theory and Methods in the Behavioral and Social Sciences**

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.

**6J:283 Organizational Decision Behavior**

3 s.h.

Behavioral decision theory applied to problems of managerial inference, information systems design, decision definition, evaluation of decision-making processes.

**6J:290 Thesis in Management and Organizations**

Arr.

**6J:299 Field Studies in Management and Organizations**

3 s.h.

Research studies in human resource topic in a functioning organization; independent study.
MANAGEMENT SCIENCES

Chair: Kenneth O. Kortanek
Associate professor: Padmini Srinivasan
Associate professor emerita: Eleanor M. Birch
Assistant professors: Renato de Matta, Joline Morrison, Mike Morrison, June Park, Rodney Traub
Undergraduate degree: B.B.A. in Management Sciences
Graduate degrees: M. B.A.; M.A., Ph.D. in Business Administration

Undergraduate Program

Management sciences majors participate in a variety of educational experiences that develop their knowledge of managerial decision-making systems. Skills in applying this knowledge are acquired by developing quantitative models, utilizing computer technology, and creating database systems.

Students prepare for a variety of career opportunities in both manufacturing and service organizations. Typical starting positions include computer programmers, systems analysts, sales representatives with computer companies, and management trainees. Entry-level positions in operations management include materials management, line supervision, purchasing, and manufacturing systems.

Requirements for the Major in Management Sciences

6K:176 Managerial Decision Models 3 s.h.
6K:180 Management Information Systems 3 s.h.
6K:181 Systems Analysis and Design 3 s.h.
6K:182 Applications of Database Management Systems 3 s.h.
6K:196 Introduction to Data Communications 3 s.h.

Additional computer science programming course (22C:9 or 22C:17 recommended, 22C:1 and 22C:5 not eligible)

Graduate Programs

Master of Arts

A nonthesis Master of Arts in management information systems is available to students with appropriate computer science experience, including a rigorous background in structured programming (for example, 22C:16-17). Requirements include up to 12 semester hours of foundation courses (to satisfy the AACSB Common Body of Knowledge requirement) and at least 35 additional semester hours of course work selected from the following.

Economics and Behavioral Science

Total of 3-6 semester hours
6N:213 Managerial Economics 3 s.h.
or
6N:228 The Economic Environment of the Firm 3 s.h.
6N:227 Administrative Science II 3 s.h.

Research Methodology

6N:226 Statistical Methods 3 s.h.

Management Information Systems

Total of 12-18 semester hours
6K:280 Management Information Systems-M.B.A. 3 s.h.
6K:281 Management Systems Design 3 s.h.
6K:282 Applied Database Management Systems 3 s.h.
6K:296 Business Telecommunications 3 s.h.

One or more of these:
6K:278 Forecasting 3 s.h.
6K:285 Research Seminar in Management Information Systems 3 s.h.
6K:294 Artificial Intelligence for Management 3 s.h.
6N:229 Operations Management 3 s.h.

Computer Science

Total of 6 semester hours
22C:180 Fundamentals of Software Engineering 3 s.h.
22C:144 Database Management Systems 3 s.h.

Students may substitute other computer science courses with the approval of their advisers.

Electives

Total of 3-9 semester hours

Doctor of Philosophy

Candidates who want to earn a Ph.D. in management sciences should refer to the description of the Doctor of Philosophy program in “Interdepartmental Graduate Programs” in the College of Business Administration section of the Catalog.

For Undergraduates and Graduates

6K: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; junior standing required. Prerequisites: 6K:70 and 6K:71

Consent of instructor required.

6L: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. Prerequisites: 6K:70 and 6K:71.

6K:180 Management Information Systems 3 s.h.
Information technologies critical to business firms' strategic, managerial, and operational level activities, and information systems infrastructure; different types of business application software, including transaction processing, decision support, executive support, group support systems. Prerequisites: 6K:70, 6K:71, and 22C:16 or additional programming course.

6K:181 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: 6K:182.

6K:182 Applications of 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: 6K:180.

6K:183 Applied Information Systems 3 s.h.
Introduction to computer technology with emphasis on application to accounting and transaction processing systems; problem solving with microcomputer spreadsheets, databases; accounting cycle operations using accounting software. Prerequisites: 6A:1, 6A:2, 6K:70, and 6K:71.

6K:184 Production Planning and Control 3 s.h.
Computer-based systems for production planning, scheduling, inventory control in operations management; emphasis on recent applications in industry, including material requirements planning (MRPII) and just-in-time (JIT) systems. Prerequisite: 6K:100.

6K:194 Introduction to Data Communications 3 s.h.
Computer communications: computer communication system, hardware, data transmission principles; examples of existing communication networks; related managerial issues. Prerequisite: 6K:180.

Primarily for Graduates

6K:201 Directed Readings arr.
Consent of instructor required.

6L:202 M.A. Research Report 1 s.h.
Open only to nonthesis M.A. candidates. Consent of instructor required.

6K:277 Management Science Topics 3 s.h.
Development of mathematical models for decision problems; linear, nonlinear, quadratic, integer, dynamic programming; selected stochastic, game theoretic systems. Consent of instructor required.

6K:278 Forecasting 3 s.h.
Ad hoc models such as moving average, exponential smoothing; structured models such as regression, Box-Jenkins time series models. Prerequisite: 6N:226 or equivalent.

6K:280 Management Information Systems-M.B.A. 3 s.h.
Software, hardware, organizational fundamentals of management information systems; hardware components and characteristics, operating systems, systems and applications software, system life cycle; management issues.

6K:281 Management Systems Design 3 s.h.
Structured approach to analysis, design of computer-based business information systems; structured analysis tools such as data flow diagrams, data dictionary, decision tables, Structured English, software design tools such as Hypercard, object oriented design techniques, relational database design. Prerequisite: 6K:280 or consent of instructor.

Courses

Primarily for Undergraduates

6K:300 Cooperative Education Internship 0 s.h.

6K:70 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. Prerequisites: 22M:17 and 22S:8, or equivalents.

6K:71 Statistical Analysis 3 s.h.
Statistics for solving management problems; regression, ANOVA, decision theory, forecasting. Prerequisites: 22M:17 and 22S:8, or equivalents.

For Undergraduates and Graduates

6K: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; junior standing required. Prerequisites: 6K:70 and 6K:71

Consent of instructor required.

6L: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. Prerequisites: 6K:70 and 6K:71.

6K:180 Management Information Systems 3 s.h.
Information technologies critical to business firms' strategic, managerial, and operational level activities, and information systems infrastructure; different types of business application software, including transaction processing, decision support, executive support, group support systems. Prerequisites: 6K:70, 6K:71, and 22C:16 or additional programming course.

6K:181 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: 6K:182.

6K:182 Applications of 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: 6K:180.

6K:183 Applied Information Systems 3 s.h.
Introduction to computer technology with emphasis on application to accounting and transaction processing systems; problem solving with microcomputer spreadsheets, databases; accounting cycle operations using accounting software. Prerequisites: 6A:1, 6A:2, 6K:70, and 6K:71.

6K:184 Production Planning and Control 3 s.h.
Computer-based systems for production planning, scheduling, inventory control in operations management; emphasis on recent applications in industry, including material requirements planning (MRPII) and just-in-time (JIT) systems. Prerequisite: 6K:100.

6K:194 Introduction to Data Communications 3 s.h.
Computer communications: computer communication system, hardware, data transmission principles; examples of existing communication networks; related managerial issues. Prerequisite: 6K:180.

Primarily for Graduates

6K:201 Directed Readings arr.
Consent of instructor required.

6L:202 M.A. Research Report 1 s.h.
Open only to nonthesis M.A. candidates. Consent of instructor required.

6K:277 Management Science Topics 3 s.h.
Development of mathematical models for decision problems; linear, nonlinear, quadratic, integer, dynamic programming; selected stochastic, game theoretic systems. Consent of instructor required.

6K:278 Forecasting 3 s.h.
Ad hoc models such as moving average, exponential smoothing; structured models such as regression, Box-Jenkins time series models. Prerequisite: 6N:226 or equivalent.

6K:280 Management Information Systems-M.B.A. 3 s.h.
Software, hardware, organizational fundamentals of management information systems; hardware components and characteristics, operating systems, systems and applications software, system life cycle; management issues.

6K:281 Management Systems Design 3 s.h.
Structured approach to analysis, design of computer-based business information systems; structured analysis tools such as data flow diagrams, data dictionary, decision tables, Structured English, software design tools such as Hypercard, object oriented design techniques, relational database design. Prerequisite: 6K:280 or consent of instructor.
6K:282 Applied Database Management Systems 3 s.h.
Hierarchical, network, relational data models; approaches to logical and physical database design, database administration; concurrency control and maintenance issues; design, implementation of a database using relational DBMS.
Prerequisite: 6K:280.

6K:284 Manufacturing Automation 3 s.h.
Managerial perspective on development of automation in manufacturing, its use to achieve competitive advantages; new and emerging computer-integrated manufacturing technology; operating systems to manage CIM technology, impact of CIM technology on operational, financial, marketing aspects of firms.
Prerequisite: 6N:229.

6K:285 Research Seminar in Management Information Systems 3 s.h.
Structured systems design, fourth generation languages, communications, economics of computers, computer security issues, expert systems, decision support systems. Consent of instructor required.

6K:286 Optimization Methods I 3 s.h.
Mathematical programming models, including linear programming, transportation models, network flow, polyhedral sets, theorems of the alternative, duality, sensitivity, simplex algorithms, decomposition, large-scale linear programming, interior-point algorithms, the linear complementarity problem. Prerequisite: linear algebra.

6K:287 Optimization Methods II 2-4 s.h.
Nonlinear programming theory and algorithms; unconstrained optimization, Newton's method, Karush-Kuhn-Tucker theory, sensitivity and stability; convex analysis; constrained optimization methods; non-polynomial cone, interior point algorithms for general linear programming. Prerequisites: 6K:286 and multivariable calculus.

6K:288 Applied Stochastic Processes 3 s.h.

6K:289 Research Seminar in Quantitative Methods 3 s.h.
Convex analysis, interior point methods, complementarily, large scale optimization and computation of equilibria, semi-infinite programming and games, stochastic modeling and applications, combinatorial optimization and applications. Consent of instructor required.

6K:290 Thesis in Management Sciences 3 s.h.
Open only to Ph.D. candidates. Consent of instructor required.

6K:291 Operations Planning and Control 3 s.h.
Research on planning, control of production systems; aggregate production planning, production and work force scheduling, project planning and scheduling, vehicle scheduling, inventory theory, forecasting, purchasing models, manufacturing planning, control systems. Consent of instructor required.

6K:292 Operating Systems Design 3 s.h.
Design of production, logistics systems; facilities location and layout, assembly line planning, group technology; quality assurance and control, manufacturing process functions, capacity planning, product process development and design, technology management, manufacturing strategy. Consent of instructor required.

6K:293 Research seminar in Operations Management 3 s.h.
Capacity planning, facilities management, technology management, product design and development, inventory theory, production scheduling. Consent of instructor required.

6K:294 Artificial Intelligence for Management 3 s.h.
Alternative AI knowledge representation, search methodologies; applications including expert systems, automated AI planning; practical experience with an AI programming language, expert system shell. Consent of instructor required.

6K:295 Logistics Management and Analysis 3 s.h.
Modelling of and solution methodology for problems in design, operation of logistics systems; location, routing, distribution, multiattribute inventory. Consent of instructor required.

6K:296 Business Telecommunications 3 s.h.
Transmission media and techniques, switching methods, network management, tariffs, examples of existing telecommunication networks Prerequisite: 6K:280.

6K:297 Applied Queuing Models 3 s.h.
Birth-death and general models of queuing systems including networks of queues; simulation of complex queuing systems; case applications to manufacturing and service decision problems. Consent of instructor required.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>6M:235</td>
<td>International Marketing</td>
<td>3 s.h.</td>
<td>Entering overseas markets, conducting marketing operations on international as opposed to domestic scale; focus on identifying and evaluating opportunities in non-U.S. markets, developing and adapting marketing strategies to specific national needs, coordinating strategies for global marketing. Prerequisite: 6N:211.</td>
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<tr>
<td>6M:236</td>
<td>Advertising and Promotion Strategy</td>
<td>3 s.h.</td>
<td>Marketing communications as dialogue between producers and consumers, how promotion mix evolves; emphasis on advertising, sales promotion, branding. Open only to M.B.A. students with no prior course work in advertising, marketing communications, or promotion strategy. Prerequisite: 6N:211.</td>
</tr>
<tr>
<td>6M:237</td>
<td>Field Studies in Marketing</td>
<td>3 s.h.</td>
<td>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. Prerequisites: 6N:211 and 6N:226. Recommended: 6M:230.</td>
</tr>
<tr>
<td>6M:238</td>
<td>Contemporary Topics in Marketing</td>
<td>3 s.h.</td>
<td>Topics not regularly offered in other courses. Open only to graduate students. Prerequisite: 6N:211.</td>
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<tr>
<td>6M:239</td>
<td>Analysis for Marketing Decisions</td>
<td>3 s.h.</td>
<td>Analysis, decision making in context of marketing programs; emphasis on functions of marketing research and models as they pertain to marketing manager’s role; marketing cases structured around spreadsheet analysis. Prerequisites: 6N:211 and 6N:226. Recommended: 6M:230.</td>
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<tr>
<td>6M:241</td>
<td>Management Models-Ph.D.</td>
<td>3 s.h.</td>
<td>Analytic models that support marketing decision making; emphasis on structure, use of models for decision situations; case studies. Consent of instructor required.</td>
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<tr>
<td>6M:242</td>
<td>Marketing Models-Ph.D.</td>
<td>3 s.h.</td>
<td>Theoretical, operational models in marketing, with emphasis on recent advances; in-depth criticism of models, participation in model development project. Consent of instructor required.</td>
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<td>6M:243</td>
<td>Research in Consumer Behavior-Ph.D.</td>
<td>3 s.h.</td>
<td>Key facets of consumer behavior-information processing perception, memory, learning, attitude formation, attitude change; behavioral research methods. Consent of instructor required.</td>
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<tr>
<td>6M:244</td>
<td>Multivariate Applications-Ph.D.</td>
<td>3 s.h.</td>
<td>Multivariate analysis: principal components factor analysis, canonical correlation, discriminant analysis, linear structural relations; emphasis on structural commonality across procedures, applications of procedures to marketing research problems. Recommended: substantial familiarity with linear algebra and inferential statistics. Consent of instructor required.</td>
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<tr>
<td>6M:245</td>
<td>Research Workshop-Ph.D.</td>
<td>arr.</td>
<td>Individual research topics. Consent of instructor required.</td>
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<tr>
<td>Prosthodontics</td>
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</table>

Dean: James H. McLeran
Executive dean: John C. Montgomery
Associate dean, research: Christopher Squier
Associate dean, academic affairs: Nelson S. Logan
Associate dean, business and financial administration: M.J. Brennan
Interim assistant dean, clinical affairs: William R. Grigsby
Assistant dean, student affairs: Yvonne M. Chalkey
Director, oral science: Christopher Squier
Degrees: D.D.S., M.S., Ph.D.
Doctor of Dental Surgery

The College of Dentistry is both administratively and physically an integral part of the University. It draws on and contributes to the University’s diverse resources, and its students enjoy all the advantages and privileges enjoyed by the general student body. The college benefits particularly from its cooperative relationship with the Colleges of Medicine, Nursing, and Pharmacy in The University of Iowa Health Center, whose teaching, research, and service activities have earned international recognition.

The basic educational 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. The dental curriculum consists of five basic units.

Basic sciences: gross anatomy, biochemistry, histology, physiology, general pathology, oral pathology, pharmacology, microbiology

Restorative dental sciences: gross, microscopic, and radiographic dental anatomy, dental materials, endodontics, operative dentistry, fixed partial prostheses, removable prostheses

Oral medicine: preventive dentistry, oral diagnosis, dental radiology, oral pathology, anesthesiology and pain control, oral and maxillofacial surgery, periodontology

Community dentistry: ethics, epidemiology, nutrition, preventive dentistry, community health, principles of human behavior, dental economics, dental jurisprudence, geriatrics, communication

Pediatric dentistry: facial growth and development, pediatric dentistry and orthodontics

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to clinical patient-treatment situations during the first year.

The second-year program continues the basic sciences and technical courses, plus definitive clinical patient treatment.

Third-year dental students rotate through a series of clerkships that expose them to eight clinical disciplines.

Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment that simulates conditions in private dental practice. They also are exposed to various extramural health programs that include hospitals, mental health institutes, nursing homes, and the Special Patient Care Clinic. They also may participate in the Colorado Migrant Worker Program or the Foreign Dental School Exchange Program, which give exposure to facets of dentistry usually not observable in an academic setting.

Promotions and 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 basic, 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, the student 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 previously has not been available or that, for some reason, 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 and the states of Colorado, Illinois, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, 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. Examination dates are determined by the Central Regional Dental Testing Service and are available from its administrative secretary.

For a five-year period, member states accept successful completion of Central Regional Dental Testing Service requirements in lieu of their individual state’s clinical examination requirements. The license application is then filed with the individual state board of dentistry. All states also require the National Boards, conducted by the American Dental Association, in lieu of individual state written examinations. A jurisprudence examination also is required in many states, including Iowa

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through its local chapter. There also are local chapters of the American Association of Dental Schools, the American Association of Dental Research, the American Association of Women Dentists, the American Society of Dentistry for Children, and the Student National Dental Association. Students who rank in the upper 12 percent of their senior class are eligible for election to Omicron Kappa Upsilon, national scholastic honorary dental society. Two national dental professional fraternities, Delta Sigma Delta and Psi Omega, have chapter houses at Iowa Both fraternities have housing available to male and female dental students. In addition, they provide both academic and social activities for students and their spouses.

Expenses

The College of Dentistry maintains a Supply-Instrument Management System (SIMS), which provides students with instruments and supplies necessary throughout dental training.

The SIMS usage fee for the D.D.S. is payable in installments over the first three years of the 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.

Financial Aid

Financial assistance for dental students is based on need. Students applying for Health Professions Loans must submit the Family Financial Statement (FFS), which includes an evaluation of parents’ income and assets. Needy dental students are eligible for Health Professions Loans, Perkins Loans, state grants, and Stafford Loans. Interest on these loans is deferrable 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 loans are available through the financial aid coordinator at the College of Dentistry.

See “Financial Aid” in the Learning at Iowa section of the Catalog or inquire at the Office of Student Financial Aid for updated information on financial assistance available to dental students.

Dental Research Awards (DRA)

Dental Research Awards are given each year to qualified entering dental students. The DRA provides financial support ranging from $2,000 to $8,500 per year for as many as four years, if the student maintains an appropriate level of performance. Awardees are engaged as assistants in research working with faculty mentors.

Minorities

Financial assistance (grants and loans) is available to minority students who qualify under The University of Iowa’s Educational Opportunity Program and the Opportunity at Iowa Program.

Arkansas Contract

Under an agreement with The University of Iowa College of Dentistry, the state of Arkansas makes supplemental tuition payments for its residents who are dentistry students at Iowa. These payments enable the Arkansas students to pay the equivalent of Iowa resident tuition for their study here.

Admission

Applicants must submit a completed application form to the American Association of Dental
Schools Application Service (AADSAS). The AADSAS forms are available from the University Office of Admissions or the College of Dentistry Academic Affairs Office.

Applications are accepted beginning June 1 of the year prior to the year for which application is made. Completed applications should be on file at AADSAS by November 30. Applicants should apply as early as possible and should not delay until after the Dental Admission Test (DAT) is taken. Notifications of acceptance are sent beginning December 1.

Prospective dental students are encouraged to embark on an education program that leads to a standard bachelor’s degree. This allows students to consider a combined program that enables them to earn a standard bachelor’s degree from their undergraduate college upon completion of the freshman year in dentistry (see “Combined Liberal Arts-Dentistry Program” in this section of the Catalog).

Prédental Studies

The basic academic requirement for admission to the College of Dentistry is the completion of no fewer than 94 semester hours of academic study at an accredited college. The predental 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.

Mathematics: college mathematics (equivalent to 12 semester hours), including two semesters of basic algebra, trigonometry, and mathematics for the biological sciences, with instruction in relations, functions, coordinate systems, graphing, polynomials, logarithmic and exponential functions, and probability; calculus is recommended.

Physics: one year (equivalent to 8 semester hours), of which one-fourth must be laboratory work.

Chemistry: two years (equivalent to 16 semester hours), of which one year (equivalent to 8 semester hours) must be in organic chemistry; one-fourth of each year’s study must be laboratory work.

Biochemistry: highly recommended; will be required for fall 1997 admission.

Biological Science: one year (equivalent to 8 semester hours), 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 semester hours. Courses in histology and cell physiology are strongly recommended.

Electives: sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, and mathematics to provide a well-rounded educational background.

Grading Point Average Requirement

Applicants should have a cumulative grade-point average of at least 2.50. The admissions committee gives special consideration to the quality of applicants’ course work in the preclinical sciences in addition to the cumulative grade-point average.

Interviews

Personal interviews are required of applicants for admission to the College of Dentistry. Applicants will be 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. Tests are given in spring and fall; The University of Iowa is a testing center.

Applicants must take the test no later than fall in order to be admitted for the following year. Test application forms are available from the University Office of Admissions; the College of Dentistry Academic Affairs Office; or the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611. Test application deadlines are typically 30 to 45 days prior to the exam.

Deposit by Accepted Applicants

Applications 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 Admissions

The College of Dentistry has an early admissions program set up with The University of Iowa Buena Vista College in Storm Lake, Cornell College in Mount Vernon, Grinnell College in Grinnell, and Luther College in Decorah, Iowa; Augustana College in Rock Island, Illinois; and Prairie View A & M University in Prairie View, Texas.

The Deferred Admit Program (DAP) allows academically motivated students interested in a dental career to be admitted as early as the first year of their undergraduate college education while postponing matriculation to the College of Dentistry until they have completed at least three years of liberal arts education. During these three years, students are engaged in a liberal arts curriculum that incorporates the dental prerequisite courses. Once selected for the program, students must maintain a 3.20 grade-point average to assure matriculation to The University of Iowa College of Dentistry.

Combined Liberal Arts-Dentistry Program

Students who are enrolled in a baccalaureate program at The University of Iowa may be allowed to include the first year of dentistry to complete their elective hours requirements toward the bachelor’s degree.

The provision for acceptance by the College of Liberal Arts of 30 semester hours of elective credit earned in any other college of the University allows students who enter the College of Dentistry to obtain a bachelor’s degree from the College of Liberal Arts after successfully completing the freshman year in dentistry. To take advantage of this plan, students must fulfill all specific requirements for the bachelor’s degree, including the General Education Requirements and the requirements for a major. Students also must satisfy the College of Liberal Arts residence requirement before enrolling in the College of Dentistry. See “Early Admission to Medicine or Dentistry” in the College of Liberal Arts section of the Catalog.

Basic 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 dental curriculum.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>60:101</td>
<td>Human Gross Anatomy for Dental Students</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>60:112</td>
<td>General Histology for Dental Students</td>
<td>4 s.h.</td>
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<tr>
<td>60:114</td>
<td>Oral Histology and Embryology</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>61:112</td>
<td>Health Sciences Microbiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>69:133</td>
<td>Introduction to Human Pathology</td>
<td>arr.</td>
</tr>
<tr>
<td>71:111</td>
<td>Pharmacology for Health Sciences: Dental</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>72:152</td>
<td>Mammalian Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:161</td>
<td>Biochemistry for Dental Students</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

Graduate and Postgraduate Study

Oral Science

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 equip graduates for a career in teaching and research.

Master of Science

The M.S. is awarded upon satisfactory completion of 30 semester from of graduate work, including the final examination. It is anticipated that candidates will complete the
program in two years of full-time residence. Candidates who also are involved in an advanced clinical program whose duration is two years should complete the M.S. program by the end of a third year of study.

ADMISSION
Applicants should possess a cumulative grade-point average of at least 3.00 on a 4.00 scale; they also must take the Graduate Record Examination with a minimum combined score of 1600 for all three components (verbal, quantitative, and analytical) and a minimum score of 500 for any individual component. Students whose first language is not English must earn a score of 550 or better on the Test of English as a Foreign Language (TOEFL); candidates also may be asked to take the Test of Spoken English. These requirements are not absolute, but they carry considerable weight in the admission process. A personal interview may be requested.

Students pursuing the M.S. must be enrolled in a clinical training program or a department in the College of Dentistry. The program normally begins July 1 each year.

Doctor of Philosophy
The Ph.D. is awarded upon completion of advanced course work and original research that culminates in successful defense of a dissertation. Candidates must earn a minimum of 72 semester hours of graduate credit, pass a comprehensive exam, prepare and gain approval of a research prospectus, and complete and successfully defend a dissertation that describes the results of the research. It is anticipated that candidates will complete the program in four years of full-time residence.

ADMISSION
Applicants must hold a dental degree and should possess a cumulative grade-point average of at least 3.00 on a 4.00 scale; they also must take the Graduate Record Examination with a minimum combined score of 1600 for all three components (verbal, quantitative, and analytical) and a minimum score of 500 for any individual component. Students whose first language is not English must earn a score of 550 or better on the Test of English as a Foreign Language (TOEFL); candidates also may be asked to take the Test of Spoken English. These requirements are not absolute, but they carry considerable weight in the admission process.

Applicants are asked to submit a statement describing past research experience and current research interest and stating how completion of the Ph.D. program fits into their career goals. A personal interview may be requested.

Postgraduate Study
Departments also offer postgraduate programs of study designed as preparation for clinical specialty practice. These programs do not lead to an academic degree. A certificate is awarded upon satisfactory completion of the postgraduate programs.

Facilities
The Dental Science Building, a major unit of the Iowa health center campus, enables the college to accelerate its research activities and facilitates the development of interdisciplinary communication in health center testing, research, and patient care activities. The health centers include the Colleges of Medicine, Nursing, and Pharmacy; the Bowen Science Building; The University of Iowa Hospitals and Clinics; and the Hardin Library for the Health Sciences. The Hardin Library houses all of the University’s special health science holdings, a total of 198,750 volumes, including more than 18,000 volumes on dentistry and allied scientific subjects, and more than 280 dental journals the college currently receives. This library receives more than 2,600 journals from the combined health professions.

The Dental Science Building consists of two connected, four-story wings located on either side of a mall. The south wing is devoted to clinical teaching, with various departmental clinic facilities, support laboratories, clinical research space, offices, and a cafeteria. The north wing houses teaching laboratories, research laboratories, administration area, educational media center, and programs in preventive and community dentistry.

Courses
Oral Science
151:200 Seminars in Dental Research 1 s.h.
151:210 Dental Sciences Research Methodology arr. Practical, experimental procedures in dental research; literature and design; writing of research protocols.
151:220 Patho-physiology of Skin and Oral Mucosa 2 s.h.
Biologic skin, oral mucosa; changes in behavior of the tissues in a variety of physiologic, pathological conditions. Offered fall semesters of odd years. Prerequisite: 151:210.
151:230 Patho-physiology of Salivary Glands and Saliva 2 s.h.
Intervention, 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 Patho-physiology of the Pulp-Dentin Complex 2 s.h.
Biologic of tissue; emphasis on pathological changes. Offered spring semesters of even years. Prerequisite: 151:220.
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: 151:220.
151:260 Bone and Tooth Support Structure and Implants 2 s.h.
Biologic of bone and periodontal structures; biologic basis for therapeutic use of dental implants.
151:270 Infectious Diseases 2 s.h.
151:280 Advanced Dental Therapeutics 1 s.h.
Antimicrobial, analgesic, related therapies; emphasis on drug-drug interactions, treatment plan modification, case analysis of medically compromised patient. Offered spring semesters.
151:300 Research in Oral Science arr.
Thesis research. Open only to candidates for M.S. or Ph.D. in oral science.

Mondepartmental
112:100 Transfer Credits Accepted arr.
112:110 Issues in International Dentistry 2 s.h.
World view of dental issues, including disease patterns, treatment philosophies, delivery systems, personnel; emphasis on how oral health and dentistry are influenced, valued by cultures worldwide.
112:115 Dental Materials 1 s.h.
Composition, physical and chemical properties of restorative dental materials.
112:120 First-Year Continuing Session 0, 12 s.h.
112:125 Introduction to Geriatric Dentistry 2 s.h.
Biologic, psychological, social aspects of aging; normal aging, disease processes, pathological changes that affect treatment, patient management.
112:130 Second-Year Continuing Session 0, 12 s.h.
112:165 Bioscience Options arr.
Special project courses; emphasis on scientific basis of dental practice.
112:168 Dental Therapeutics 1 s.h.
Patients’ medications and their implications for dental treatment; review of medications that dentists may prescribe; guidelines for dental prescribing.
112:170 Third-Year Continuing Session 0, 12 s.h.
112:175 Program Abroad arr.
Opportunities for foreign dental studies.
112:180 Fourth-Year Lectures and Clinics 0, 12 s.h.
112:190 Dental Student Research Honors Program arr.
Open only to dental students. Consent of mentor and program director required.
112:198 Advanced Clinical Dental Hygiene 0 s.h.
Clinical experience for professional Improvement. Prerequisite: completion of a dental hygiene program.
112:199 Advanced Clinical Comprehensive Dentistry 0 s.h.
Clinical experience for professional Improvement. Dental degree required.

Clinical Management Concepts
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.
112:185 Clinical Admissions Emergency 1 s.h.
Clinical evaluation, diagnosis, treatment of patients with dental emergencies; assessment of Patient for 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; students analyze senior dental practice in relation to quality assurance criteria; ethical, moral dilemma in relation to dental practice.
DENTAL HYGIENE

At the April 1992 meeting of the State Board of Regents, the Regents voted to close the Department of Dental Hygiene on June 30, 1992. No instruction in dental hygiene will be offered after May 1995. The Department of Preventive and Community Dentistry will administer some dental hygiene courses through that date. See “Preventive and Community Dentistry” in this section of the Catalog.

ENDODONTICS

Head: Richard E. Walton
Professor: Richard E. Walton
Professor emeritus: Anne M. Bjornstad
Associate professors: David R. Drake, William T. Johnson, Lisa R. Wilcox
Assistant professor: Eric M. Rivera
Graduate degree: M. S., Ph.D. in Oral Science

Predoctoral Program

Course work and clinical experiences in endodontics are of vital importance in the overall education of a dental 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 periradicular, emphasizing the areas of diagnosis of pulpal and periapical disease and various specialized aspects of endodontics treatment. Students treat endodontics patients under direct supervision of faculty and staff.

Advanced Programs

Through the advanced programs, dentists develop their skills and acquire a broad knowledge of the endodontics specialty for teaching and practice; gain enough knowledge and experience in the educational process to be able to function confidently as dental educators; recognize the value of academic research; and develop the ability to plan, conduct, and report the results of research investigations.

Applicants for the advanced programs in endodontics must be graduates of an accredited U.S. college of dentistry or foreign equivalent and must comply with the requirements for admission to The University of Iowa College of Dentistry.

Through the advanced programs in endodontics, dentists develop their skills and acquire a broad knowledge of the endodontics specialty for teaching and practice; gain enough knowledge and experience in the educational process to be able to function confidently as dental educators; recognize the value of academic research; and develop the ability to plan, conduct, and report the results of research investigations.

Applicants for the advanced programs in endodontics must be graduates of an accredited U.S. college of dentistry or foreign equivalent and must comply with the requirements for admission to The University of Iowa College of Dentistry.

For Graduate Students

83:230 Research in Endodontics 1 s.h.
Topic selection; protocol preparation and beginning of investigation; completed research investigation, data gathering, thesis, defense.

83:231 Thesis Preparation in Endodontics 3 s.h.

83:240 Endodontics Surgery Conference 2 s.h.
Evaluation of cases that require surgical treatment; treatment methods, photography; presentation of students’ surgery cases before, after treatment; surgical approach to treatment.

83:241 Advanced Clinical Endodontics arr.
Clinical treatment, from simple to advanced; implants, replants, transplants, apical surgeries, root amputations, etc.

83:250 Seminar in Endodontics I 1-2 s.h.
Pulp biology; histochimistry of tooth, hard structure, anatomy; physiology of supporting structures; basic philosophy, concept of endodontics, basic endodontics techniques.

83:251 Seminar in Endodontics II 1-2 s.h.
Biological concepts of pulp, periapical pathology; emphasis on inflammatory, immunologic responses; oral pathology emphasizing bony lesions.

83:252 Seminar in Endodontics III 1-2 s.h.
Biological concepts of pulp, periapical pathology; emphasis on inflammatory, immunologic responses; oral pathology emphasizing bony lesions.

83:253 Seminar in Endodontics IV 1-2 s.h.
All areas of dental treatment related to endodontics; complex cases, difficult patient conditions; relationship of endodontics to other dental specialties; dental practice management.

83:255 Practice Teaching in Endodontics SST.

FAMILY DENTISTRY

Head: Daniel L. Hall
Professors: John V. Doering, Daniel L. Hall, Charles Sabiston, Jr., Vincent D. Williams
Professor emeritus: Gene A. Zach
Associate professors: Ana Diaz-Arnold, James M. Leary
Assistant professor: David C. Holmes

Predoctoral Program

The Department of Family Dentistry is responsible for senior dental students’ final synthesis of academic experiences. The major goal is the integration of previously learned clinical skills into a well-organized and systematic approach to the comprehensive dental treatment of patients. The experience encompasses approximately three-fourths of the senior year.

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 course prepares students to practice location selections as well as manage the business aspects of a dental office.

Advanced Education in General Dentistry

The Department of Family Dentistry sponsors a postgraduate Advanced Education in General Dentistry Program (AEGD) to improve and refine residents’ skills and knowledge in the practice of general dentistry and to develop general practitioners who can plan and deliver high-quality dental services. AEGD practitioners...
are better able to plan and coordinate complete treatment for patients and to act as principal coordinators when specialists’ services are necessary. Residents are exposed to a broad range of clinical experiences while delivering comprehensive care to an assigned group of patients, who are treated solely by the residents. They have the opportunity to discuss treatment planning, progress, and outcome with other residents and faculty. They also are involved with financial management, auxiliary management, and appointment planning, thus adding to their practice management skills. Approximately 85 percent of the program consists of general dental practice. Patient assignments are made to assure broad experience in type and complexity of treatment needs. The didactic portion constitutes approximately 15 percent of the total experience and consists of seminars by discipline-trained faculty in all specialty areas. Dental emergency responsibilities are included in the program, as are pretreatment, midtreatment, and posttreatment case presentations. Journal clubs help the residents become familiar with current literature and research.

The AEGD program lasts one year and carries a stipend. Recently, the program completed a federal training grant to expand experiences in pediatric dentistry and geriatric training in off-site facilities.

Applicants for the program must be graduates of accredited U.S. or Canadian dental schools. Further information is available from the Department of Family Dentistry. Applications should be received no later than October 15 for admission the following July 1.

## Courses

### For Predoctoral Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>114:135</td>
<td>Advanced Clinical Dentistry I</td>
<td>1 s.h.</td>
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<tr>
<td>114:136</td>
<td>Advanced Clinical Dentistry II</td>
<td>1 s.h.</td>
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<tr>
<td>114:137</td>
<td>Advanced Clinical Dentistry III</td>
<td>1 s.h.</td>
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<tr>
<td>114:138</td>
<td>Advanced Clinical Dentistry IV</td>
<td>1 s.h.</td>
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</tbody>
</table>

For Graduate Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>114:202</td>
<td>Advanced Clinical Dentistry I</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>114:203</td>
<td>Advanced Clinical Dentistry II</td>
<td>1 s.h.</td>
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<tr>
<td>114:204</td>
<td>Advanced Clinical Dentistry III</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>114:205</td>
<td>Advanced Clinical Dentistry IV</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>114:210</td>
<td>Advanced Diagnosis and Treatment Planning I</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>114:212</td>
<td>Advanced Diagnosis and Treatment Planning II</td>
<td>1 s.h.</td>
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</tbody>
</table>

### For Graduate Students

- Participation in treatment planning seminars: preparation of treatment plans for patients with complex needs.
- Continuation of 114:202.
- Continuation of 114:203.
- Continuation of 114:204.
- Continuation of 114:205.

### HOSPITAL FAMILY DENTISTRY

**Residency Program**

**The aim of the residency program in general practice is to prepare 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 Association of Oral and Maxillofacial Surgeons.

The deadline to apply is September 1 for admission on July 1 of the next year. Applicants are appointed after the results of the match have been received and the staff takes official action.

### OPERATIVE DENTISTRY

**Head:** John W. Reinhardt
Professors: Daniel Boyer, Kai Chiu Chan, Gerald Denney, James Fuller, Satish Khara, John Reinhardt
Professors emeriti: Wallace Johnson, Devore Killip
Associate professors: Yvonne ChaMeY, C. Frederick Erbe, Thomas Schulein
Adjunct associate professors: Douglas Dederich, Paul Martin
Adjunct instructors: Scott Hansen, Robert Margesan, Joe Rauch, Peter Triolo
Clinical instructor: Deborah Cobb
Graduate degree: M.S. in Operative Dentistry

### Predoctoral Program

Course work and clinical experiences in operative dentistry are fundamental to the dental student’s overall education. The operative dentistry curriculum is designed so that didactic material relates closely to laboratory and clinical experiences. The program prepares 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 operative dentistry is not a specialty area, there is ample opportunity for graduate students to take courses that are of particular interest to them. Students may earn either a Master of Science degree or a certificate in operative dentistry.

Requirements for the M.S. include satisfactory completion of 48 semester hours of specified graduate-level courses: preparation of an acceptable thesis based on original research; and formal defense of the thesis and an exam by an examining committee.

Students should plan to furnish their own financial support for the research and thesis.

Applicants for the program must be graduates of recognized schools of dentistry and must comply with the admission requirements of the Graduate College. The department may request an interview with the applicant.
Courses

For Predoctoral Students

82:120 Dental Anatomy Didactic 1 s.h.
Readings in dental nomenclature; detailed anatomy; eruption patterns of human primary, permanent dentition.

82:121 Dental Anatomy Laboratory 2 s.h.
Human tooth morphology, function using wax replacement method, restorative materials, plastic teeth.

82:122 Operative Dentistry I 2 s.h.
Dental nomenclature; principles of cavity preparation; instrumentation; placement of restorative materials; use of instruments in operative dentistry.

82:123 Operative Dentistry I Laboratory and clinic 3 s.h.
Procedures for preparing human teeth to receive dental restorations; student preparation of different classes of cavities in plastic, natural teeth; use of dental materials in fabrication of restorations.

82:140 Operative Dentistry II 1 s.h.
Principles, design of cavity preparations, restoration of teeth, patient management, pain control.

82:141 Operative Dentistry II Clinic 3 s.h.
Procedures performed on operative clinic patients; based on original principles for preparation of cavities, restoration with appropriate materials.

82:160 Operative Dentistry III Clinic arr.
Patient treatment; amalgam, composite resin, gold; emphasis on physiological, aesthetic importance of restorative treatment.

82:165 Operative Dentistry III Seminar 1 s.h.
Clinical problems, restorative dental materials, treatment methods.

For Graduate Students

Discipline Studies

82:224 Graduate Restorative Materials 2 s.h.
Dental materials science; composition, properties of dental alloys, polymers, ceramics. Same as 82:224.

82:225 Operative Dentistry Seminar I 1 s.h.
Basic concepts of cavity preparation, material placement.

82:226 Operative Dentistry Seminar U 1 s.h.
Direct resin systems, bonding technology; their use in dental esthetic treatment.

82:227 Operative Dentistry Seminar III 1 s.h.
Use of porcelain in conventional, blended esthetic restorations.

82:228 Operative Dentistry Seminar IV 1 s.h.
Principles for health professions educator.

Research Program

82:230 Operative Dentistry Research I 3 s.h.
Thesis topic selection, committee selection, literature review.

82:231 Operative Dentistry Research II 2 s.h.
Thesis protocol, research.

82:232 Operative Dentistry Research III 3 s.h.
Thesis research, data gathering, writing.

82:233 Operative Dentistry Researches IV 3 s.h.
Thesis completion, defense.

82:234 Selected Applications of Operative Dentistry Advanced Clinic arr.
Advanced techniques.

82:236 Biomaterial Research Methodology 1 s.h.
Inclures instrumentation. Same as B4:236.

Clinical Studies

82:240 Operative Dentistry Advanced Clinic I arr.
Materials, techniques; restoration procedures on a manikin.

82:241 Operative Dentistry Advanced Clinic II arr.
Patient treatment in operative clinic; basic operative procedures.

82:242 Operative Dentistry Advanced Clinic III arr.
Patient treatment in operative clinic; direct (b lidg/e method, restorative procedures.

82:243 Operative Dentistry Advanced Clinic IV arr.
Patient treatment in operative clinic; advanced cast gold or esthetic restorative procedures.

82:244 Operative Dentistry Advanced Clinic V arr.
Patient treatment in operative clinic; advanced cast gold or esthetic restorative procedures.

82:245 Clinical Demonstrating arr.
Teaching undergraduate dental students inlaboratory, clinic.

ORAL AND MAXILLOFACIAL SURGERY

Head: Daniel Lew
Director, graduate studies: Kirk L. Frindrich (Oral and Maxillofacial Surgery)
Professors: Leslie H. Higa, John C. Keller, James H. McLean, John C. Montgomery
Associate professor: Karen A. Baker, Kirk L. Frindrich, Sherwood Wolfson, Deborah L. Zetler
Assistant professor: Daniel S. Sarasin
Graduate degree: M.S. in Oral and Maxillofacial Surgery

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 division of oral and maxillofacial surgery at The University of Iowa Hospitals and Clinics. Graduate study is based primarily in the residency training program at The University of Iowa Hospitals and Clinics.

Prodoctoral Program

The predoctoral curriculum is designed to develop a foundation of professional knowledge, coupled with surgical skills, to enable students to diagnose and manage surgical problems related to the practice of general dentistry. Emphasis is placed on reinforcing high ethical standards and developing good surgical concepts, clearly indicating the moral responsibility assumed for the surgical problems undertaken.

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 anaesthesia-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; however, 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 the principles of surgery, and familiarization with the various aspects of health services.

Competence in clinical oral and maxillofacial surgery requires knowledge of the basic medical sciences related to the specialty. Therefore, 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 anesthesia 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 The University of Iowa Hospitals and Clinics and at Veterans Affairs Medical Center. 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

Requirements for the M.S. maybe completed during residency. The M.S. program is a four-year course of integrated didactic and clinical study, including a research project and preparation of a thesis.

Admission

Students may begin the full four-year program only on July 1. The application deadline in oral and maxillofacial surgery is September 1 for admission on July 1 of the next year.

Applicants must take the Graduate Record Examination (GRE) General Test, must be a graduate of an accredited college of dentistry, must be licensed to practice dentistry in the United States, and should be in the upper one-third of their graduating class.

Documents required include application for graduate 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.

Interviews are not required but are strongly recommended.

Applicants are selected through a postdoctoral dental matching program sponsored by the American Association of Oral and Maxillofacial Surgeons. Appointments are made after the match results are revealed and the staff elects to take official action. All appointments should be tendered on or before February 1 prior to the July 1 effective date.

The Office of Graduate and Professional College Admissions sends admission forms to applicants. The forms must be completed for the Graduate College by March 1.

Facilities

The University of Iowa Health Center has outstanding basic and clinical science departments that stimulate and support scholarly research and superior clinical practice. The facilities of The University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Center, and the Colleges of Dentistry and Medicine provide an appropriate environment for residency training in oral and maxillofacial surgery.

Courses

For Dental Hygiene Students

87:104 Anesthesia and Analgesia 1 s.h. Principles, techniques, for using local anesthesia; their practical application.

For Predoctoral Students

87:115 Anesthesia and Pain Control I 1 s.h. Principles, techniques of complete medical history, head and neck examination, cardiovascular and respiratory examination; psychophysiological aspects of pain; pharmacologic action and techniques for using local anesthetics.

87:130 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.

87:145 Anesthesia and Pain Control II 1 s.h. Theory, application, instrumentation of nitrous oxide sedation; emphasis on cardiovascular, respiratory physiology; evaluation of patients, techniques for nitrous oxide sedation.


For Graduate Students

87:201 Hospital Procedures 1 s.h. Hospital rules, regulations; patient, department records; information concerning hospitalized patients.

87:202 Basic Science Review 4 s.h. Head, neck anatomy, dissection; bacteriology, pathology.

87:207 Surgical Anatomy 1 s.h. Head, neck structures in major oral surgery procedures; emphasis on mandible procedures, surgical emergencies; may include animal surgery.

87:208 Pain and Anxiety Control 1-3 s.h. Nitrous oxide; intravenous, oral, intramuscular anxiety and pain control; pharmacology of agents; complications, their management.

87:209 Principles of Anesthesia 2 s.h. General anesthesia; agents and their effects on respiratory, cardiovascular systems; literature.

87:211 Literature Seminars and Journal Club 1 s.h.

87:212 Surgical Case Reports 1 s.h.

87:214 Roentgen Interpretation 2 s.h. Theory, techniques.

87:215 Physical Diagnosis 2 s.h.

87:218 Oral Pathology Conference Current clinical specimens 1 s.h.

87:225 Oral and Maxillofacial Surgery Seminar I 1 s.h.

87:226 Oral and Maxillofacial Surgery Seminar II 1 s.h.

87:227 Oral and Maxillofacial Surgery Seminar III 1 s.h.

87:230 Oral and Maxillofacial Surgery Research I 2 s.h. Thesis topic and review committee selection, literature review.

87:231 Oral and Maxillofacial Surgery Research II 3 s.h. Thesis protocol, research.

87:232 Oral and Maxillofacial Surgery Research III 3 s.h. Thesis research complete; data gathering.

87:233 Oral and Maxillofacial Surgery Thesis 3 s.h. Thesis and defense; comprehensive examination.

87:240 Clinical Oral and Maxillofacial Surgery 1 arr. Specialty and technical seminars, patient treatment; clinical practice on assigned patient problems.


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 a plan for therapeutic management.

The postdoctoral programs are diverse and flexible, emphasizing oral pathology, oral and maxillofacial radiology, or oral medicine. Three educational tracks, emphasizing oral pathology, oral and maxillofacial radiology, or oral medicine, allow postdoctoral students to obtain advanced clinical, didactic, and research-related education while pursuing a Master of Science degree in stomatology.

Students also may choose to apply for acceptance into the collegiate master of degree program in oral science (see “Oral Science” in the dentistry introductory of the Catalog).

MS. in Stomatology with Oral Pathology Emphasis

Dental school graduates in this program pursue comprehensive study of basic biologic and health sciences in preparation for teaching and research. A minimum of 30 semester hours 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 in Oral Pathology and M.S. in Stomatology with Oral Pathology Emphasis

This program combines the minimum requirements of the certificate and master’s degree programs. Completion time is usually 36 to 48 months. The educational requirements of the certificate program in oral pathology meet the requirements for the preparation of dental specialists as set forth by the Council on Dental Education of the American Dental Association and the American Board of Oral Pathology.

M.S. in Stomatology with Oral and Maxillofacial Radiology Emphasis

Dental school graduates in this program pursue comprehensive study of basic and health sciences in preparation for teaching and research. A minimum of 44 semester hours 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 in Oral and Maxillofacial Radiology and M.S. in Stomatology with Oral and Maxillofacial Radiology Emphasis

This program combines the minimum requirements of the certificate and master’s degree programs. Completion time is usually 36
to 48 months. The educational requirements of the certificate program in oral and maxillofacial radiology meet the requirements for preparation of dental specialists as set forth by the American Board of Oral and Maxillofacial Radiology.

**M.S. in Stomatology with Oral Medicine Emphasis**

Students in this program pursue comprehensive study of health sciences in preparation for teaching and research. A minimum of 30 semester hours of graduate credit is required, which includes thesis preparation based on research conducted during the program.

**Certificate in Oral Medicine and M.S. in Stomatology with Oral Medicine Emphasis**

This program combines the minimum requirements of the certificate and master’s degree programs. Completion time is usually 24 to 36 months. The certificate program in oral medicine meets the requirements for preparation of dental specialists set forth by the American Board of Oral Medicine and the American Academy of Oral Medicine.

**Program of Study**

Students in all six programs must complete the core courses listed below. They also must complete the basic science and departmental courses appropriate to their track, listed as “additional required courses.”

**CORE COURSES**

68:202 Advanced Anatomy for Head and Neck Surgery
69:201 General Pathology for Medical Students
69:202 Systemic Pathology for Medical Students
86:200 Stomatology Literature Review
86:226 Physical, Laboratory, and Historical Features of Disease
86:230 Research in Oral Pathology, Radiology, and Medicine
86:242 Clinical Oral and Maxillofacial Radiology
111:202 Research Protocol Seminar
111:212 Statistical Methods for Dental Research
151:210 Dental Sciences Research Methodology
151:260 Bone and Tooth Support Structures and Implants

**ADDITIONAL REQUIRED COURSES**

Oral Pathology Track
86:225 Manifestations of Oral and Parotid Disease
86:227 Surgical Oral Pathology
86:240 Histopathology
86:241 Hospital Oral Pathology, Radiology, and Medicine
151:220 Patho-physiology of Skin and Oral Mucosa
151:270 Infectious Diseases

Oral and Maxillofacial Radiology Track
77:103 Introduction to Radionuclides and Radiobiology
77:106 Environmental and Radiological Health Physics
77:211 Physics of Radiobiology 1
77:220 Human and Mammalian Radiobiology
77:223 Cellular Radiobiology
86:243 Practical Oral and Maxillofacial Radiology
86:244 Technical Oral and Maxillofacial Radiology
86:245 Head and Neck Radiology

Final decisions on acceptance of applicants who meet the requirements for admission are made by the department faculty. A personal interview may be requested.

**Courses**

**For Dental Hygiene Students**

86:101 Introduction to Oral Pathology 1 s.h.
Basic disease processes, their involvement in presentation of clinical disease.
86:102 Oral Pathology for Dental Hygienists 3 s.h.
Basic information required to differentiate between normal, diseased oral tissues; general understanding of pathologic processes.
86:104 Dental Radiology for Dental Hygienists 1 s.h.
Intraoral techniques, radiation safety, processing and mounting radiographs.
86:105 *Clinical* Dental Radiology for Dental Hygienists 2 s.h.
Supervision: clinical experience in taking dental radiographs, processing and mounting films.

**For Predoctoral Students**

86:120 Fundamental of oral Radiology 1 s.h.
Methods of clinical, radiographic examination, record keeping, correlation of basic, clinical sciences.
86:135 Oral Pathology 4 s.h.
Diseases involving oral facial organs.
86:145 Introduction to Clinical Oral Radiology 1 s.h.
Principles, techniques of diagnosis, radiology, clinical pathology in clinical practice.
86:155 Systemic Disease Manifestations 1 s.h.
Clinical medicine for dental students; basic information for patient evaluation.
86:160 Clinical oral Diagnosis 1 s.h.
Diagnosis of oral diseases by clinical, laboratory, radiographic methods; clinical case analysis.
86:161 *Clinical* Oral Radiology 2 s.h.
Taking and processing intraoral, extraoral radiographs; principles of radiographic interpretation.

**For Graduate Students**

86:200 Stomatology Literature Review arr.
New articles from a variety of health care journals.

Clinical experience in *diagnosis, managing patients.*

623:25 Physical, Laboratory, and Historical Features of Disease arr.
Head and neck diseases, abnormalities.

86:227 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. May be repeated. Consent of instructor required. Pre-or corequisite: 86:240.

86:328 *Introduction* to Surgical Oral Pathology 1 s.h.
Day-to-day operations of surgical oral pathology laboratory; histopathologic diagnosis of oral and maxillofacial diseases. May be repeated. Consent of instructor required. Pre-or corequisite: 86:240.

86:230 Research in Oral Pathology, Radiology, and Medicine arr.
Includes thesis preparation.

86:238 *Introduction* to Histopathology 1 s.h.
Case studies; Histopathologic diagnosis of diseases that affect oral and maxillofacial region. May be repeated. Consent of instructor required. Pre-or corequisite: 89:202.

86:240 Histopathology 1 s.h.
Case studies; advanced training in histopathologic diagnosis of diseases that affect oral and maxillofacial region. Maybe repeated. Consent of instructor required. Pre-or corequisite: 89:202.

**For Postdoctoral Students**

86:249 Seminars in Oral Medicine arr.
Basic disease processes, their involvement in presentation of clinical disease.
86:250 Clinical Oral Diagnosis arr.
Diagnosis of oral diseases by clinical, laboratory, radiographic methods; clinical case analysis.
86:251 Advanced Oral Medicine 1 s.h.
Advanced clinical experience in taking dental radiographs, processing and mounting films.

**Facilities**

Facilities reserved exclusively for the Department of Oral Pathology, Radiology, and Medicine include a radiology special procedures area, interpretation room, seminar mom, tutorial laboratory for training small groups of graduate and undergraduate students, computer simulations area, surgical oral pathology laboratory, and a clinical pathology laboratory with areas for histopathology, hematology, clinical chemistry, and immunology.

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, ulcerstructure, and electron probe analysis and quantification. The department also maintains a library/seminar mom.

**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 qualify for admission to The University of Iowa Graduate College. To be considered for admission, applicants must have a 2.70 cumulative grade-point average on a 4.00 scale.

All applicants must take the Graduate Record Examination (GRE) General Test.

Students from countries whose primary language is not English must present evidence of satisfactory performance on the Test of English as a Foreign Language (TOEFL) and the Test of Spoken English (TSE).
86:241 Hospital Oral Pathology, Radiology, and Medicine arr.
Management of patient examination, diagnosis, therapy at a hospital based dental service.
Radiologic manifestations of diseases; emphasis on craniofacial complex.
Clinical participation; supervision of dental and dental hygiene students, review of their cases; antemortem in clinical radiology conferences, laboratory exercises.
86:244 Technica Oral and Maxillofacial Radiology arr.
Experience with technical maintenance of darkroom, clinical equipment; troubleshooting under supervision of radiology staff.
8x245 Head and Neck Radiology arr.
Hospital based rotation in diagnostic radiology with participation in interpretation sessions; CT, MRI, nuclear medicine, ultrasound.
86:246 Craniofacial Radiology arr.
Hospital based rotation in diagnostic radiology; exposure to interpretative sessions on ultrasound, CT, MRI, nuclear medicine.
86:247 Clinical Laboratory Medicine arr.
Hospital based rotations through clinical laboratory pathways and participation in four clinical specialty areas—hematology, chemistry, immunology, microbiology.
86:248 Advanced Complex Hospital Dental Care arr.
Hospital based experiences in providing direct patient care to hospitalized and ambulatory patients who have complicating systemic diseases or physical disabilities; rotations include clinical neurology, dermatology, otolaryngology, general medicine, anesthesiology.
86:249 Seminars in Oral Medicine arr.
Forensic odontology; clinical infection control and aseptic procedures in dental practice; radiation safety.
86:256 Advanced Oral Pathology arr.
Diseases involving oral/face organs; emphasis on bibliographic research, biodynamics analysis of pathologic processes, diagnostic interpretation; content adapted to student interests. Consent of instructor required.

ORTHODONTICS

Head: John S. Casko
Professors: Samir E. Bishara, Richard M. Jacobs, Robert N. Staley
Associate professors: Karin A. Southard, Thomas E. Southard
Graduate degree: M.S. in Orthodontics

Prodoctoral Program

The purpose of the prodoctoral program in orthodontics is to enable the general practitioner of dentistry to recognize, diagnose, and treat with competence limited malocclusions of the teeth.

Lecture courses guide the student in learning basic concepts of dental and facial growth, as well as treatment-oriented subject matter. In a laboratory course, diagnostic records are taken and evaluated and treatment appliances are fabricated. The department supervises a volunteer program for clinical treatment of selected patients.

Graduate Program

The purpose of the graduate program in orthodontics is to educate specialists capable of diagnosing and treating any malocclusion of the teeth requiring comprehensive care. The specialist should be familiar with and able to critically analyze biomechanic, biodynamic, diagnostic, and treatment concepts in orthodontics.

Satisfactory completion of a 23-month period of intensive study, including lecture courses, seminars, clinical practicum, and a research paper, qualifies students for the Certificate of Orthodontics. If students satisfactorily complete a thesis based on an original research project, they qualify for an M.S. degree 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

Admission requires the D.D.S. or its equivalent and satisfaction of Graduate College requirements.
Application deadline is October 1 for the class starting July 1. Applicants are required to come to the University for interviews with department faculty.

Courses

For Predoctoral Students

89:115 Growth and Development 1 s.h.
Normal human growth and development; emphasis on craniofacial region.
89:130 Orthodontic Diagnosis and Its Biological Foundations 1 s.h.
Concepts of craniofacial biology and orthodontics, philosophy of orthodontic problem management; development of dentition, process, and lifespan considerations, growth and development, genetic variability in face and teeth, growth of cranial and facial skeleton.
89:135 orthodontic laboratory 1 s.h.
Design, construction of orthodontic appliances; cast trimming.
89:136 Orthodontic Treatment 1 s.h.
From patient management to use of appliances for correcting some malocclusions that can be handled in general practitioner’s office.
89:145 Orthodontics in General Practice 1 s.h.
Differential between simple, complex orthodontic problems; classification, diagnosis, treatment planning as a continuum underlying process of systematic decision making in clinical orthodontics.
89:170 orthodontic Clinic 1 s.h.
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 
npment during summer months.

For Graduate Students

89:200 Control Theory and Craniofacial Morphogeneic Systems 1 s.h.
General system theory, control theory, cybernetics, systems analysis; role of applied human biologist; human biology as a science.
89:201 orthodontic Theory: Diagnosis and Treatment Plan 2 s.h.
Diagnosis, treatment planning application; writing of case histories of patients treated in graduate clinic.
89:203 Advanced Orthodontic Technique 2 s.h.
Skills for treatment of disfiguring malocclusions; use of edgewise biomechanical therapy; laboratory focus on typodont exercises.
89:204 Biomechanics 1 s.h.
89:205 Facial Growth 1-2 s.h.
Theories; processes; use of accepted facial growth concepts in treatment of individuals with malocclusions during active growth period.
89:207 Case Analysis 1 s.h.
Literature on diagnosis, treatment of mixed dentition patients; case histories of patients treated by 
ction procedure.
89:209 Orthodontic Practice 1 s.h.
Clinical practice.
89:210 Orthodontic Seminar 1 s.h.
Evaluation, discussion, 
te of diagnostic and treatment approaches to orthodontic cases that need, are undergoing, or have 
plete orthodontic treatment.
89:211 Problems: Orthodontics 1 s.h.
89:212 Research Orthodontics 1 s.h.
Current biological, technical publications.
89:216 practice Management 1 s.h.
89:217 Cephalometrics 1 s.h.
Use of skull X-ray (lateral and/or ) in formulating orthodontic diagnosis, treatment plans for malocclusions; cephalometrics as a tool for craniofacial structure research.
89:220 Craniofacial Anatomy 1 s.h.
Literature on anatomy, physiology, orthodontics of craniofacial structures.
89:221 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.
89:229 Basic Orthodontics for 2 s.h.
Graduate background for graduate pediatric dentistry residents; didactic, 
topic components.
89:229 Basic orthodontics for Pediatric Dentist 2 s.h.
Graduate background for graduate pediatric dentistry residents; didactic, 
topic components.
89:270 Orthodontic Clinic II 1 s.h.
Clinic experience in orthodontic diagnosis, treatment planning and treatment of patients with preventive and interceptive orthodontic problems; patients followed from initial records to completion of treatment.

PEDIATRIC DENTISTRY

Head: Jimmy R. Pinkham
Associate professor: Kevin J. Donly
Adjunct clinical associate: Donald Conlon
Assistant professor: Michael J. Kaneild
Adjunct clinical assistant professors: David Blaha, Alex Brandner, Chris Cannon, Rhys Jones, Steve Kelly, Claudia Matinelli
Assistant in instruction: Eileen J. Hermiston, Catherine M. Skotowski
Graduate degrees: M.S., Certificate in Pediatric Dentistry

The Department of Pediatric Dentistry instructs dental 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 disabilities. It also emphasizes efficient treatment through proper use of dental auxiliary personnel and record management.
Graduate Program

Graduate study in pediatric dentistry leads to both certification and a master’s degree. The program gives special emphasis to preparation for certification by the American Board of Pediatric Dentistry. It is 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. 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 elective selections determined by students’ individual interests. Development of a minor subject area is recommended.

Close associations with the Department of Pediatrics in the College of Medicine and with the University Hospital School and The 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.

Research Opportunities

Research carried out by faculty and graduate students in pediatric dentistry has been selected regularly for national awards and journal publications. Clinical and laboratory research projects are in progress, with financial support from federal agencies and other sources. Significant contributions have been made in the areas of cariology, dental materials, dentistry for persons with disabilities, growth and development, fluoride therapy, and child behavior management.

Faculty

Faculty members hold numerous national and state offices, committee memberships, consultancies, and honors in professional organizations. They serve as reviewers for several 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.

Admission

Prospective students must apply to the Graduate College.

Financial Aid

Stipend support is 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.

Courses

For Predoctoral Students

90:140 Pediatric Dentistry Diagnosis and Treatment 2 s.h.
90:150 Pediatric Dentistry Comprehensive clinical management of pediatric patients.
90:160 Pediatric Dentistry Clinical Seminar in Pediatric Dentistry 1 s.h.

For Graduate Students

90:220 Social/Cultural/Public Health Issues in Pediatric Dentistry 1 s.h.
90:225 Advanced Didactic Pediatric Dentistry arr.
90:230 Research in Pediatric Dentistry arr. Original project from design to completion; results presented in publishable form.
90:231 Thesis Preparation and Preparation of original research project, completion of thesis.
90:240 Advanced Pediatric Dentistry Comprehensive clinical management of pediatric patients; preventive therapy, operative therapy, endodontia, minor oral surgery.
90:241 Pediatric Physical Diagnosis for Dental Practice Principles, rationale for making a physical evaluation.
90:242 Pediatric Therapy for Dental Practitioners Principles of therapy in various disease conditions.
90:245 General Anesthesia Rotation Rotation in anesthesia service at The University of Iowa Hospitals and Clinics; emphasis on pediatrie pharmacology, medicine.
90:270 Pediatric Dentistry Case Review and Diagnosis, treatment plan approach to patients, particularly those with growth, development problems.

PERIODONTICS

Head: Phillip A. Lainson
Professors: William R. Crigsby, Frank J. KohouL
Associate professors: Paul J. Collins, Benny F. Hawkins, Georgia K. Johnson, Christine D. Wu-Yuan
Assistant professor: James D. Spivey
Adjunct clinical assistant professors: Steven H. Cooper, Allen P. Kvidera
Assistant in instruction: Nancy A. Slach
Graduate degree: M.S.

Predoctoral Program

The Department of Periodontics is concerned with the diagnosis, treatment, and prevention of periodontal diseases. The predoctoral program combines didactic, laboratory, and clinical experience, with emphasis on applying the biological concepts of periodontology to the comprehensive clinical management of patients who have periodontal diseases.

Graduate Programs

Master of Science

The Master of Science program is designed to provide training for teaching, research, and specialization in periodontics. The program 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 and complies with regulations of the Graduate College for programs of higher education in dentistry.

The program requires satisfactory completion of required and elective course work, preparation and defense of an acceptable thesis based on original research, and satisfactory completion of comprehensive written and oral examinations. Completion of the program requires a minimum of 36 calendar months of full-time study.

Certification

The certification program provides a sound foundation for the clinical practice of periodontics and may be combined with a Ph.D. program. The program 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.

Completion of the program requires 36 calendar 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

Admission to graduate study in periodontics requires the D.D.S. or its equivalent and satisfaction of Graduate College admission requirements. (See the Graduate College section of the Catalog.) National Dental Board Examination scores, if available, are required. Interviews are encouraged but not mandatory.

Facilities

The department has 20 modern, well-equipped operatory suites devoted exclusively to periodontics, and access to hospital experience in The University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center, both nearby. Research facilities include a departmental research laboratory and collegial laboratories in histology, microscopy, biomaterials, quantitation, tissue culture, molecular biology and biochemistry, and microbiology, as well as animal facilities. These collegial facilities are in addition to those available by arrangement with The University of Iowa Hospitals and Clinics, Eckstein Medical Research Building, and
medical laboratories; and the Veterans Affairs Medical Center.

Financial Aid

Applicants must be financially prepared to undertake uninterrupted studies. Assistantships and loans are offered, depending on available resources.

Courses

For Dental Hygiene Students

92:104 Introduction to Periodontology 2 s.h.
Fundamental concepts of periodontology.

92:105 Advanced Periodontics for Dental Hygiene Students 2 s.h.
Differential diagnosis, prevention of disease, mechanisms of destructive periodontal disease, maintenance of treated periodontium.

For Predoctoral Students

92:140 Periodontology Methods I 1 s.h.
Normal periodontium, gingivitis, periodontitis, diagnosis, prognosis, treatment planning.

92:141 Periodontology Methods II 1 s.h.
Initial phase of periodontal therapy, treatment of acute periodontal problems, curettage, gingivectomy, periodontal flap procedures, including osseous considerations.

92:160 Periodontics arr.
Comprehensive clinical management of periodontal patient.

92:165 Periodontology 1-2 s.h.
Comprehensive concepts of periodontology; clinical management of patients.

For Graduate Students

92:201 Advanced Periodontology arr.
Review of current concepts, ideas.

92:202 Critical seminar in Periodontics arr.
Comprehensive management of the periodontal patient; emphasis on treatment planning and case documentation, presentation for complete dental therapy.

92:205 Methods of Instruction in Periodontics arr.
Course design, behavioral objectives, methods of evaluation.

92:207 Practice Teaching in Periodontics arr.
Experience in directing seminars, clinical teaching.

92:208 Recent Advances in Periodontics arr.

92:210 Periodontology Pathology Seminar arr.
Differential diagnosis, histopathology of oral lesions often encountered in clinical practice.

92:212 Applied Oral Microbiology arr.
Microbiology applied to oral health problems.

92:213 Biochemical Aspects of Periodontology arr.
Blood clotting, cell metabolism, nutrition.

92:225 Periodontology Literature Review I arr.

92:226 Periodontology Literature Review II arr.

92:227 Periodontology Literature Review III arr.

92:228 Periodontology Literature Review IV arr.


92:231 Thesis Preparation in Periodontology arr.
Virginia research project, thesis.

92:240 Advanced Clinical Periodontics arr.
Comprehensive clinical management of periodontal patient; emphasis on complex cases.

For Predoctoral program

Programs in preventive, community, and geriatric dentistry are designed to increase students’ awareness of preventive dental practices, aspects of dental practices affected by community factors, and care of compromised adult patients.

Extramural programs give students opportunities to interact with health care teams and community members in Iowa and worldwide. The department conducts off-site extramural programs throughout the state, the nation, and the world.

Using the community as the classroom, students are able to observe and participate in a variety of activities intended to make them aware of the societal obligations they must assume in order to practice effectively.

Graduate Program

The M.S. 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 semester hours of course work.

Successful dentist graduates meet the educational requirements for eligibility for the certifying examination of the American Board of Dental Public Health.

Courses

For Dental Hygiene Students

In April 1992, the State Board of Regents voted to close the Department of Dental Hygiene on June 30, 1992. The Department of Preventive and Community Dentistry will administer the following dental hygiene courses through May 1995. No instruction in dental hygiene will be available after that date.

Dental hygiene courses are open only to dental hygiene students.

98:101 Dental Anatomy 2 s.h.
Dental terminology, morphological characteristics of teeth, their positional relationships and functional considerations; emphasis on relationship of dental morphology to clinical dental hygiene practice.

98:102 Head and Neck Anatomy 1 s.h.
Includes neuroanatomy.

98:103 Dental Hygiene Core I 5 s.h.
Clinical hygiene theory, practice; assessment of patients’ oral and general health status, its role in providing complete dental hygiene assessment and treatment services.

98:104 Introduction to Dental Hygiene 2 s.h.
Clinical application of content from 88:101, which is corequisite.

98:105 Dental Hygiene Core II 3 s.h.
Continuation of 88:101; emphasis on assessment of health status, prevention of oral disease.

98:106 Fundamentals of Dental Hygiene Practice 2 s.h.
First-level practicum; essential preventive dental hygiene treatment for patients who have simple to moderately complex needs and assessment, planning and provision of treatment, patient referral.

98:111 Independent Study 2 arr.
Additional study or career issues in dental hygiene practice.

98:12 Clinical Dental Hygiene Education, research, public health.

98:14 Seminar: Dental Hygiene Concepts and Practice 5 s.h.
Research, advances in preventive procedures; ethical, legal, social responsibilities of health care providers; current, extended roles in dental hygiene practice.

98:122 Practicum Community Dental Hygiene 7 s.h.
Application of principles and techniques, including educational methodology, clinical dental hygiene skills, writing and word processing skills, decision making, assessment, planning, implementation, evaluation.

98:17 Seminar: Community Dental Health 4 s.h.
Oral health for the public; oral health status, environment factors, self-diagnosis and care, professional intervention.

For Predoctoral Students

111:16 Fundamentals of Clinical Dentistry 3 s.h.
Identification of health and disease in the mouth; practical methods of disease control, philosophical practice in dentistry; patient assessment, clinical judgment, care of patients.

111:17 Dentistry and Preventive Therapies 1 s.h.
Multifactorial etiology of dental caries; support data for use of fluorides, sealants, plaque control mechanisms in control, prevention of caries; self-study approach. Offered spring semesters. Prerequisite: II 1-1 16.

111:18 Preventive Dentistry, Communication, and Patient Care 2 s.h.
Concepts, skills in instrumentation for detection, removal of calculus deposits; communication, patient management skills; prophylaxis, oral hygiene instruction for collegiate recall patients. Offered summer sessions. Prerequisite: II 1-1 17.

111:145 Clinical Preventive Dentistry 2 s.h.
Provision of complete prophylaxis and preventive services for collegiate patients; development of communication skills in a clinic setting. Prerequisite: II 1-1 18.

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. Offered fall semesters.

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. Offered spring semesters.

111:185 Broadmoor Medical Center
Provision of 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.
Dentistry: Preventive and Community Dentistry

11 1:186 Colorado Migrant Program (6 s.h.)
Provision of primary dental care to low-income migrant populations; broad understanding of needs, resources for migrant, low-income, and economically disadvantaged communities.

11 1:187 Community Health Care: Davenport (6 s.h.)
Experience as part of health care team at medical/dental/ambulatory health care facility serving Scott County; eight operational dental clinic.

11 1:188 Dental Health Center-East Central Iowa (6 s.h.)
Provision of clinical, outreach services for low-income children and adults with developmental disabilities at St. Luke's Hospital, Cedar Rapids; operative and prosthodontic dental problems, hospital protocol, special needs of socioeconomically at-risk clients.

11 1:189 Special Care Program (6 s.h.)
Provision of dental care to physically and medically compromised adult patients; use portable dental equipment to care for nursing home residents.

11 1:191 Private Practice Preceptorship (6 s.h.)
Provision of dental care under supervision of a dental preceptor practicing in Iowa various aspects of practice, including office management, community affairs.

11 1:193 Veterans Administration Medical Center: Iowa City (6 s.h.)
Provision of dental care to inpatient and outpatient veterans in a rehabilitation hospital and geriatric hospital; observation of other hospital departments, such as physical therapy, rehabilitative medicine, psychiatry.

11 1:194 Spedat Field Clinic (6 s.h.)
Extramural experiences developed according to student needs, extra-curricular opportunities. Approval of department required.

11 1:195 Hospital Experience (6 s.h.)
Experiences in alternate dental care delivery systems; usually out of state. Department approval of program required.

For Graduate Students

11 1:200 Introduction to Dental Public Health Science, philosophy, practice of dental public health. 2 s.h.

11 1:201 Literature Review Methods: Dental Public Health (6 s.h.)
Initial literature review in area of student's interest.

11 1:202 Research Protocol Seminar (6 s.h.)
Development of a master's thesis protocol; identification of thesis topic, review of relevant literature, outline of potential research methods.

11 1:203 Independent Study: Dental Public Health (6 s.h.)
Approval of faculty and supervisor required.

11 1:204 Principles of Oral Epidemiology (6 s.h.)
Descriptive, analytical techniques, study design, validity, reliability; distribution and determinants of oral diseases-caries, periodontal diseases, oral cancer, malocclusion. 3 s.h.

11 1:205 Administration of Public Dental Programs (6 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.

11 1:206 Preventive Programs in Dental Public Health (6 s.h.)
Prevention, control methods for major dental conditions, primarily dental caries, periodontal diseases; clinical efficacy, cost-effectiveness, development of comprehensive preventive oral health plans for a community.

11 1:207 Social Science in Dentistry (6 s.h.)
Literature in social behavioral sciences applied to dentistry analysis of research.

11 1:208 Field Experience in Dental Public Health (6 s.h.)
Experiences with public and voluntary health agencies according to students' special needs.

11 1:211 Thesis: Dental Public Health (6 s.h.)
Preparation, methodology, analysis, organization; writing, defense of research.

11 1:212 Statistical Methods for Dental Research (6 s.h.)
Descriptive methods, elementary probability distributions, and applications; analysis of variance, correlation and analysis of variance.

11 1:214 Finishing Dental Care (6 s.h.)
Payment mechanisms for health care service providers, reimbursement, prepayment plans, salaried and public finance programs, Medicare and Medicaid programs, national health insurance systems.

11 1:215 Introduction to Statistical Computing (6 s.h.)
Use of statistical packages on a mainframe or personal computer for data management and analysis.

11 1:216 Teaching Preceptorship: special Care/Geriatric Dentistry (6 s.h.)
Philosophies of dental education, teaching methodologies and evaluation; historical and current concepts; practical experiences from supervised didactic and clinical teaching in 11 1:189.

11 1:217 Teaching Practicum: Preventive Dentistry (6 s.h.)
Philosophies of dental education, teaching methodologies and evaluation; historical and current concepts; practical experiences from supervised didactic and clinical teaching in 11 1:189, 11 1:188, 11 1:187.

11 1:218 Teaching Preceptorship: Community Dentistry (6 s.h.)
Philosophies of dental education, teaching methodologies and evaluation; historical and current concepts; practical experiences from supervised didactic and clinical teaching in 11 1:189.

11 1:224 Research Design in Dentistry (6 s.h.)
Types of studies used in dentistry; design validity; sampling methodologies; major descriptive and experimental designs used in dental research; analysis of experimental designs for these studies.

11 1:230 Geriatric Care I (6 s.h.)
Diagnosis, management of geriatric dental health care problems; emphasis on clinical dental treatment; use study approach.

11 1:231 Geriatric Care II (6 s.h.)
Continuation of 11 1:230 which is a prerequisite.

11 1:232 Geriatric Care III (6 s.h.)
Continuation of 11 1:231, which is a prerequisite.

11 1:233 Geriatric Care IV (6 s.h.)
Continuation of 11 1:232, which is a prerequisite.

Graduate Programs

The department offers Master of Science and certificate program. The primary purpose of the M.S. program in prosthodontics 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 themselves further for private practice in prosthodontics. Both programs satisfy the educational requirements for eligibility for the American Board of Prosthodontics examination. Students must meet all the requirements for the master's degree as outlined in the Manual of Rules and Regulations of the Graduate College.

Master of Science

The M.S. program prepares dentists for the practice of prosthodontics with a strong background in dental research. Students must complete a core curriculum, which includes basic sciences, research methodology and thesis, and clinical prosthodontics. The clinical portion includes fixed, removable, maxillofacial, and implant prosthodontics. The thesis is based on students' original research with the aid of an adviser and thesis committee. In addition, students are required to satisfactorily complete an oral and/or written examination over the thesis and prosthodontics.

Certificate Program

The certificate program provides 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, and implant prosthodontics.

Admission

Minimum requirements for admission to both programs correspond to the minimum requirements for admission to the Graduate College. In addition, applicants must hold a D.D.S. or D.M.D. or its foreign equivalent. An interview may be requested. Both programs last a minimum of 24 months and usually begin July 1. Application deadline is November 1.

Courses

For Predoctoral Students

44 1:12 principles of Occlusion (6 s.h.)
Concepts of occlusion, mastication; interdisciplinary approach.

44 1:14 Removable Prosthodontics Technique Lecture (6 s.h.)
Technical procedures for construction of complete and removable partial dentures.

44 1:14 Removable Prosthodontics Technique Laboratory (6 s.h.)
Laboratory exercises.

44 1:15 Fixed Prosthodontics Technique Lecture (6 s.h.)
Definitive materials, techniques for construction of metal, porcelain fixed restorations.

44 1:15 Fixed Prosthodontics Technique Laboratory (6 s.h.)
Technical procedures for construction of fixed prostheses.
84:106Prosthodontics Clinic am.
Experience supplemented by individual supervision, demonstration.

84:105Prosthodontics Seminar 2 s.h.
Knowledge in biological, basic sciences and technique applied to clinical fixed and removable prosthodontics procedures.

For Graduate Students

84:220 Fixed Prosthodontics Seminar I 1 s.h.
Procedures; research literature.

84:221 Fixed Prosthodontics Seminar II 1 s.h.
Porcelain restorations, esthetics; research literature.

84:222 Fixed Prosthodontics Seminar III 1 s.h.
Diagnosis, treatment planning.

84:223 Occlusion seminar 1 s.h.
Research topics.

84:224 Graduate Restorative Materials 2 s.h.

84:225 Complete Denture Seminar I 1 s.h.
Principles, practices, concepts of construction, current research.

84:226 Complete Denture Seminar II 1 s.h.
Principles, practices, concepts of construction; current research.

84:227 Removable Partial Denture Seminar I 1 s.h.
Principles, practices, concepts of construction; past research.

84:228 Removable Partial Denture Seminar II 1 s.h.
Principles, practices, concepts of construction; past research.

84:230 Research: Prosthodontics 3 s.h.
Literature review, protocol preparation, data collection for research project.

84:231 Thesis Preparation: Prosthodontics 3 s.h.
Thesis preparation, defense.

84:236 Biomaterials Research Methodology 1 s.h.
Materials research in the College of Dentistry; use of equipment. Same as 82:236.

84:238 Advanced Clinical Removable Prosthodontics 3 s.h.
Patient treatment.

84:241 Technique Methods: Removable Prosthodontics 3 s.h.
Methods for construction of complete, removable partial dentures.

84:242 Practice Teaching: Prosthodontics 3 s.h.
Clinical, classroom teaching experience.

84:245 Advanced Clinical Fixed Prosthodontics 3 s.h.
Patient treatment.

84:246 Technique Methods: Fixed Prosthodontics 3 s.h.
Problems.

84:250 Journal Club 1 s.h.
Prosthodontics current literature.

84:251 Clinical Issues and Treatment Planning in Prosthodontics 3 s.h.
Treatment planning, delivery for complex prosthodontic patient; patient presentations.

84:252 Library Assignments: Prosthodontics 3 s.h.
Literature search, preparation of bibliographies, abstracts.
College of Education

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  Leadership Studies ............. 319
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Dean: Steven R. Yussen
Associate deans: Ursula M. Delworth, Gary F.
Hansen
Director, Connie Bellin National Center for Gifted
Education: Nicholas Colangelo
Director, educational placement: Judith D.
Hendershot
Director, Iowa Testing Programs: Leonard S. Feldt
Degrees: B.A., B.S. (undergraduate degrees granted
through College of Liberal Arts); M.A.T., M.A., M.S.,
Ed.S., Ph.D.
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 in the basic pattern that governs it today, was founded in 1913. The growth of the college has corresponded to 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 divisions: Counselor Education; Curriculum and Instruction; Planning, Policy, and Leadership Studies; and Psychological and Quantitative Foundations.

Teacher Education Programs

The College of Education at The University of Iowa offers three major baccalaureate degree-based teacher preparation programs. Two of these, elementary education and health occupations education, involve professional education majors. The third program consists of the professional course work and academic majors required for secondary school teaching.

The college also provides numerous specialized elementary (including early childhood) and secondary teaching endorsement programs.

Preparation for special education teaching is offered at the graduate level. A limited number of undergraduate special education courses also are open to all students having an interest in this area, to those from other teacher education programs, and to those planning to pursue graduate degrees in special education.

All students admitted to a teacher education program (TEP) must complete College of Liberal education majors. The third program consists of Planning, Policy, and Leadership Studies; and been their contributions in the fields of

Admissions to teacher education programs are competitive. Admission requirements may vary by program area and are based on demand and faculty availability. In order to be considered for admission to a teacher education program, an undergraduate student must have:
- been admitted to The University of Iowa as a degree candidate;
- completed the American College Tests (ACT) or the Scholastic Aptitude Test (SAT);
- attained sophomore standing (completed 30 semester hours) prior to the semester during which enrollment is made in the teacher education sequence of courses;
- achieved a 2.50 grade-point average on all college course work as well as course work completed at The University of Iowa and applied for admission to a teacher education program.

Honors in Education

The College of Education Honors Opportunities Program is open to juniors and seniors who have attained a 3.50 grade-point average. Students with lower GPAs who have demonstrated their research potential may be accepted on the basis of an interview with the director. The Honors Opportunities Program consists of three components: 7X:100 Honors Seminar in Education, a research mentorship, and a student development program including career counseling and social activities. Successful completion of a research project results in an honors designation on the diploma. The Honors Opportunities Program is housed in and administered by the Connie Belin National Center for Gifted Education.

Application Deadlines

The deadline for application to teacher education programs is June 15. Applicants who do not meet the deadline may submit applications by either October 15 or March 15 for consideration and may be accepted if qualified and if openings in the program occur.

General Requirements

Admissions to teacher education programs are competitive. Admission requirements may vary by program area and are based on demand and faculty availability. In order to be considered for admission to a teacher education program, an undergraduate student must have:
- been admitted to The University of Iowa as a degree candidate;
- completed the American College Tests (ACT) or the Scholastic Aptitude Test (SAT);
- attained sophomore standing (completed 30 semester hours) prior to the semester during which enrollment is made in the teacher education sequence of courses;
- achieved a 2.50 grade-point average on all college course work as well as course work completed at The University of Iowa and applied for admission to a teacher education program.

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Graduate or Postbaccalaureate 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 with their objective stated as “certification only” or in some secondary teaching areas with a Master of Arts in Teaching (M.A.T.) objective. Students selecting this route must satisfy the following conditions:
  - admission to the Graduate College;
  - completion of the Graduate Record Examination (GRE) General Test;
  - a cumulative grade-point average of not less than 2.50 on undergraduate work and 3.00 for M.A.T. objective; and
- admission to a specific certification program (e.g., elementary education, special education, or secondary English).
- They may apply to the College of Liberal Arts as postbaccalaureate students with senior standing. Students selecting this option should not apply as special students. Instead, they must apply to the appropriate teacher education program following the undergraduate admissions procedure and must meet the general requirements stated in the undergraduate admissions section.

The deadline for graduate-level application to the teacher education program is May 15. Applicants who do not meet the deadline may submit applications by either September 15 or February 15; when qualified, they may be accepted if openings in the program occur.

Application deadlines for postbaccalaureate students with senior standing are the same as those for undergraduates.

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. 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.

Admission to the senior year student teaching semester requires separate application. Applications must be submitted to the Office of Student Services in the College of Education by February 15 of the academic year preceding the one during which the student teaching is to be completed. Opportunities for overseas and urban student teaching experiences are available. Admission to student teaching requires program area faculty approval as well as verification of satisfactory progress in meeting both College of Education standards and program area standards, which are set at the time of admission to the TEP and in some programs are higher than the college minimum grade-point average of 2.50.

Students should consult with their advisers regarding specific requirements for the program areas.

waivers

Students who have completed practicum-type experiences or courses that they want to have considered in lieu of program requirements should consult with their advisers.

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. Popular settings for urban student teaching include the CUTE Program (Cooperating Urban Teacher Education) in Kansas City, Kansas, and in the Aldine, Texas (Houston suburb) Independent School District. These options are open to all education majors who meet the requirements for student teaching.
Overseas Student Teaching

Overseas student teaching experience is available in cooperation with the University of Wisconsin-River Falls. The overseas sites available include Ireland, England, Scotland, Wales, and Australia. In most locations, students are assisted with housing by the on-site coordinator. Interested students must meet the regular requirements for student teaching and must have the approval of their adviser and the appropriate program coordinator. Overseas assignments are for seven weeks. Secondary education students in some program areas are required to complete a full semester in a U.S. assignment before student teaching overseas. Elementary education students complete a two-week classroom management course followed by seven weeks in a U.S. assignment and seven weeks overseas during one semester.

State Requirements

All students seeking an Iowa teaching license must complete a course in human relations and mainstreaming the exceptional learner. These requirements can be met by completing 7F:180 Human Relations for the Classroom Teacher and 7U:100 Mainstreaming the Exceptional Learner.

Teacher Education Minors

Acceptance into a teacher education program is prerequisite to registration for most College of Education undergraduate courses. However, the College of Education does offer four minors for students interested in being better informed about education: general education, science education, human relations, and educational psychology. These minors may help students prepare to be better informed as parents, as taxpayers, or as future members of local boards of education. They also may help support students’ future career objectives. Descriptions of the minors are available in the Office of Student Services.

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 semester hours of course work applied to meet program requirements must be earned at The University of Iowa.

The College of Education Office of Student Services provides Iowa application forms and licensure/certification assistance to all students completing approved programs offered by the college. Assistance also is provided 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 general regulations of the Graduate College, with additional requirements set by College of Education faculty. Graduate students in education register in the Graduate College and receive their degrees from that college. Graduate programs are available in the following areas of study:

Counselor Education
M.A., Ed.S., Ph.D.
Counseling and Human Development–M.A., Ed. S., Ph.D.
Rehabilitation Counseling–M.A., Ph.D.
Student Development in PostSecondary Education–M.A., Ed. S., Ph.D.
Substance Abuse Counseling–M.A.
Rehabilitation Psychology–Ph.D.
Curriculum and Instruction
M.A.T., M.A., M.S., Ed.S., Ph.D.
Art Education–Ph.D.
Behavior Disorders–M.A.
Curriculum and Supervision–M.A., Ed. S., Ph.D.
Developmental Reading–M.A.
Early Childhood Education–M.A.
Early Childhood Special Education–M.A.
Elementary Education–M.A., Ph.D.
Elementary Science Education–M.S.
English Education–M.A.T., M.A., Ph.D.
Foreign Language Education–M.A.T., M.A.
Learning Disabilities–M.A.
Mathematics Education–M.A., Ph.D.
Mental Retardation, Mild/Moderate–M.A.
Mental Retardation, Moderate/Severe/Profound–M.A.
Multicultural Resource–M.A.
Multicultural Special Class with Integration–M.A.
Science Education–M.S., M.A.T., Ed.S., Ph.D.
social Studies Education–M.A., Ph.D.
Special Education–Ed. S., Ph.D.
Special Education Administration–Ed.S.
Planning, 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.
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.
Instructional Design and Technology–M.A., Ed. S., Ph.D.
School Psychology–Ed.S., Ph.D.

Master of Arts in Teaching

The M.A.T. program is a 42-semester-hour (minimum) nonthesis program designed for academically superior liberal arts graduates who completed few or no professional education courses in their undergraduate program. Requirements are listed under “Curriculum and Instruction” in this section of the Catalog. The program leads to a master’s degree and license as a secondary teacher in the fields of English, foreign languages, and science education. A grade-point average of at least 3.00 on undergraduate course work is required for admission. At least 18 semester hours of graduate course work in the student’s teaching field must be completed. A minimum of 20 semester hours of graduate work in education must be taken to satisfy licensure requirements.

Master of Arts

The College of Education offers a Master of Arts with or without thesis. The nonthesis M.A. program usually provides more specialized course work than does the thesis program. The nonthesis program is not necessarily a terminal program, but 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. program and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their adviser or division during the early part of their doctoral program. Course credits earned more than ten years before the session in which the degree is to be conferred are not counted toward fulfillment of requirements for any master’s degree. Of the minimum 30 semester hours required for the degree, at least 24 must be earned in University of Iowa courses after formal admission to the program, and at least 8 must be completed on campus.

Master of Science

Thesis and nonthesis programs are available for students in science education. The degree requirements are similar to those for the Master of Arts.

Specialist in Education

This degree is granted upon completion of a prescribed two-year postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration and supervision, and special services. Of the minimum 60 semester hours required for the degree, 28 must be in the area of specialization; the rest may be earned in cognate fields, supervised research, and elective courses. The research must culminate in a written report. Other requirements and regulations for the Ed.S. are the same as for the master’s degree, except that 15 semester hours of resident work on campus are required in one 12-month period or in two summer sessions, and course work completed ten years prior to the final examination must be evaluated to determine the amount of credit.
The Ph.D. is the highest 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.

**Doctor of Philosophy**

The Ph.D. is the highest academic degree. It is the preparation and defense of a dissertation.

**Professional Improvement**

Students are admitted to professional improvement status in a division rather than to degree candidacy. This option is appropriate only for persons who are seeking to update their knowledge or 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. There are, however, special regulations governing such course work. Students should obtain prior approval from their program advisers before registering in extramural courses. Students not regularly admitted to The University of Iowa also may register in extramural courses, but credit earned prior to admission will not count toward residency requirements.

**Support Units and Special Resources**

**Student Services**

The Office of Student Services assists students, faculty, staff, and the general public in matters of graduate and undergraduate admissions, 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, the Office of Admissions, and the Registrar’s Office, and with external agencies including the Iowa Department of Education, out-of-state teacher licensure/certification departments, and school district personnel both in- and outside of Iowa.

A variety of application and informational materials are available at the office.

**Computer Resources Laboratory**

The College of Education Computer Resources Laboratory provides computer services to College of Education students. Students may use its facilities to work on assignments or do research. The laboratory also assists students enrolled in development courses involved with computer-aided instruction, interactive videodisc instruction, and computer-managed instruction. The Computer Resources Laboratory supports a variety of microcomputers and terminals on-line with University of Iowa mainframe and super-minicomputers. More than 500 pieces of software are available for checkout by registered students. Multiple copies of word processors, spreadsheets, databases, programming languages, utilities, and instructional courseware can be checked out to be used in the lab area.

**Curriculum Resources Laboratory**

The Curriculum Resources Laboratory provides classroom materials for students and faculty members interested in early childhood, elementary, secondary, and special education. It brings into a convenient central location a large collection of books for children and young adults, K-12 textbooks, curriculum guides and activity books, and non-print materials, such as videocassettes, audiocassettes, games, pictures, kits, and manipulative.

All of these instructional materials can be checked out for class assignments, personal examination, and student teaching.

**Instructional Media Production Laboratory**

The Instructional Media Production Laboratory provides in-house video and audio production, still photography, graphics, and instructional equipment services to College of Education faculty and staff. The laboratory supports a video production facility with both studio and location capabilities, videotape editing suites, audio production studios, darkrooms, and a graphics workroom.

It also coordinates a variety of media production courses for graduate students in the instructional design and technology program and undergraduates in the teacher education program.

**Libraries**

The Main Library and the Psychology Library provide books, periodicals, reference books, films, ERIC microfiche, tests, and a reserved book room for students and faculty.

**Placement**

The Educational Placement Office assists students and alumni seeking teaching, administrative, and related positions at all levels and in all fields. Services include individual consultation and group assistance with job-search skills and employment tactics, information about job vacancies, establishment of a placement file, and the opportunity to interview with school recruiters on campus. An information center with resources covering career information; directories of schools, colleges, and agencies; and community and state data is available for students planning careers in education and related areas.

**Iowa Testing Programs**

The Iowa Testing Programs staff develops 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. This department 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.

**Connie Belin National Center for Gifted Education**

The Iowa State Board of Regents established the Connie Belin National Center for Gifted Education in 1988. Based in the College of Education, the center conducts research and service in gifted education. As a national resource, it also gathers and disseminates information on the education of gifted students.

The center’s programs and services include the Connie Belin Fellowship Program in Gifted Education; the Honors Opportunities Program; Invent, Iowa the Counseling Laboratory for Talent Development; 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; talent searches; and a number of precoccy programs for gifted students in grades 3-12.

The center also provides practicum and internship experiences for undergraduate and graduate students and coordinates course work for the Iowa Endorsement in teaching gifted and talented students.

For more information, contact the Belin center director.

**North Central Association**

The North Central Association (NCA) of Colleges and Schools is the largest and most active of six regional accrediting associations in the United States; Iowa is one of 19 member states. The NCA’s primary purpose is to foster improvement in education at the elementary, secondary, and collegiate levels by self-examination of educational programs, visits by evaluation teams, and adherence to policies and standards for continued membership. The University of Iowa houses and supports the office of state director of the Iowa NCA State Committee.

**Institute for School Executives**

The Institute for School Executives is a membership organization for school districts and other educational agencies established and operated by the College of Education. Begun more than a decade ago, it provides continuing education and staff development opportunities for school administrators across the state.
An executive planning board of practicing school administrators provides direction and guidance for programming activities. Management and oversight are coordinated by faculty members of the Division of Planning, Policy, and Leadership Studies. Institute activities provide an excellent opportunity for school administrators and College of Education faculty and students to interact and exchange ideas, experience, and research information on a variety of topics.

Research Support
The dean’s office provides support services for faculty research and development, helps faculty with preparation and acquisition of grants, and coordinates such efforts with the University’s Division of Sponsored Programs.

The Cooperating Schools Program, a service of the College of Education since 1972, serves as a liaison for University faculty and students by placing and coordinating research projects with school districts willing to participate in the studies.

Special Resources
The School Program for Emotionally Disturbed Children is located in the child psychiatry unit of the University’s Psychiatric Hospital. Children attending this school are residential patients in the unit. The program is supported by the Psychiatric Hospital. Opportunities are available for student teaching and practicum experience in school psychological services.

The University Counseling Service provides research and practicum opportunities for students in counseling psychology and other college programs.

University Hospital School is a University-affiliated facility and, as such, it strives to provide a viable balance of direct services to developmentally disabled youngsters, interdisciplinary training activities for personnel, and research projects in program development and effectiveness.

Financial Aid
Students interested in employment opportunities in any of the support units and special resources listed above 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.

Graduate Assistantships
Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as for fellowship and related employment opportunities. Inquiries should be addressed to the chair of the division or to the director of the program in which the student believes he or she can provide service or achieve an outstanding academic record. If the student has applied for admission, his or her student file is available for review by those responsible for selecting the assistantship(s) for the student’s program. Assistantship appointments are usually, but not always, made by the program area.

Special Graduate Assistantships in Education
The Iowa Testing Programs and the Iowa Measurement Research Foundation provide sufficient funds to support a limited number of special graduate assistantships in education. Students admitted to or pursuing any of the advanced degree programs offered by the College of Education are eligible to apply, provided they are committed to a professional career in the United States. The assistantships are for the academic year only and are renewable for a limited number of years. Holders are assigned to work under the direction of a faculty member in a research capacity and must be enrolled for not fewer than 6 nor more than 12 semester hours per semester.

All candidates must submit transcripts of all college work completed (undergraduate as well as graduate), recommendation forms specific to these assistantships, and scores on the Graduate Record Examination (GRE) General Test. The application form for this assistantship program is available from the director of the Iowa Testing Programs. Application deadline is March 1.

College of Education Student Loan and Scholarship Fund
The college’s student loan fund was established to assist College of Education students who are faced with extraordinary or unforeseen expenses while pursuing degree or licensure programs. The borrower must be a senior or postbaccalaureate student seeking teacher licensure, or a graduate student seeking an advanced degree in the College of Education. He or she must have completed the equivalent of two semesters of full-time work at The University of Iowa or the equivalent of one year in the graduate program at The University of Iowa.

Three scholarships are available to students for the semester in which they student teach. The scholarships are based on need, grade-point average, and future plans for teaching. One is designated for a postbaccalaureate student; the others can be awarded to either graduands or undergraduates. Applications are accepted each spring for students who will student teach either semester of the following year.

Information and application forms for loans or scholarships are available from the director of the Educational Placement Office.

College of Education Awards
Awards are presented to outstanding students in the College of Education at the spring semester meeting of the college faculty.

- The Duane D. Anderson Scholarship, awarded to a student transfer 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, presented annually 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 John Elderkin Bell Marriage and Family Therapy Award, presented annually to an outstanding graduate student in marriage and family therapy entering the dissertation phase of the doctoral program.
- The Blomme-Hieronymus Fellowship, awarded annually to a doctoral student in the field of educational measurement and statistics. Nominates 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 the field of measurement and statistics. The fellowship stipend supplements the recipient’s teaching or research assistantship each year until graduation, to a maximum of three years.
- The T. Anne Cleary Psychological Research Scholarship, awarded to outstanding doctoral student engaged in research on the psychological or quantitative foundations of education. It may be presented to one international student and one permanent resident of the United States each year.
- The John Leonard Davies Memorial Award, presented to an outstanding graduate student majoring in education whose specialization is adult and continuing education.
- The Harvey H. Davis Award, presented to an outstanding candidate for an advanced degree in higher education or educational administration, particularly a student interested in the financing of education.
- The Howard R. Jones Achievement Award, presented to an outstanding graduate student who has made a noteworthy scholarly presentation at a national professional conference or published a significant scholarly article in a reputable professional journal or other substantial printed work.
- The Perry Eugene McClenahan Award, presented to the outstanding candidate for an advanced degree in educational administration.
- The Leonard A. Miller Memorial Award, presented to an outstanding first-year M.A. student majoring in rehabilitation counseling.
- The Melvin R. Novick Award, presented annually to a third- or fourth-year student enrolled in the doctoral program in educational measurement and statistics who has shown the most outstanding academic performance and promise of the highest level of achievement in research in this field.
- The Pi Lambda Theta Award-Senior, M.A., and Ph.D. levels, presented to outstanding students of high scholarship who show promise in the professional areas of research, teaching, or writing and exhibit striking personal qualities.
- The Betty Piercy Scholarship Award, presented to an outstanding student in reading
who is expected to benefit the field in some direct way.

- The Senior Honors Project Award, presented to a graduating senior in the College of Education who has completed the honors seminar and submitted an outstanding paper as part of the seniors honors project.
- The Franklin Stone International Student Award, presented to an outstanding international student pursuing a Ph.D.
- The James and Coretta Stroud Fellowship for Doctoral Study in Educational Psychology, Measurement, or Statistics, awarded to an outstanding graduate student in the Division of Psychological and Quantitative Foundations who is entering the dissertation phase of study.
- The Erwin and Louis Wasa International Scholarship, awarded to an international student enrolled in a College of Education program. The award is based on promise and need.
- The Janet R. Zober Memorial, awarded to an outstanding student preparing to teach the physically handicapped, including the hearing impaired.

Faculty

All tenure-track faculty members with professional rank hold earned doctorates in their teaching fields, and the majority have had teaching or administrative experience in the public schools. Several hold joint appointments in the College of Liberal Arts.

Interdivisional Courses

7X:000 Cooperative Education Internship 0 s.h. Students participating in cooperative education internships register during work assignment periods; registration protects full time student status and provides a permanent transcript record of participation. Consent of faculty required. Prerequisite: satisfactory completion of cooperative education requirements.

7X:100 Honors Seminar in Education 1 s.h. Research and education and related professions with presentations by College of Education faculty; students select a faculty member with whom to collaborate on research and complete a senior honors paper.

7X:101 Senior Honors Project 1-2 s.h. Scholar with a faculty member on research project; written report. Prerequisite: 7X:100.

COUNSELOR EDUCATION

Chair: Richard Dustin

Professors: Nicholas Colangelo, Richard Dustin, Albert B. Hoit, David A. Jepson

Professors emeriti: Harold B. Engen, C. Esco Obermann

Associate professors: Denis R. Mak, Leslie Marjolin, William A. Matthes, David M. Rosenthal

Associate professors emeriti: Ralph R. Roberts, Jr., Lauralee Rockwell

Assistant professors: Marijane Fall, Debora Liddell, Cynthia Scott, Villa Tarvydas, Paul Toh

Assistant professor emerita: Nancy Barcelo

John Bayless, David Grady, Maureen Lienau, Phillip Jones, Pat Wynn

Adjunct instructors: Arthur Schut, Orville Townsend

Lecturer: Anne Helene Skinstad

Graduate degrees: M.A., Ed. S., Ph.D.

The Division of Counselor Education prepares practitioners and scholars primarily at the graduate level, through degree programs in student development in postsecondary education, rehabilitation counseling, rehabilitation psychology, counseling and human development, and substance abuse counseling. It also offers basic courses in interviewing and interpersonal skills for students in other professional and graduate programs, as well as for undergraduates.

The division’s programs have a strong foundation in psychology.

Admission

Detailed information on admission and program requirements is presented in the brochure “Programs for Advanced Degrees,” available from the Division of Counselor Education.

All applicants for the Master of Arts, Education Specialist, and Doctor of Philosophy are typically expected to meet the following admission requirements:

- completed graduate application form;
- copies of official transcripts of all previous college work—undergraduate and graduate;
- official report of Graduate Record Examination (GRE) General Test scores—verbal and quantitative; a statement of the candidate’s reasons for seeking an advanced degree in counselor education, including a statement of personal career objectives;
- a personal or telephone interview, if requested;
- three current letters of recommendation from persons in a position to assess both the applicant’s prospects for completing either the M.A., Ed. S., or Ph. D., and his or her strong commitment to the profession.

In addition to the above, the following requirements must be met for the individual programs.

Master of Arts: A 2.75 minimum undergraduate grade-point average and a composite (verbal and quantitative) GRE General Test score of 1000 or higher.

Specialist in Education: A 2.75 minimum graduate grade-point average and a composite (verbal and quantitative) GRE General Test score of 1000 or higher.

Doctor of Philosophy: A 3.00 minimum undergraduate grade-point average or 3.30 minimum grade-point average if a graduate degree has been completed; composite (verbal and quantitative) GRE General Test score of 1100 or higher.

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 master’s degree (including a master’s unrelated to counselor education) must complete core master’s-level course work before taking doctoral-level advanced courses.

Maintaining Candidacy

All graduate students must meet the following standards in order to maintain their candidacy for degree:

- maintain necessary grade-point average in their curriculum plan: M.A.–3.00; Ed. S.–3.25; Ph. D.–3.50;
- successfully complete practicum, internship, or equivalent professional experience;
- maintain professional behavior consistent with the American Association for Counseling and Development code of ethics, and any additional code of professional ethics adhered to in any agency in which the student completes a practicum or internship; and demonstrate progress toward the degree through successful completion of hours specified in the curriculum plan; progress toward the degree requires active registration each session; exceptions may be approved by the adviser.

The academic and professional progress of division students is reviewed annually.

Probational status

M.A. students who earn an overall grade-point average lower than 3.00 and Ph.D. students who earn a grade-point average lower than 3.30
are put on probational status. Students on probational status have two consecutive sessions to raise their grade-point average. 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 Deadlines

Deadline for the M.A. and Ed.S. programs are June 1 for fall semester; November 1 for spring semester; and April 1 for summer session. Applicants seeking graduate assistantships are urged to complete their applications as soon after January 1 as possible. The Ph.D. program deadline is January 1 for fall semester. Rehabilitation counseling does not accept applicants for the spring semester.

Applications must be complete before they will be reviewed. Applicants are responsible for providing a complete application dossier. Application forms are available from the secretaries of the Division of Counselor Education. Applicants can check on whether an application dossier is complete by contacting the College of Education Office of Student Services.

Applicants are notified in writing immediately after admission applications have been reviewed. Applicants who are accepted must reply in writing in order to maintain their admission status.

Doctor of Philosophy

The Ph.D. program, accredited by CACREP, provides preparation for positions such as counselor educator, researcher, associate dean or dean of students; or as directors of admissions, student activities, financial aid, a student union, career planning and placement, residence halls, foreign student services, a community college counseling service, adult continuing education, or external degree programs.

The M.A. program provides preparation for teaching, leadership, and counselor supervisors to increase their competence beyond the master’s level. The emphasis is on individual, group, and family counseling.

Doctor of Education

The Ed.S. program enables school counselors and counselor supervisors to increase their competence beyond the master’s level. The program is accredited by the Council of Accreditation of Counseling and Related Professions (CACREP), provides preparation for counseling in a school setting.

Doctor of Philosophy

The Ph.D. program in rehabilitation counselor education prepares professionals for leadership roles in rehabilitation education, research, administration, and service delivery systems. Students in this program focus on three areas of advanced study: counselor education, research, and professional practice. The program is flexible, permitting students to pursue interests in specific populations or settings or to concentrate on one of the basic areas of preparation.

Ph.D. in Rehabilitation Psychology

The Ph.D. program in rehabilitation psychology prepares professionals for work in institutional and clinical settings as well as for teaching, research, and service in academic, agency, and other institutional settings, both public and private. It also is appropriate for students who may be interested in becoming licensed psychologists.

Facilities

A wide variety of counselor education practicum experiences is available in neighboring community agencies, schools, and colleges, as well as throughout the University.
Courses

7C:121 Melting 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 occupational and vocational directions.

7C:112 Human Sexuality 1-3 s.h.

7C:121 Gifted Young Children 1 s.h.
Identification and conceptualization of intellectual giftedness, educational programming for this age group; for educators, counselors, and psychologists who work with children ages 0-6 years or their parents. Same as 7E:1 s.h.; TP: 115.

7C:119 Family Issues in Giftedness 1 s.h.
Family dynamics and issues that present themselves when one or more children are identified as gifted; parent/child, sibling, school/family relationships.

7C:120 Psychology of Giftedness 3 s.h.
Theories of learning, child development, motivation; issues unique to gifted education. Same as TP: 120.

7C: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 various gifted and talented groups; current issues in the use of various instruments. Same as TP: 121.

7C:123 Gender Issues and Giftedness 1 s.h.
Family dynamics and issues that present themselves when one or more children are identified as gifted; parent/child relations, sibling relations, school/family relations.

7C:124 Ethnic and Cultural Issues and Giftedness 1 s.h.
Effect of ethnicity and culture on the development of special needs of Black, Hispanic, Native American, and Asian gifted students; strategies for identification and programming.

7C:125 Counseling and Psychological Needs of Gifted Students 1 s.h.
Psychological aspects of giftedness; counseling techniques for gifted children and adolescents; socio-emotional concerns, career development underachievement, special needs of girls and minorities; counseling strategies for academic guidance, career counseling, family counseling. Same as TP: 125.

7C:126 Cognitive and Affective Needs of Underserved Gifted 1 s.h.
Diagnostic strategy for identifying types of underachievement, teaching and counseling interventions appropriate for each. Same as TP: 126.

7C:127 Research and Theory in Talent/Giftedness 1 s.h.
Symposium, topic to be announced.

7C:128 Advanced Leadership Seminar in Gifted Education 1 s.h.
Developing administrative curriculum and programming based on empirical research; for experienced leaders in gifted education.

7C:133 Culturally Different in Diverse Settings 3 s.h.
Problems in serving culturally different students in schools and social service settings; relevant research on the influence of a disadvantaged background on students’ learning potential. Same as 7U:133.

7C:137 Introduction to Educating Gifted Students 3 s.h.
Fundamental issues such as curriculum, counseling, family issues, gender and minority issues. Same as 7U: 137.

7C:142 Adolescence and the Family 3 s.h.
Adolescent development, family relationships, intergenerational influences.

7C:144 Conflict and Violence in Families 3 s.h.
Disfunction, conflict, violence within families; causes, effects, intervention techniques.

7C:145 Marriage and Family Interaction 3 s.h.
Contemporary American marriage, family relationships; mate selection.

7C:150 Psychological Aspects of Women’s and Men’s Roles 1-3 s.h.
Psychological aspects of women’s and men’s roles; sex roles development and socialization in a variety of settings; strategies for change.

7C:162 Introduction to Marriage and Family Counseling and Psychotherapy 3 s.h.
Initial sessions focus on evolution of the family therapy movement and issues related to functional and dysfunctional family systems; latter sessions examine significant models of family therapy and specific techniques.

7C:178 Microcounseling 1.5 s.h.
Foundation skills of listening, responding, empathy, focus; advanced skills of meaning confrontation, reforming, directives, action skills; large-group video instruction with closed-circuit video feedback for small-group practice sessions.

7C:180 Workshop in Counseling Education arr.
Topics for the continuing education of counselors and related professionals.

7C:182 Workshop for Helping Professionals 1-2 s.h.
One-week workshop; students choose one of 18 topics for community practitioners working with or interested in individuals, groups, families, organizations.

7C:185 Introduction to Substance Abuse 2-3 s.h.
Attitudes, values, language, artifacts; myth; specific information on psychoactive drugs; current substance abuse issues including family, intervention, prevention, treatment; historical perspectives in substance abuse.

7C: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 7E: 188, 7U: 188.

7C:190 Group Processes for Related Professions 3 s.h.
Small-group procedures for personal and organizational development in educational settings; demonstrations supplement discussions of theoretical issues and research findings; participation in a personal growth group. Consent of instructor required.

7C:193 Individual Instruction in Counselor Education/Undergraduate 3 s.h.
Consent of instructor required.

7C:199 Counseling for Related Professions 3 s.h.
Cultural underpinnings of counseling theories and techniques. Open only to nonmajors.

7C:202 Introduction to Group Counseling 3 s.h.
Research, theory, practice in group counseling; participation in groups and examination of various leadership styles. Counselor education major or consent of instructor required.

7C:203 Career Guidance and Job Placement 3 s.h.
Prepares counselors to help people learn about, decide upon, and enter work roles; topics include career development concepts and theories, works environments, career guidance goals and objectives, primary methods and materials, evaluation processes.

7C:210 Rehabilitation Client Assessment 3 s.h.
Orientation to the process and practice of assessing adults with disabling conditions for rehabilitation plan development and decision making.

7C:216 Group Leadership in Human Sexuality 3 s.h.
Same as 42:216, 96:216. Consent of instructor required.

7C:221 Foundations of Counseling 3 s.h.
Philosophical bases, processes, issues surrounding predominant counseling theories and techniques; master’s level course for majors in counselor education. Counselor education major or consent of instructor required.

7C:222 Interventions for Primary Prevention in Schools 3 s.h.
Students plan and carry out programs of primary prevention in the schools; grades K-12; conflicts inherent in normal personality development; current societal conditions that commonly lead to individual distress.

7C:232 Therapy with Couples 2 s.h.
Mental and other couples as social systems; theories of functional and dysfunctional systems; techniques of intervention. Same as 42:232.

7C:230 Theory and Research in Family Studies 3 s.h.
Family development, interaction.

7C:227 Seminar in Gifted Education 2-3 s.h.
Teaching and counseling needs of gifted students K-12; intensive three-week residential program; Open only to teachers with a Belin Fellowship. Consent of instructor required.

7C:238 Advanced Seminar in Gifted Education 1 s.h.
Supervision, administrative, research issues; educators selected for the seminar will receive fellowships to pay part of the expense of the course. Consent of instructor required. Prerequisite: 7C:237.

7C:241 Introduction to Rehabilitation Counseling 3 s.h.
Historical, philosophical, legislative, societal overview of rehabilitation process and practice; roles of rehabilitation professionals; nature of rehabilitation agencies, resources, issues.

7C: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.

7C:251 Family Therapy 3 s.h.
Same as 42:251.

7C:254 Appraisal in Counseling 3 s.h.
 Aptitude, interest, personality tests used for assessment in counseling and personal selection; laboratory practice in test administration, scoring, interpretation, reporting. Prerequisite: TP: 143 or equivalent or concurrent registration.

7C:257 Vocational psychology 3 s.h.
Major concepts and research evidence in vocational behavior; theories of vocational choice, adjustment, development.

7C:262 Marriage and Family Counseling and Psychotherapy 3 s.h.
Counseling theory and techniques as applied to problems of marriage and the family; advanced topics. Consent of instructor required. Prerequisite: 7C: 162 or equivalent.

7C:263 Consultation Theory and Practice 2-3 s.h.
Analysis of various models of consultation, such as behavioral and mental health. Same as TP:263, 7W:263.

7C:270 Issues and Ethics in Counseling 2-3 s.h.
Ethical standards and current issues concerning counseling in schools and agencies; emphasis on consultation and supervision. Consent of instructor required.

7C:280 Topical Seminar in Counselor Education arr.
Special topics dealing with contemporary problems of concern to counselors in specific settings. May be repeated.

7C:281 Introduction to Computer Technology in Counselor Education 1 s.h.
Master of Arts candidate in counselor education or consent of instructor required.

7C:285 Treatment Approaches to Substance Abuse and Dependency 3 s.h.
Developmental and historical perspectives; physiological issues related to substance abuse/dependency, assessment, evaluation, diagnostic systems and diagnosis for groups with differential concerns (e.g., adolescents, women, minorities, elderly); differential treatment modalities and major methods of intervention in treatment planning. Same as 42:284.

7C:286 Issues in Substance Abuse Treatment and Clinical Management 3 s.h.
Issues in substance abuse treatment; emphasis on aspects of clinical management in different substance abuse treatment settings.

7C:288 Practicum in Substance Abuse Counseling 3 s.h.
Supervised practice in counseling clients with substance abuse problems; for students in the substance abuse counseling program. Consent of instructor required.

7C:290 Practicum in Group Facilitation 3 s.h.
Supervised practice in working as facilitator and/or participant in counseling groups and other types of groups. Consent of instructor required. Prerequisite: 7C:202 or equivalent.

7C:293 Individual Instruction in Counselor Education arr.
Consent of instructor required.

7C:300 Practicum in School Counseling 3 s.h.
Supervised experience in counseling in elementary, secondary school settings. Prerequisite: completion of counseling and human development core courses.

7C:301 Practicum in Elementary School Counseling arr.
Supervised experience in an elementary school setting (600). Emphasis on roles and expectations of a counselor. Consent of instructor required.

Supervised experience in a secondary school setting (720); emphasis on roles and expectations of a counselor. Consent of instructor required.

7C:305 Practicum in Mental Health Counseling arr.
Supervised experience in various mental health practice settings; emphasis on roles of a counselor in an agency, community mental health center, and similar settings. Consent of instructor required.
7C:304 Practicum in Postsecondary Counseling arr. 3 s.h. 
Supervised experience in postsecondary school settings as community colleges, colleges, and related settings; emphasis on role of the counselor in postsecondary school settings. Consent of instructor required.

7C:311 Practicum in Counseling and Psychological Services for Gifted Students 1-6 s.h. 
Educational, personal, family issues for graduate students who have completed an in counseling education, counseling psychology, school psychology, educational psychology, or related fields. Consent of instructor required. Prerequisite: 7C:454. Same as 7P:311.

7C:330 Internship in School Counseling 5 s.h. 
Full-time supervised placement in elementary and secondary school settings; performance of tasks, responsibilities of a school counselor. Prerequisite: 7C:300.

7C:334 Introduction to Student Services 2 s.h. 
History, philosophy, status of student personnel services emphasis on student development theory, institutional cultures, student trends.

7C:336 The College Student 2-3 s.h. 
Psychological and sociological characteristics of college students; student development theories and implications for higher education.

7C:337 seminar: Student Services 2-3 s.h. 
Intensive study and seminar presentation of current issues, problems, and conflicts related to certain areas of student personnel administration in higher education. May be repeated. Ph.D. candidacy or consent of instructor required.

7C:339 Practicum in Student Services 2-3 s.h. 
Supervised practice in college student personnel agencies. May be repeated. Consent of instructor required.

7C:335 Administration of Student Services 3 s.h. 
Organizational theory and structures; leadership styles; budgeting, legal issues, case studies of administration.

7C:341 Job Development Plan and Follow-up 3 s.h. 
Obtaining appropriate jobs for handicapped individuals who have received rehabilitation services; client, counselor, employer, job specifications. Consent of instructor required.

7C:342 Educational and Sociological Aspects of Disability 3 s.h. 
Dynamics of adjustment, coping for chronically ill or persons with disabilities. Assessment, social aspects, and psychosocial perspectives on disability.

7C:350 Practicum I in Rehabilitation Counseling arr. 3 s.h. 
Supervised practice of knowledge, skills for counseling persons with disabilities in an agency setting; theory, philosophy, ethics, and structure of counseling and case management within framework of a developmental model. Corequisites: 7C:178 and 7C:221.

7C:351 Practicum II in Rehabilitation Counseling arr. 3 s.h. 
Supervised experience with clients in a rehabilitation agency. May be repeated. Consent of instructor required.

7C:352 Internship in Rehabilitation Counseling arr. 3 s.h. 
Full-time experience in rehabilitation settings; training in wide range of rehabilitation activities, under supervision of certified rehabilitation counselor (CRC). Consent of instructor required.

7C:353 Advanced Counseling and Psychotherapy 3 s.h. 
Theories and techniques of counseling clients with personal and interpersonal problems. Consent of instructor required.

7C:359 Student Services program Development 3 s.h. 
Techniques of assessment implementation, evaluation of programs for college student; practical course.

7C:357 A - Group Counseling and Psychodynamic psychology 3 s.h. 
Theories and techniques of group counseling and psychotherapy; integration of theory into supervised experience and research on group counseling. Consent of instructor required.

7C:360 Advanced Practicum in Counseling arr. 1-3 s.h. 
Supervised practicum, intensive study, and analysis of counseling problems; methods and for advanced graduate students enrolled in school counselor education program. Consent of instructor required. Prerequisite: 7C:300, practicum in counseling.

7C:361 Advanced Practicum for School Counselors 1-3 s.h. 
Advanced supervised practicum for school counselors. Admission to School Counseling Institute or consent of instructor required.

7C:362 Family Therapy Techniques 3 s.h. 
Marriage and family therapy techniques; mediators, analysis, sessions planning; application of family assessment instruments. Consent of instructor required. Prerequisites: basic marital and family therapy courses. Corequisites: 7C:370.

7C:363 Internship in Student Services 3-5 s.h. 
May be repeated.

7C:364 Organization Development and Change 3 s.h. 
Same as TP:366, TW:365.

7C:365 Advanced Seminar in Rehabilitation Counseling and psychology 3 s.h. 
Philosophy, theory, research base, practice of rehabilitation counseling psychology; psychological aspects of disability, client assessment, hospital, systems, contemporary issues.

7C:370 Marriage and Family Practicum 3 s.h. 
Students work with couples, families (four to six families during a semester) in Marriage and Family Therapy Clinic. Consent of instructor required. Prerequisite: 7C:262.

7C:371 Advanced Practicum in Individual, Marital, and Family Therapy 3 s.h. 
Supervised practice in individual, marriage, family therapy in an agency; supervision on campus as well as at the participating agency. Consent of instructor required. Prerequisites: 7C:370 and experience in individual, marital, and family therapy.

7C:380 Practicum in College Teaching arr. 3 s.h. 
Supervised college teaching experience in counselor education courses; teaching in collaboration with faculty, observation and critiques of staff. Participation in course planning and evaluation procedures; for qualified graduate students. Consent of instructor required.

7C:391 M.A. Thesis in Counseling Education 1-3 s.h. 
Consent of instructor required.

7C:394 M.A. Equivalency Research in Counseling Education 1-3 s.h. 
Consent of instructor required.

7C:395 Educational Specialist Research in Counseling Education 1-3 s.h. 
Consent of instructor required.

7C:400 Professional Seminar and Ethics in Counseling Education 3 s.h. 
Advanced seminar, focus on professional and ethical issues. Ph.D. candidacy in counselor education or consent of instructor required.

7C:451 Seminar on Counselor Supervision 3 s.h. 
Conceptual models, research, and program design for counselor supervision. Prerequisite: advanced practicum or equivalent.

7C:452 Supervising the Counseling Practicum arr. 3 s.h. 
Supervision of students enrolled in counseling practicum. Consent of instructor required. Prerequisite: 7C:360 or equivalent. Corequisite: 7C:454.

7C:466 Seminar: Research in Counseling Method, examples, problems of counseling research. Ph.D. candidacy or consent of instructor required.

7C:493 Ph.D. Thesis in Counseling Education arr. Consent of instructor required.

Chair: William H. Nibbelink 
Douglas M. Young, David Wacker, Robert E. Yoger 
Professor emeritus: Jack Bagford, Louise Belenmo G. Robert Carlson, John H. Hauff, Clifford E. Howe, Jerry N. Kuhlin, Camille J. LeVois, Cathy M. Roller, Gary M. Sasso, Joyce L. Smith, Lauren A. Van Dyke, Marilyn J. Zwanzig


Associate professors emeriti: Louis F. Brown, John W. Conner, John Kiraly, Jr., Archie J. McKinnon, Louna L. Newsome, Jeannette Scardini

Adjunct associate professor: John Nieszcki 
Assistant professors: Chris Rodgers Arthur, Alice Atkinson, Carolyn Colvin, Anne DiPardo, Bruce Fehr, Michael E. Everson, Peter Friesen, Margaret Rogers, Leslie L. Scher, Donnie Sunstein, Steve Thunder-McGuire, Eudenia Vazquez, Rahima Wade, Kathy Whitmore, Rose Ziesi

Assistant professors emeriti: Iva M. Bader, Murray Martin

Adjunct assistant professor: Theresa M. Oehrke

Instructor: Richard P. Johns

Lecturer: Dennis Corwin

Undergraduate degrees: B.A., B.S. (granted through College of Liberal Arts)

Graduate degrees: M.A.T., M.A. S., Ed. S., Ph.D.

The division’s programs prepare graduates for positions in public schools, local and state education agencies, clinical settings, and institutions of higher education. They are approved by the Iowa Department of Education and the National Council for Accreditation of Teacher Education. Undergraduate students pursuing a major in elementary education must meet the College of Liberal Arts requirements for either the B.A., B. S., or B.G.S. degree.

**Licensure/Teacher Education Codification**

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 Student Services. Deadline for application is June 15. Applications also may be submitted by October 15 or March 15. Qualified applicants who apply on these dates will be admitted if there are openings in classes.

In order to be considered for admission, students must have completed a minimum of 30 semester hours of course work with a minimum 2.50 cumulative grade-point average. For some subject areas, additional criteria must be met. A limited number of applicants are accepted into each subject area TEP, so a 2.50 grade-point average does not ensure admission. Admission decisions are based on grade-point average in the major and other criteria relevant to teaching success.

If at any time after admission the grade-point average falls below 2.50, the student is placed on probation for one semester. If a 2.50 is not attained during the probationary semester, the student is dropped from the TEP. Students should consult a College of Education adviser in their program area, or the Division of Curriculum and Instruction office for more information on admission criteria.

Graduate students who apply to the College for “certification-only” or to the M.A.T program must apply separately for admission to the teacher education program. Deadline for application to either program is May 15. Applications submitted by either September 15 or February 15 also are considered.

A limited number of applicants are accepted into each program area TEP, so meeting the admission criteria is essential.
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 TEaP, students are assigned an education adviser.

Admission to Student Teaching

Admission to the TEaP permits students to take certain College of Education courses and requires a 2.50 cumulative grade-point average. Admission to the student teaching semester, however, requires a separate application and review of each student’s credentials and progress to ensure that the student is qualified for placement in the profession. Verification that the student meets the grade-point standards established by their program area at the time of admission to the TEaP occurs at the time of application for student teaching.

Students should consult their education adviser or the Division of Curriculum and Instruction office for more information about the admission process and requirements for student teaching in their licensure program.

Elementary Education

FOUNDATION COURSES

These five courses must be completed before methods courses (“Block A”/“B,” below) are begun.

7E: 90 Foundations of Education 1 s.h.
7E: 100 Foundations of Education 3 s.h.
7P: 75 Educational Psychology and Measurement 3 s.h.
7W: 91 Audiovisual Equipment for Instruction 1 s.h.
7W: 92 Introduction to Microcomputing for Teachers 1 s.h.

METHODS COURSES

Block A

Four courses taken concurrently

7E: 123 Literature for Children 1 2 s.h.
7E: 156 Methods A Practicum 1 s.h.
7E: 160 Methods: Elementary School Language Arts 3 s.h.
7E: 164 Methods: Elementary School Reading 3 s.h.

Block B

Four courses taken concurrently

7E: 16 Methods: Elementary School Social Studies 2 s.h.
7E: 162 Methods: Elementary School Science 2 s.h.
7E: 163 Methods: Elementary School Mathematics 2 s.h.
7E: 166 Methods B Practicum 1 s.h.
7E: 120 Methods and Materials: Music for the Classroom Teacher 2 s.h.
or
7E: 122 Methods and Materials: Art for the Classroom Teacher 2 s.h.
7E: 127 Methods and Materials: Physical Education and Health for Elementary Teachers 2 s.h.

OTHER REQUIREMENTS

7U: 100 Mainstreaming the Exceptional Learner 3 s.h.
7F: 180 Human Relations for the Classroom Teacher 3 s.h.
One college-level mathematics course (22M 1.2, and 3 do not apply)

AREA OF SPECIALIZATION

A minimum of 12 semester hours must be completed in one of the following areas of specialization: art, early childhood, English language arts, history, mathematics, music, reading, science, social science, special education, speech communication/theater. Copies of the requirements for each area of specialization are available in the Division of Curriculum and Instruction office. Courses in the area of specialization may be taken pass/nonpass if they are offered with the pass/nonpass option. Courses in some areas of specialization are sequenced in a definite pattern leading up to student teaching; others have no required sequence and maybe completed before or after student teaching.

STUDENT TEACHING

7E: 170 Classroom Management 2 s.h.
7E: 190 Supervised Teaching in the Elementary School: Interactive Phase 6-7 s.h.
7E: 191 Supervised Teaching in the Elementary School: Pre and Post-Active Phase 5, 7 s.h.
7E: 192 Special Area Student Teaching O, 3 s.h.

Transfer students must complete at least eight semester hours of course work, including two courses numbered 7E:160 7E or 164 7E: 123 at The University of Iowa prior to student teaching. A minimum of 14 semester hours of student teaching is required. The liberal arts and elementary requirements total approximately 133-139 semester hours. Students who meet or test out of the rhetoric, foreign language, mathematics, and other liberal arts General Education Requirements may be able to satisfy their program requirements in as few as 113 semester hours.

ADDITION ENDORSEMENTS TO LICENSES

The undergraduate elementary education program is designed specifically to prepare students to teach kindergarten through sixth grade. As an addition to the K-6 Iowa endorsement, students may complete requirements for an Iowa subject area endorsement (see “Area of Specialization,” above). Students seeking teacher education or endorsements in other states must assume the responsibility of determining what extra requirements must be met. For example, Illinois requires an 18-hour specialization which is satisfied by some, but not all, of Iowa’s areas of specialization. Students should consult an elementary education adviser for information. Addresses for other state licensure offices are available in the College of Education’s Office of Student Services.

Secondary Education

Undergraduate students seeking secondary school licensure/certification are degree candidates in the College of Liberal Arts and must complete the requirements for the Bachelor of Arts, Bachelor of Science, Bachelor of Music, or Bachelor of General Studies degrees described in the College of Liberal Arts section of the Catalog.

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 policies, rules, and regulations of that college. Eligible graduate students also may complete teacher licensure/certification by pursuing an M.A.T. in English education, foreign language education, or science education.

Licensure/certification requires a major of at least 30 semester hours of course work in a subject area taught in the secondary school. Course requirements for each major are available in the Division of Curriculum and Instruction office. Candidates for secondary school teaching licensure/certification also may receive approval to teach in additional subject areas by completing an approved program of 24 or more semester hours of course work in those areas.

Secondary school teacher preparation programs are provided in the following areas.

Art
*Coaching
Communication studies (speech communication/theatre arts)
English
Foreign languages-Chinese, French, German, Italian, Japanese, Latin, Russian, Spanish
*Health education
Journalism
Mathematics
Music
*Physical education
*Reading
Science, including general science, physical science, biological sciences, chemistry, physics, and earth science
Social science, including anthropology, economics, geography, history, political science, psychology, and sociology
*Available as an additional approval area only. A major in another subject matter area 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 several other subject areas 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. Mathematics and science education require completion of the elementary specialist licensure/certification. Completion of the elementary specialist licensure/certification is highly recommended for foreign language education.
Candidates are encouraged to obtain more information and the name of an adviser from the Division of Curriculum and Instruction office.

REQUIREMENTS
Undergraduate candidates for licensure/certification to teach in secondary schools must complete the following requirements, in addition to the requirements in their major.

One course from 7S: 90-7S: 95
Introduction to Teaching (a specific subject area, except science education) 2-3 s.h.
7F: 180 Human Relations for the Classroom Teacher 3 s.h.
7P: 75 Educational Psychology and Measurement 3 s.h.
7S: 100 Foundations of Education 3 s.h.
7U: 100 Mainstreaming the Exceptional Learner 3 s.h.
One or more methods of teaching courses in the major field 3-9 s.h.
One college-level mathematics course (22M:1,2, and 3 do not apply) 3 s.h.
Competency in computer-based education (CBE) (may be satisfied by taking 7W:92 Introduction to Microcomputing for Teachers, by examination, or by completing a CBE course or module in the subject area) 0-1 s.h.
Student teaching 12 s.h.

With an adviser’s approval, a graduate student may elect equivalent graduate courses in lieu of 7S:90-7S:95, 7S:100, 7P:75, and 7W:92. Students must complete the methods courses in their major teaching fields before student teaching.

For all subject areas, student teaching must be done all day for a full semester. Students in secondary education may do their student teaching at the Center for Urban Teacher Education (CUTE), through the Regents’ Exchange Program, or in the customary contractual area established by the College of Education. An exception to student teaching in the customary contractual area will be considered only if the proposed student teaching site provides the student with a specific program opportunity not available in the contractual area or utilizes special cooperating teacher expertise.

Students also may do student teaching in Europe via the Consortium for Overseas Student Teaching; however, overseas student teaching is in addition to and not a substitute for one of the student teaching options described above.

Additional information about alternatives for student teaching and application procedures is available from the Office of Student Services. Applications for student teaching must be filed in the Office of Student Services by February 15 prior to the academic year during which the student teaching will be done.

Special Education

Students may be admitted to the Graduate College for the purpose of obtaining one or more teaching licenses/certificates in special education. For course requirements, see specific programs listed for the Master of Arts under “Special Education” in this section of the Catalog. Also see admission requirements under “Special Education.”

Graduate Programs

Early Childhood Education

Master of Arts

The Master of Arts program in early childhood education is designed to prepare persons to administer programs and/or deliver education and care to children from infancy through the early primary grades in private or public settings, or to serve as early childhood consultants or community college instructors. It is offered in thesis and nonthesis options.

ADMISSION

Students must meet the general admission requirements of the Graduate College and have a 2.50 undergraduate grade-point average. Non-native students must have a TOEFL score of at least 550 to be eligible for admission; students with scores of 550 to 600 are admitted conditionally and must complete an English evaluation before registering for courses. Course work recommended by English proficiency evaluators must be completed before conditional status can be changed. English proficiency course credit may not be applied toward the master’s degree.

REQUIREMENTS

The thesis option requires a minimum of 30 semester hours of credit; the nonthesis option requires 32.

FOUNDATION COURSES

7E: 160 History and Philosophy of Early Childhood Education 3 s.h.
7E: 189 Development and Administration of Child Care Centers 3 s.h.
7E: 264 Building Foundations for Reading: PRIMARY and PRIMAR 3 s.h.
7E: 266 Curriculum Development in Early Childhood (5-8 Years) 3 s.h.
7E: 268 Curriculum Development in Early Childhood (0-5 Years) 3 s.h.

RELATED COURSES

One of these (or an approved substitute):
7P: 206 Advanced Child Development 3 s.h.
7E: 114 Parent-Child Relationships 3 s.h.
7E: 134 Parent-Teacher Communication 3 s.h.
7P: 263 Consultation Theory and Practice 2-3 s.h.

Areas of Specialization

Curriculum

Students must complete at least 11 semester hours of credit in courses chosen from one or two content areas such as reading and/or language arts, mathematics, science, social studies, music, art, children’s literature.

Human Relationships

Four of these:
7E: 114 Parent-Child Relationships 3 s.h.
7E: 134 Parent-Teacher Communication 3 s.h.
7E: 290 Supervision of Instruction and Staff Development 2-3 s.h.
7P: 263 Consultation Theory and Practice 2-3 s.h.
7U: 130 Exceptional Persons 3 s.h.

Community College Teaching

All of the following must be completed for the endorsement Post-Secondary Certification for Arts and Sciences.
7H: 112 Teaching of Adults 3 s.h.
7H: 171 The Community College 2-3 s.h.
7H: 175 Post-High School Staff Development Workshop 0-2 s.h.
7H: 192 Curriculum Development: Application to Community Colleges 3 s.h.
7H: 230 Intern Seminar 1-3 s.h.
7H: 370 College Teaching Internship 3 s.h.
7P: 150 Introduction to Educational Measurement 3-4 s.h.

Counseling

7C: 162 Introduction to Marriage and Family Counseling and Psychotherapy 3 s.h.
7C: 178 Microcounseling 1-3 s.h.
7C: 190 Group Processes for Related Professions 3 s.h.
7C: 222 Interventions for Primary Prevention in the Schools 3 s.h.
7P: 263 Consultation Theory and Practice 2-3 s.h.

Social Work

42: 145 Organization and Community Practice 3 s.h.
42: 196 Family Violence 3 s.h.
42: 220 Social Policy and Interdisciplinary Systems, Domestic and International 3 s.h.

Thesis/Research

7P: 143 Introduction to Statistical Methods 3 s.h.
7P: 150 Introduction to Educational Measurement 4 s.h.
7E: 392 Field Service Project 3 s.h.
7E: 393 M.A. Thesis in Early Childhood and Elementary Education 2 s.h.

Comprehensive Examinations

All students take one written examination in general early childhood education. Nonthesis students take a second written examination in their elected area of specialization. Thesis
students take a second, oral examination related to their thesis or field-service project.  

Note: This program does not lead to the Iowa endorsement for teaching prekindergarten kindergarten or to any other teaching endorsement, with the exception of postsecondary licensure/certification when all the required courses in that area of specialization have been successfully completed.

**Elementary Education**

**Master of Arts**

This program is designed to prepare master’s degree candidates in elementary education to serve as team leaders, grade level or subject area supervisors, curriculum consultants, or master teachers.

**ADMISSION**

Admission requirements are the same as those established by the Graduate College. In addition, applicants must have completed an undergraduate program of teacher preparation in either early childhood or elementary education. Graduate students who have not completed an undergraduate program in elementary education must be admitted initially as “certification only” students.

**REQUIREMENTS**

The thesis option requires 30 semester hours of credit, the non-thesis option 32; 24 semester hours must be taken in University of Iowa courses, with 8 semester hours completed on campus. Course work completed ten or more years before admission does not count toward the M.A. requirements.

**Foundations and Educational Psychology**

Two of these (4-7 s.h.):

- 7E:102 History of American Education 2 s.h.
- 7E:117 Philosophies of Education 2, 3, 5 s.h.
- 7E:130 Educational Sociology 2-3 s.h.
- 7P:131 Educational Psychology 3 s.h.
- 7P:143 Introduction to Statistical Methods 3 s.h.
- 7P:150 Introduction to Educational Measurement 3-4 s.h.
- 7P:181 Introduction to Theories of Learning 3 s.h.
- 7W:120 Introduction to Instructional Design and Technology 3 s.h.

**Research and Curriculum**

Both of these (7 s.h.):

- 7E:300 Design and Organization of Curriculum 3 s.h.
- 7E:304 Seminar: Current Issues and Research in Elementary Education 4 s.h.

**Instructional Improvement**

Three of these (6-9 s.h.):

- 7E:204 Literature for Children II 3 s.h.
- 7E:260 Supervision of Elementary School Language Arts 3 s.h.
- 7E:261 Supervision of Elementary School Social Studies 3 s.h.
- 7E:262 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.

- 7E:264 Building Foundations for Reading: Preprimary and Primary 2-3 s.h.
- 7E:265 Supervision of Intermediate Grade Reading 3 s.h.
- 7E:267 Curriculum Development in Early Childhood (5-8 Years) 3 s.h.
- 7E:270 Supervision of Instruction and Staff Development 2-3 s.h.
- 7E:280 Supervision of Intermediate Grade Reading 3 s.h.
- 7E:280 Supervision of Staff Development 2-3 s.h.

**Area of Specialization**

A minimum of 10 semester hours of credit in courses chosen with consent of the adviser, may include appropriate courses listed above.

**Electives**

From O to 5 semester hours of credit in courses chosen with consent of the adviser

**Thesis**

- 7E:393 M.A. Thesis in Early Childhood and Elementary Education 2-3 s.h.

**COMPREHENSIVE EXAMINATIONS**

The comprehensive examination consists of two 3-hour examinations. One 3-hour section is based on the general field of elementary education; the second centers on the candidate’s area of specialization.

**MA in Developmental Reading**

This degree program prepares graduate students for positions as reading specialists in kindergarten and grades 1-12. The course work required develops the skills, knowledge, and competencies 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 in a college or university.

Successful completion of this program, combined with one year of successful teaching experience that includes the teaching of reading as a significant part of the responsibility, qualifies the student for certification as a reading specialist.

**ADMISSION**

Students must meet the general requirements of the Graduate College, have a 3.00 undergraduate grade-point average, hold an early childhood, elementary, or secondary school teaching certificate, and show evidence of completing two years of a successful teaching experience.

**REQUIREMENTS**

A minimum of 33 semester hours with thesis, 35 without thesis, is required. The following courses are required of all candidates.

- 7E:264 Building Foundations for Reading: Preprimary and Primary 2-3 s.h.
- 7E:265 Supervision of Intermediate Grade Reading 3 s.h.
- 7E:267 Curriculum Development in Early Childhood (5-8 Years) 3 s.h.
- 7E:280 Supervision of Intermediate Grade Reading 3 s.h.
- 7E:270 Supervision of Staff Development 2-3 s.h.
- 7E:272 Advanced Reading Clinic Practicum 2-3 s.h.
- 7P:170 Introduction to the Psychology of Reading 3 s.h.
- 7S:194 Methods: High School Reading 2-3 s.h.

One of these:

- 7E:174 Diagnostic and Prescriptive Approaches to Reading Instruction K-12 1-4 s.h.
- 7P:150 Introduction to Educational Measurement 3 s.h.

One of these:

- 7E:308 Seminar: Research and Current Issues (Reading) 3 s.h.
- 7S:294 Seminar: Secondary Reading 3 s.h.

One of these:

- 7P:106 Child Development 3 s.h.
- 7P:131 Educational Psychology 3 s.h.
- 7P:133 The Adolescent and Young Adult 3 s.h.

One of these:

- 7E:300 Design and Organization of Curriculum 3 s.h.
- 7E:393 M.A. Thesis in Early Childhood and Elementary Education arr.

Students, in consultation with their adviser, may select the remaining hours as electives from areas such as curriculum, supervision, language arts, testing and evaluation, linguistics, or speech pathology.

Students take six hours of comprehensive examinations. One examination is based on reading courses. The other is based on course work in supporting areas. With the agreement of the adviser and the student’s committee, a comprehensive project may be substituted for the written examination in the supporting areas.

**M.S. in Elementary Science Education**

The Master of Science program in elementary science prepares master’s degree candidates to serve as team or departmental science specialists. The program (38 semester hours) may be taken with or without thesis.

**ADMISSION**

Admission requirements are the same as those established by the Graduate College. In addition, applicants must have completed an undergraduate program of teacher preparation in elementary education.

**REQUIREMENTS**

The following courses in science education are required of all candidates.

- 7E:255 Science Education: Issues, History, and Rationale 3 s.h.
7E:256 Science Education: The Nature of Science 3 s.h.
7E:257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
7E:258 Science Education: Research Models and Conceptual Schemes 3 s.h.
7E:350 Seminar: Science Education 1 s.h.

The science specialization (19 semester hours) includes 7E:262 Advanced Techniques of Teaching Science in the Elementary School (3 semester hours) and science courses (16 semester hours) that are selected by the candidate in consultation with the adviser. A series of application courses (97:102 Societal and Educational Applications of Earth and Environmental Sciences, 97:103 Societal and Educational Applications of Life Sciences, and 97:105 Societal and Educational Applications of Physical Sciences) are an integral component of the science courses. Candidates who have not taken comparable courses are expected to take two application courses. Students who elect a nonthesis program also complete a study (6 semester hours) in an integrated group of supporting courses selected, in consultation with the adviser, from a science, an applied science, or education, Students who elect a thesis program complete masters thesis credit (6 semester hours of 7E:393). All candidates for the Master of Science must satisfy the requirements for a basic science endorsement as outlined in the October 1988 Iowa Certification Rules.

Doctor Of Philosophy

The doctoral program 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 educational agencies.

ADMISSION

Candidates for admission to the program should have a combined score of at least 1000 on the verbal and quantitative sections of the Graduate Record Examination (GRE) General Test. The required grade-point average for continuation in the program is that prescribed by the Graduate College.

REQUIREMENTS

The program requires a minimum of 90 semester hours of credit, including credit earned for the dissertation. Each student prepares an individual plan of study in consultation with an adviser. The final plan must be approved by the adviser and the division chair.

The doctoral program should include a strong background of elementary education course work. Each program also must include two areas of concentration. One area must be in elementary education (e.g., children’s literature, curriculum, language arts, early childhood, mathematics, reading, or social studies). The second must broaden, deepen, or heighten the student’s programmatic focus or must be an area outside of elementary education (e.g., English, library science, elementary administration, or child development).

All doctoral candidates must complete three courses in research methodology, one in quantitative research methodology, one in qualitative research methodology, and a third course chosen in consultation with the adviser. The comprehensive examination consists of three three hour exams: elementary education and one in each of the areas of concentration.

Secondary Education

The Division of Curriculum and Instruction offers, or jointly administers with departments in the College of Liberal Arts, advanced degree programs in the following fields of professional interest: art education, communication studies education, curriculum and supervision, developmental reading, English education, foreign language education, mathematics education, music education, physical education, science education, and social studies education.

In some fields, only master’s-level programs are offered, whereas in other fields, educational specialist and Ph.D. degree programs also are offered. All degrees offered are listed below, grouped by program area.

MA in Art Education

The Master of Arts program is administered by the School of Art and Art History in cooperation with the College of Education. Students make application for admission 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 strong academic emphasis of this program assists teachers who are themselves creative artists to become highly literate in the history and language of art.

ADMISSION

Applicants must have completed the equivalent of the minimum course work in art required for the B.A. or B.F.A. degree in art from The University of Iowa, and a license/certificate to teach art. Applications must be accompanied by a representative portfolio of the candidate’s work, consisting of eight slide reproductions of artwork and one example of written work. The written work may consist of papers previously written for a course or it may be 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 concurrently with work for the degree. Candidates must meet Graduate College requirements for admission.

REQUIREMENTS

M.A. candidates must complete the following.

- Studio and art history (18 s.h.): either 12 semester hours of studio art and 6 semester hours of art history, or 12 semester hours of art history and 6 semester hours of studio art
- Art education seminars (8 s.h.): the course 7S:367 Seminar: Current Issues in Art Education
- Twelve semester hours to be specified after the student begins the program

Thesis: either a written or studio thesis (If a studio thesis is elected, the student must pass M.A. clearance in the School of Art and Art History.)

Comprehensive examinations: a written and/or oral examination in art education (Students may elect a three-hour examination or a one-week research question.)

Ph.D. in Art Education

The doctoral degree program is administered by the College of Education with the cooperation of the School of Art and Art History. Students make application for admission to the College of Education.

The program prepares college teachers and researchers in art education and supervisors of art 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

Students must meet the general requirements for doctoral students in the Graduate College and have an M.A. in art education from The University of Iowa or an equivalent degree from an accredited degree-granting college or university. Application to the program must be accompanied by a representative portfolio of the candidate’s work, consisting of 12 slide reproductions of artwork and two examples of written work. The written work may consist of papers previously written for a course or original papers. These should be submitted to the Art Education office.

In the case of course work deficiencies, students must register for pertinent courses. One year of successful teaching experience in an elementary or secondary school is required prior to admission or completion of the doctoral program.

REQUIREMENTS

Students must complete at least 60 semester hours of graduate work beyond the M.A., planned with the adviser, including at least 15 semester hours in the School of Art and Art History, 15 semester hours in art education seminars, 15 semester hours in a related area (e.g., aesthetics, anthropology, higher education, early childhood education, psychology, sociology), and 15 semester hours in thesis and tool courses. 7E:306 Introduction to Research in Art Education is also required.

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

Students must satisfactorily complete a written dissertation that constitutes a contribution to scholarship, for at least 12 semester hours of credit. 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 Communication Studies Education

The program prepares teachers and supervisors of speech communication for secondary and postsecondary positions.

ADMISSION

Candidates must have a 2.75 grade-point average. Candidates without prior academic background in speech communication may need to take additional courses beyond the minimum requirement. Application should be made to the Department of Communication Studies.

REQUIREMENTS

A minimum of 30 semester hours of approved graduate courses, at least 24 of them at The University of Iowa, as follows.

Two communication studies graduate courses in communication education

Two graduate courses in a second division of communication studies

Two graduate courses in a third division of communication studies

36:300 Introduction to Research

Three 200- or 300-level courses in communication studies

Other courses recommended by the adviser and/or committee

Successful completion of a paper or project involving substantial scholarly investigation and writing, usually done in a seminar or independently under the direction of an adviser. The project or paper must be circulated to the committee with the comprehensive examination.

A comprehensive examination consisting of three 2-hour segments to be defined and limited by the student and an adviser when the plan of study is prepared.

MA in Curriculum and supervision

The program prepares teachers and administrators for positions as consultants, directors, and coordinators in secondary school curriculum development.

ADMISSION

Students must meet the general requirements of the Graduate College. Teaching experience is desirable.

REQUIREMENTS

Common Core (19-20 s.h.):

7P: 117 Philosophies of Education (or equivalent) 2 s.h.

7S: 186 Curriculum Foundations 2-3 s.h.

7P: 150 Introduction to Educational Measurement or 7P: 255 Construction and Use of Evaluation Instruments or 7P: 257 Educational Measurement and Evaluation 3 s.h.

7E: 300 Design and Organization of Curriculum 3 s.h.

7S: 281 Junior High School and Middle School Curriculum 3 s.h.

7S: 291 Secondary School Curriculum 3 s.h.

Research tool, selected in consultation with the adviser, typically 7P: 143 Introduction to Statistical Methods 3 s.h.

Cognates, in a subject field such as English 4-6 s.h.

Electives—selected in consultation with adviser 4-6 s.h.

Thesis, for students electing a thesis program:

7S: 393 Master's Degree Thesis 2-4 s.h.

Two 3-hour comprehensive examinations, one in curriculum and one in a related field in education or in a cognate field; or three 2-hour examinations.

Ed.S. in Curriculum and supervision

The Ed.S. program provides advanced graduate work in curriculum theory, design, research, supervision, and evaluation. It includes a methodological area and a supporting cognate area planned with the adviser to fit the student's interests and needs. The program's primary objective is to prepare educators to serve in positions as curriculum directors, curriculum consultants, or as master or mentor teachers.

ADMISSION

Applicants must satisfy the general requirements for admission to the Graduate College. They also must have prior teaching experience, an M.A. degree, and a grade-point average of 3.25 on all previous graduate work. Students must complete the Graduate Record Examination prior to admission, preferably with a composite score (verbal and quantitative) of 1000 or higher.

Applicants are encouraged to discuss the program with an adviser in their preferred methodological area prior to application. A letter of intent, official transcripts, and three letters of recommendation should accompany the application for admission.

REQUIREMENTS

The degree requires a minimum of 60 semester hours. Students must complete a 28-semester-hour core in curriculum theory, design, research, supervision, and evaluation, including the required research project, which must culminate in a written report. Students who do not have experience as a curriculum specialist must complete a practicum arranged with the adviser.

Course work also includes 18 semester hours in a methodological area (e.g., language arts, mathematics, social studies, reading, early childhood, elementary education) and 14 semester hours in a supporting cognate to broaden, deepen, or heighten the methodological area (e.g., early childhood, elementary education, reading, writing, gifted education, administration, learning theory, instructional design). Students must complete at least 24 of the 60 semester hours required for the degree in residence at The University of Iowa. Fifteen of the 28 semester hours must be earned while the student is on campus within one 12-month period or during two summer sessions. Previous graduate work may be applied in each area with the approval of the adviser. Courses successfully completed ten or more years prior to the final examination are evaluated by the major department to determine how much credit may be allowed. Evaluation of old course work is reported to the Graduate College by the departmental executive when the student submits his or her plan of study.

The program culminates with successful completion of the research project and written report and two 3-hour written examinations, one in the curriculum core and one in the methodological area.

Course listings for program components are as follows.

Curriculum Theory, Design, Research, Supervision, and Evaluation Students must earn at least 28 semester hours. Required:

7E/7S: 186 Curriculum Foundations 2-3 s.h.

7E: 300 Design and Organization of Curriculum 3 s.h.

7E: 304 Seminar: Current Issues and Research in Elementary Education 4 s.h.

7E/7S/7U: 395 Educational Specialist Research in Secondary Education (required research project) 4 s.h.

7P: 150 Introduction to Educational Measurement (or appropriate substitute) 3-4 s.h.

7P: 165 Introduction to Program Evaluation 3 s.h.

7E/7S/7U: 392 Field Service Project in Secondary Education (practicum; can be waived based on prior experience) arr.

Additional hours (chosen from the following courses or from others approved by the adviser):

7S: 281 Junior High School and Middle School Curriculum 2-3 s.h.

7S: 291 Secondary School Curriculum 2-3 s.h.

7S: 391 Problems of Curriculum Planning 2-3 s.h.

7D: 383 Supervision and Evaluation or 7E: 280/7S: 285 Supervision of Instruction and Staff Development 3 s.h.

Sample Methodological Areas

Students must earn a total of 18 semester hours.

Elementary Education: In consultation with an adviser, students select graduate level courses in at least five different areas of the elementary curriculum (children's literature, language arts, reading, social studies, science, mathematics, bilingual/multicultural, early childhood, special education).

Language arts: In consultation with an adviser, students select appropriate hours in a broad area, such as English language arts with a Pre-K-6, 7-12 or Pre-K-12 emphasis, or in a
specific area, such as communication, developmental reading, literature, or writing with a Pre-K-6, 7-12 or Pre-K-12 emphasis.

Mathematics: In consultation with an adviser, students select appropriate hours in K-12 graduate level mathematics education; selection must include 7E/7S:235 Current Issues in Mathematics Education.

Social studies: In consultation with an adviser, students select courses in K-12 Social Studies and Instructional Design or Educational Measurement.

Special education: In consultation with an adviser, students select 14 semester hours in special education. Courses are chosen to match the particular special education areas to the student's goals.

Sample Supporting Cognate Areas
- Broaden, deepen, or extend methodological area: In consultation with an adviser, students select 14 semester hours to broaden, deepen, or extend the methodological area.
- Second methodological area: In consultation with an adviser, students select 14 semester hours in a second methodological area.

Administration: In consultation with an adviser, students select courses in personnel, financing of public education, leadership theory, and legal aspects of school administration.

Instructional design: In consultation with an adviser, students select courses in the psychological bases of instructional design, instructional technology, designing instructional materials, and computer applications to instruction.

Gifted education: In consultation with an adviser, students select course work in the education of gifted students. Courses are chosen to match the student's goals.

Course work in a related field outside the College of Education: In consultation with the adviser, students select related course work from a department outside the College of Education.

Ph.D. in Curriculum and Supervision

This program, administered by the College of Education, prepares students for leadership positions in the field of curriculum for secondary schools, state departments, intermediate systems, and college teaching.

ADMISSION
Students must meet the general requirements of the Graduate College, hold a valid teaching license/certificate, and have at least two years of teaching experience. Applicants must be approved for admission by a faculty review committee.

REQUIREMENTS
A minimum total of 90 semester hours, including other approved graduate course work, is required.

Common Core (36-42 s.h.):
- 7S:186 Curriculum Foundations 2-3 s.h.
- 7S:281 Junior High School and Middle School Curriculum 3 s.h.
- 7S:291 Secondary School Curriculum 3 s.h.
- 7E:300 Design and Organization of Curriculum 3 s.h.
- 7E:304 Seminar: Current Issues and Research in Elementary Education 4 s.h.
- 7S:391 Problems of Curriculum Planning 3 s.h.

At least two advanced supervision courses in secondary or elementary school subject fields 6 s.h.

- 7P: 150 Introduction to Educational Measurement 3-4 s.h.
- 7P:255 Construction and Use of Evaluation Instruments 3 s.h.
- 7P:257 Educational Measurement and Evaluation 3 s.h.

- 7S:293 Individual Instruction in Secondary Education (Practicum) 2-3 s.h.

A minimum of two research tools, typically statistics, research design, or foreign language 9-12 s.h.

Electives, to be chosen in consultation with adviser 6-8 s.h.

Recommended electives include:
- 7D:297 Administrative Leadership Theory 4 s.h.
- 7F: 117 Philosophies of Education 2 s.h.
- 7F:130 Educational Sociology 2 s.h.
- 7P:131 Educational Psychology 3 s.h.
- 7P:170 Introduction to Psychology of Reading 3 s.h.
- 7U:130 Exceptional Persons 3 s.h.
- 7W: 120 Introduction to Instructional Design and Technology 3 s.h.

All doctoral candidates are required to complete at least 8 semester hours of cognate work in areas such as sociology, psychology, or political science.

- 7S:493 Ph.D. Thesis 10-18 s.h.

Candidates take three 3-hour comprehensive examinations in secondary school curriculum and two related fields in education or in a cognate field.

M.A. in English Education

This program, intended for experienced teachers of English, 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 should have taken extensive course work in English and have taught English for at least two years, and must meet the general requirements of the Graduate college. Students must maintain a 3.00 grade-point average while enrolled in the program.

REQUIREMENTS
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 advisers plan the program of study together. Students must earn 9 semester hours in courses numbered 200 or above. The only required course is 7S: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).

M.A.T. in English Education

The M.A.T. program is designed for students who have an undergraduate degree in English and few or no professional education comes. Successful completion of the program enables students to receive a credential to teach English in secondary schools.

ADMISSION
Applicants must have a B.A. in English with an undergraduate grade-point average of at least 3.00. They also must take the Graduate Record Exam. Since this is a credentialing program, candidates must not have qualified for credential previously. Applicants are expected to have no more than 6 semester hours of course work in professional education courses prior to admission.

REQUIREMENTS
By the end of the program, students must have taken the following courses:

- English
  - 7S:315/8P:405 M.A. Seminar: English Education
  - 8P:182 Language and Learning 2-3 s.h.
  - 8P:198 Teaching Literature to Adolescents 3 s.h.
  - 8W: 141 Approaches to Teaching Writing 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, one of which focuses on cultural studies
  - A course in nineteenth- or twentieth-century British literature
  - A course in writing (in addition to 8W:141)

- A course in oral communication

Education

- 7F: 180 Human Relations for the Classroom Teacher 3 s.h.
- 7F:131 Educational Psychology 3 s.h.
- 7S: 100 Foundations of Education 3 s.h.
- 7S:115 Methods: English 3 s.h.
- 7S: 187 Seminar: Curriculum and Student Teaching 1.3 s.h.
- 7S: 190 Individual Projects in Laboratory Practice 1-3 s.h.
- 7S: 191 Observation and Laboratory Practice in the Secondary School arr.
- 7S: 192 Observation and Laboratory Practice in the Secondary School arr.
- 7S:194 Methods: High School Reading 2-3 s.h.
- 7U:100 Mainstreaming the Exceptional Learner 3 s.h.
- 7W:103 Design and Production of Media for Instruction arr.

A two-part comprehensive examination is required. One part is on issues in English education, the other on a student-selected issue in the study of English.
Ph.D. in English Education

This program is designed to prepare students for careers as educational researchers and teacher educators. Course work provides broad background in relevant theoretical and research literature, grounding in qualitative research methodology, and opportunities to conduct original studies that explore the nature of literate practices both in and out of school.

ADMISSION

Applications are reviewed twice each year, in mid-October and mid-April. Application materials should include the following: evidence of at least two years’ teaching experience in English or a related field; transcripts of undergraduate and graduate work; three letters of recommendation; a statement of purpose explaining the applicant’s educational philosophy, reasons for pursuing graduate study, and future goals; Graduate Record Examination scores; and a minimum 3.00 grade-point average in all upper division and graduate course work.

REQUIREMENTS

Students must complete a minimum of 72 hours of course work in areas such as theoretical perspectives on literacy, emergent literacy and developmental relationships between language and literacy, the nature of literacy understanding, issues in teaching and learning writing, preparation and professional development for literacy educators, and research methods.

As students near completion of their course work, they are asked to identify several key strands for review and synthesis. With guidance from their advisers, students prepare for written and oral exams in two areas. In a third area, they submit a substantive issues paper, typically a report of an exploratory study or a review of research literature on a topic of special interest.

Following successful completion of the comprehensive exam and approval of the issues paper, 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.

M.A.T. in Foreign and Second Languages Education

The M.A.T. program in foreign and second languages education is designed for superior liberal arts 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

A bachelor’s degree with a major or a strong concentration in a second language and a 3.00 undergraduate grade-point average are required.

REQUIREMENTS

Students must complete at least 18 semester hours of graduate courses in a foreign language department and the following professional education courses.

- 7P:131 Educational Psychology 3 s.h.
- 7F:107 History of Western Education 2-3 s.h.
- 7F:117 Philosophies of Education 2,3,5 s.h.
- 7F: 180 Human Relations for the Classroom Teacher 3 s.h.
- 7S:100 Foundations of Education 3 s.h.
- 7S:116 Methods: Foreign Language and/or 3 s.h.
- 7S:117 Methods: Elementary School Foreign Language 3 s.h.
- 7E/7S: 183 Second Language Classroom Learning 3 s.h.
- 7S:187 Seminar: Curriculum and Student Teaching 1 s.h.
- 7S:189 Elementary School Special Subject Area Student Teaching (for K-6 licensure only) 1-4 s.h.
- 7S:190 Individual Projects in Laboratory Practice 3 s.h.
- 7S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 7S: 192 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 7S: 197 Principles of Course Design for Second Language Instruction 3 s.h.
- 7U:100 Mainstreaming the Exceptional Learner 3 s.h.

At least two of these:

- 9:152 Issues and Materials in Foreign Language Education 3 s.h.
- 13: 123 Topics in Foreign Language Instructional Technology 2 s.h.
- 7S:200 Fundamentals of Second Language Assessment 3 s.h.
- 7S:202 Second Language Program Management 3 s.h.
- 7W:120 Introduction to Instructional Design and Technology 3 s.h.

A two-part comprehensive examination is required. One part covers issues in foreign language education related to theory and practice; the second part covers knowledge of and proficiency in the language and/or literature of the candidates’ choice.

M.A. in Foreign and Second Languages Education

This degree is appropriate for persons 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 the practicing teacher. The degree gives the candidate the opportunity to design a program with a special focus.

ADMISSION

Students must meet the general requirements of the Graduate College, have prior teaching experience, be proficient in English and in another language, have acquired at least 20 semester hours in undergraduate, upper division foreign language course work. Applicants should submit a statement of purpose explaining their graduate study goals. A grade-point average 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. Foreign applicants must score at least 530 on the TOEFL and their English must be evaluated by faculty in the second languages education program. Students must maintain a 3.00 grade-point average while enrolled in the program. Candidacy for the master’s degree is reevaluated annually.

REQUIREMENTS

The M.A. requires 33-36 semester hours. It affords students 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, instructional design, measurement and statistics, or another area selected in consultation with the adviser.

Students take at least 9 semester hours in each area of study and must earn 9 semester hours in courses numbered 200 or above. Students plan the program of study with their advisers. Successful candidates complete a research project and/or thesis; they also must pass a written examination developed by the graduate committee. The student’s graduate committee consists of at least three faculty members, one of whom must be in the second languages education program.

Suggested courses are as follows.

Second Languages Education

At least 9 semester hours

- 7E/7S: 183 Second Language Classroom Learning 3 s.h.
- 7S:197 Principles of Course Design for Second Language Instruction 3 s.h.
- 7S:202 Second Language Program Management 3 s.h.

Target Language

At least 9 semester hours of graduate language courses in the student’s area of interest, selected in consultation with the adviser

Cognate Area

At least 9 semester hours selected in consultation with the adviser

MASTER’S EXAMINATION

A written examination in the two areas of study selected by the candidate and in second language education should be taken during the semester that the student intends to graduate.

Ph.D. in Foreign and Second Languages Education

Students interested in doctoral work in second languages education should apply to the supervision and curriculum program.
M.A. in Mathematics Education

The program provides students with advanced specialization in mathematics and education as a better foundation for K-12 teaching.

ADMISSION

Candidates must meet the admission requirements of the Graduate College and, except in unusual cases, 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

A minimum of 10 semester hours of course work in mathematics approved by the student’s adviser

A minimum of four courses in mathematics education, which must include 7E/7S:235 Current Issues in Mathematics Education (2-3 s.h.) and three courses to be selected from the following:

- 7E/7S:230 Workshop in School Mathematics 1-3 s.h.
- 7E/7S:231 Technology in School Mathematics 2-3 s.h.
- 7E/7S:234 Foundations of Mathematics Education 2-3 s.h.
- 7S:236 The Teaching of Geometry 2-3 s.h.
- 7E/7S:238 The Exceptional Learner in Mathematics 2-3 s.h.
- 7S:239 Teaching of Algebra 2-3 s.h.
- 7E/7S:335 Seminar: Mathematics Education 2-3 s.h.

A minimum of two courses selected from a cognate area in education; suggested areas are educational psychology, educational statistics and measurement, history or philosophy of education, instructional design and technology, counselor education, curriculum, administration, and special education; courses are to be selected in consultation with a faculty member from the cognate area.

Sufficient electives in mathematics and education selected with the approval of the adviser to complete 32 semester hours of credit.

Three 2-hour comprehensive examinations: one in mathematics education, the second in mathematics, and the third in the cognate area.

M.S. in Mathematics with Education Option

The program prepares licensed/certified teachers with advanced specialization in mathematics and mathematics education. It is especially recommended for students considering work for the Ph.D. in mathematics education. The program is administered by the Department of Mathematics. Application should be made to that department.

REQUIREMENTS

A minimum of 24 semester hours in the Department of Mathematics, including the core master’s program for either pure mathematics or applied mathematics as described below. Pure mathematics core:

- 22M:115 Introduction to Analysis I 3 s.h.
- 22M:116 Introduction to Analysis II 3 s.h.

Ph.D. in Mathematics Education

The program for a Ph.D. in mathematics education prepares supervisors, teacher education personnel, community college personnel, and researchers in mathematics education. It is administered by the College of Education.

The 72 semester hours include work taken toward the master’s degree. Credit earned more than ten years previously must be updated. Minimum course requirements are for exceptional students. Typically, the program consists of 80-90 semester hours.

ADMISSION

Applicants must have an undergraduate major in mathematics or the equivalent; a master’s degree in mathematics, mathematics education, or education; a 3.00 grade-point average or above; and, except in unusual circumstance, a current teaching license or certificate and a minimum of two years of teaching experience.

REQUIREMENTS

Students must complete a minimum of 36 semester hours of graduate work in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including the master’s-level core requirements for pure or applied mathematics described under “Master of Science in Mathematics with Education Option” in this section of the Catalog. Courses jointly listed in education do not fulfill this requirement. Students who have completed their mathematics requirement at another institution must complete a minimum of six additional semester hours of course work in mathematics at The University of Iowa, chosen with the approval of the adviser.

Also required are at least five courses in mathematics education, which must include 7S:235 Current Issues in Mathematics Education and a minimum of two registrations in 7S:335 Seminar: Mathematics Education.

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 appropriate 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 a computer language.

Students must complete a total of at least 24 semester hours in College of Education courses; this includes the course work listed above, but does not include dissertation credit. An additional 10 semester hours of dissertation credit (7S:493) is required.

At the completion of the program, the student must have a 3.00 cumulative grade-point average or above on all graduate work in mathematics, all University of Iowa graduate work in mathematics, all graduate work, and all University of Iowa graduate work.

Students take three written comprehensive examinations, one in mathematics education and two selected from 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.

They also complete a dissertation on a research problem in mathematics education. A prospectus of the proposed research must be presented to the dissertation committee prior to undertaking the study. Upon completion of the dissertation, an oral examination is conducted in defense of the dissertation.

M.A. in Music Education

The program 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 program may be taken with thesis (30-semester-hour minimum) or without (33-semester-hour minimum).

ADMISSION

The applicant must be a licensed/certified music teacher or in the process of completing licensure/certification requirements. A 2.50 undergraduate grade-point average, excluding grades in ensembles, is required for admission to regular status.

The program is administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

REQUIREMENTS

Entering graduate students must take the School of Music advisory examination in music theory and history/literature before registering. The advisory examination is given each session on the two days (excluding Sunday) before registration. Students with deficiencies in theory must register for 25:11 Review Theory. A leaflet describing the general content of these tests is available from the director’s office of the School of Music. General graduate admission, degree, and examination requirements are
stated in the Graduate College section of the Catalog.

General:

25:321 Introduction to Graduate Study in Music 2 s.h.

Theory:

25:240 Introduction to Contemporary Analysis and Theory 3 s.h.
25:145-152 Elective 3 s.h.

Specific hour and course requirements in the theory area are determined by scores on the advisory examinations.

History and literature:

25:301 Advanced History and Literature of Music I 3 s.h.
25:302 Advanced History and Literature of Music II 3 s.h.

Specific hour and course requirements in the history and literature area are determined by scores on the advisory examinations. Students excused from 25:301 and/or 25:302 select course(s) from music history electives. For specific courses, see “School of Music” in the College of Liberal Arts section of the Catalog.

Education (14-17 s.h.):

7S:144 Psychology of Music 2 s.h.
7S:149 Behavioral Research in Music 3 s.h.
7S:206 Curriculum Development in Music Education 2 s.h.
7S:240 Foundations of Music Education 2 s.h.
Electives to be selected in consultation with the adviser (may include thesis) 5-8 s.h.

Ensemble:

Students in residence are required to participate in a major ensemble for at least two semesters (total of 2 semester hours).

The amount of elective credit applicable toward the M.A. depends on scores earned on the music advisory examinations and the amount of credit earned in music education elective courses.

MASTER’S EXAMINATION

Candidates must take a final written master’s degree examination during the semester in which they expect to complete the degree. Areas of concentration covered in the examination include music education, music theory, and music history and literature.

Ph.D. in Music Education

The program prepares students for teaching, research, or administrative posts. Graduates accept positions at colleges, as 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 supervision, research and curriculum consultants, or directors of city or district school music programs.

ADMISSION

For admission to the Ph.D. program in music education, students must have a 3.25 grade-point average on graduate work (excluding grades in ensembles), have a score above the fiftieth percentile on the verbal ability section of the Graduate Record Examination (GRE) General Test, hold or be qualified for a valid teaching license/certificate, and have a minimum of two years of successful music teaching experience.

In addition, the music education faculty makes an appraisal of teaching success, academic potential, and writing ability before qualifications for admission are fully determined.

The program is administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

REQUIREMENTS

The Ph.D. is granted on the basis of achievement, as determined by course grades and evaluations on the comprehensive and final examinations, and not on the accumulation of semester hours of credit. The course requirements and semester hours listed below are minimum requirements for the typical student in preparation for the satisfactory performance on the comprehensive and final examinations.

General:

*25:321 Introduction to Graduate Study in Music 2 s.h.

Music theory:

25:11 Review Theory (based on advisory exam) 0 s.h.
25:240 Introduction to Contemporary Analysis and Theory 3 s.h.

Music history and literature:

‘25:301 Advanced History and Literature of Music I 3 s.h.
‘25:302 Advanced History and Literature of Music II 3 s.h.

Performance:

Ensemble (required each semester in residence) 2-4 s.h.
Applied instrument 0-4 s.h.

Music education:

7S:141 Measurement and Evaluation in Music Education 3 s.h.
*7S: 144 Psychology of Music 2 s.h.
*7S: 149 Behavioral Research in Music 3 s.h.
7S:201 Seminar: Current Topics in Music Education (required each semester in residence) 1-4 s.h.
*7S:206 Curriculum Development in Music Education 2 s.h.
*7S:240 Foundations of Music Education 2 s.h.
7S:244 Individual Projects in Music Education 1-2 s.h.
7S:279 Experimental Research in Music Education 3 s.h.
7S:342 Supervision and Administration in Music Education 2 s.h.
7S:445 Social and Psychological Factors in Music Education 3 s.h.
Elective (music education) 2-3 s.h.
*Electives (area of specialization) 6-9 s.h.

Education:

7P:143 Introduction to Statistical Methods 3 s.h.
7P:243 Intermediate Statistical Methods 3 s.h.
Research elective 3 s.h.

*M.A.-level requirements

Students select elective courses, in consultation with their adviser, based on advisory examination scores and professional needs and goals. Subject areas include applied music, conducting, ensemble, theory, history and literature, music education, education, statistics, and psychology.

DISSERTATION, COMPREHENSIVE EXAMINATION

Students earn a minimum of 12 semester hours for work on a dissertation.

The comprehensive examination is an inclusive evaluation of the student’s mastery of selected fields of study. Candidates must demonstrate maturity and scholarship in the areas of theory and practice of music education, research design and technique, specialized music performance, history and literature of music, and music theory and analysis.

The examination typically is divided as follows: music education theory and practice and research techniques, music theory and analysis, music history and literature, and a specialized related area.

M.A. in Physical Education

For information about the Master of Arts and Doctor of Philosophy programs in physical education, contact the Department of Sport, Health, Leisure, and Physical Studies, in the College of Liberal Arts, or the Graduate College.

M.A.T. in Science Education

The M.A.T. program is designed for students who have an undergraduate degree in one of the sciences and few or no professional education courses. Successful completion of the program and fulfillment of the course work in science required by an endorsement program qualifies the student for an Iowa secondary teaching license/certificate.

The program is administered by the College of Education.

ADMISSION

Applicants must have a bachelor’s degree with a major or its equivalent in one of the sciences and a 3.00 minimum undergraduate grade-point average.

REQUIREMENTS

Professional Education Sequence Foundation:

7F:180 Human Relations for the Classroom Teacher 3 s.h.
7P:75 Educational Psychology and Measurement 3 s.h.
7S:100 Foundations of Education 3 s.h.
7U:100 Mainstreaming the Exceptional Learner 3 s.h.
Science education—all of these, taken in the following sequence (7S:153 and 7S:189 are taken concurrently; 7S:187, 190, 191, and 192 are taken concurrently):

7S:151 Science Methods I: Elementary School Seminar and Practicum 2 s.h.
7S:152 Science Methods II: Resources, Research, Teaching Strategies, and Curriculum Development for K-12 Science 3 s.h.
7S:153 Science Methods 111: Middle/Junior High School Seminar and Practicum 2 s.h.
7S:187 Seminar: Curriculum and Student Teaching 3 s.h.
7S:189 Elementary School Special Subject Area Student Teaching 3 s.h.
7S:190 Individual Projects in Laboratory Practice 3 s.h.
7S:191 Observation and Laboratory Practice in the Secondary School 3 s.h.
7S:192 Observation and Laboratory Practice in the Secondary School 6 s.h.

Science Core
97: 128 Meaning of Science 2 s.h.
97: 130 Science in Historical Perspective 2 s.h.
97: 102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
97: 103 Societal and Educational Applications of Biological Sciences 3 s.h.
97: 105 Societal and Educational Applications of Physical Sciences 3 s.h.
97: 106 Societal and Educational Applications of Chemical Concepts 3 s.h.
97: 140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
Science electives 11 s.h.

MS in Science Education
This degree 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. It is offered with or without thesis. The program is administered by the College of Education.

ADMISSION
Candidates must have a 2.50 undergraduate grade-point average and usually must have an undergraduate degree in one of the sciences or in science education. Applicants must have teaching licensure/certification unless they are preparing for careers in allied health, museums, or community colleges.

REQUIREMENTS
A total of 38 semester hours of course work with thesis or 34 semester hours without thesis, distributed as follows.
Science Education (13 s.h.): 7E/7S:255 Science Education: Issues, History, and Rationale 3 s.h.
7E/7S:256 Science Education and the Nature of Science 3 s.h.
7E/7S:257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
7E/7S:258 Science Education Research Models and Conceptual Schemes 3 s.h.
7E/7S:350 Seminar: Science Education (registration required while in residence) 1 s.h.
7E/7S:355 Science Education: Ph.D. Internship (repeated registrations of 2-3 semester hours each) 9 s.h.
7E/7S:407 Research: Science Education (see research project below) 4 s.h.
Science Specialization (24 s.h.): Courses that supplement undergraduate preparation, chosen from regular graduate offerings in biochemistry, biological sciences, chemistry, environmental studies, geology, microbiology, physics, and radiation research; should include a concentration of 15 semester hours in at least one field of science.

Ph.D. in Science Education
This degree is appropriate for qualified candidates who aspire to college and university positions as science educators; major supervisory posts in national, state, and local systems; teaching positions in the sciences at small liberal arts colleges; positions as instructors of general education science courses and areas at major colleges; positions as research directors in science education; and positions in medical education.

ADMISSION
Candidates must meet the minimum admission standards of the Graduate College. Usually applicants must have completed a master’s degree in one of the sciences or science education and have earned a 3.00 grade-point average on all graduate work taken prior to making the application.

REQUIREMENTS
Students must complete at least 102 semester hours of course work, which must include the courses listed below (37 semester hours); courses taken toward a master’s degree count toward the 102-semester hour total:

7E/7S:255 Science Education: Issues, History, and Rationale 3 s.h.
7E/7S:256 Science Education and the Nature of Science 3 s.h.
7E/7S:257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
7E/7S:258 Science Education Research Models and Conceptual Schemes 3 s.h.
7E/7S:350 Seminar: Science Education (registration required while in residence) 1 s.h.
7E/7S:355 Science Education: Ph.D. Internship (repeated registrations of 2-3 semester hours each) 9 s.h.
7E/7S:355 Science Education: Ph.D. Internship (repeated registrations of 3 semester hours each) 9 s.h.
7S:368 Ph.D. Seminar: Current Research in Science Education (two or more registrations required after completing 7E/7S:255, 256, 257, 258) 4 s.h.
7E/7S:493 Ph.D. Thesis 10 s.h.
Candidates must complete 27 semester hours of credit in one of the following as the major area of study: biological science, physical science, earth science, or environmental studies. They also complete 8 semester hours in an integrated group of supporting courses selected from a limited number of areas such as education, applied science, science, and history/philosophy of science, in consultation with the adviser. Candidates must demonstrate competency in two of the following research tool areas: statistics, computer programming and/or data processing, research design (completion of a pilot study). Competency is certified by the adviser. Candidates for the degree usually are expected to participate in the teaching and research function of the science education program throughout their residence. Candidates complete 10 semester hours of dissertation credit (7 E/7S:493). 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.

M.A. in Social Studies Education
The program provides an opportunity for interdisciplinary work in history, social science, or related areas for classroom teachers, high school department chairs, and supervisors, as well as others interested in acquiring greater competence in history and the social sciences and greater proficiency in teaching and supervision. Students may choose from two programs in social studies education. Program A provides an opportunity for interdisciplinary work in history, social science, or related areas for classroom teachers or others interested in acquiring greater competence in their subject matter area. Program B is for individuals who have their bachelor’s degree in history or social sciences and wish to obtain a teaching license/certificate in the process of completing the master’s degree.

ADMISSION
Applicants must have a bachelor’s degree in history or one of the other social sciences from an accredited institution; a 3.00 cumulative grade-point average; a 3.00 grade-point average in history and/or other social science courses; preferred composite Graduate Record Examination (GRE) General Test score of 1000 on the verbal and quantitative batteries; and two letters of recommendation. Evidence of writing ability in the form of 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, the M.A. candidate must maintain at least a 3.00 grade-point average.

PROGRAM A REQUIREMENTS
Program A students must complete a minimum of 38 semester hours distributed among history and social sciences, or related areas, and education, with a minimum of 10 semester hours in each of three fields. Nine of the total 38 semester hours must consist of graduate courses numbered 200 or above and distributed among the three fields selected for concentration. If the thesis option is selected, the student completes a research or investigative problem in history or social sciences, or in related areas, in which case the thesis director is a member of the appropriate department; or an investigative problem in social studies education, in which case the thesis director is a faculty member in the College of Education. A two-hour written examination is required in each of the three fields selected for concentration. An oral examination follows the written examination, conducted by the candidate’s committee as a whole.

PROGRAM B REQUIREMENTS
Program B students must complete a total of 38-48 semester hours, consisting of the courses listed below. All of the following courses must be completed, but students may elect to take some of the course work in the process of completing the bachelor’s degree. In such cases, the number of hours is reduced accordingly, but in no case is the number of hours in the master’s degree program to be less than 38. In all instances, the student must take appropriate work for meeting all Iowa Department of Education requirements for teacher licensure/certification.

Professional education courses:
7F:180 Human Relations for the Classroom Teacher 3 s.h.
7P:131 Educational Psychology 3 s.h.
7S:100 Foundations of Education 3 s.h.
7S:170 Methods: Social Studies 3 s.h.
7S:187 Seminar: Curriculum and Student Teaching 1-3 s.h.
7S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
7S:192 Observation and Laboratory Practice in the Secondary School 6 s.h.
7S:277 Seminar: Social Studies Education 3 s.h.
7U:100 Mainstreaming the Exceptional Learner 3 s.h.
7W:120 Introduction to Instructional Design and Technology 3 s.h.

Candidates also are required to register for a practicum in a public school with the course 7S:190 Individual Projects in Laboratory Practice (2-3 semester hours). Subject area specialization courses: A minimum of 15 semester hours of course work in history or a social science is required, 10 of which must be taken in one area of history or in one of the social sciences. Two courses should be taken with the instructor who will serve on the examining committee. Five semester hours of course work may be taken in a second area of history or in another social science. The fields should be selected in consultation with the adviser.

COMPREHENSIVE EXAMINATION
The comprehensive examination consists of three parts: a two-hour examination in the subject area specialization, a two-hour examination in general professional education, and a two-hour examination in social studies education.

Ph.D. in Social Studios Education
This program is administered by the College of Education. It prepares secondary department chairs, supervisors, curriculum directors, teacher education personnel, and college instructors in the social sciences and pedagogy.

ADMISSION
Applicants must have a bachelor’s degree in history or the social sciences, and a master’s degree in history, the social sciences, or education. They must satisfy the requirements for admission to a doctoral program in the Graduate College and have a 3.00 minimum grade-point average. A minimum Graduate Record Examination (GRE) General Test score of 1200 (composite of verbal and quantitative) is preferred. Seminar papers or field research are required as equivalent if no thesis was written as part of the M.A. An interview is required prior to regular admission.

REQUIREMENTS
Students must complete a minimum of 90 semester hours of course work and dissertation credit beyond the bachelor’s degree, not including tool requirements. The 90 semester hours must be distributed among history, social sciences or related areas, and professional education, depending on the background and goals of the candidate. A minimum of 18 semester hours of course work must be completed in one area of history or one of the social sciences.

Seminars and courses numbered 200 or above are required in each of the areas of study constituting the major. A minimum of 2-3 semester hours of 7S:293 must be completed with one of the faculty members in social studies education, unless other course work with these faculty members has been completed.

Tool requirements are tailored to the individual’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 areas of study. Depending on the distribution of work taken, the nine hours of written examinations may be rearranged.

The Ph.D. examining committee consists of a minimum of one faculty member from the liberal arts disciplines and one from social studies education. The remaining members (to make the minimum of five as required by the Graduate College) are selected with regard to the nature of the student’s Ph.D. program and distribution of course work. An oral examination is conducted by the committee as a whole following the written examination.
Dissertation
A dissertation is required on a research problem in history or the social sciences, or in related areas, in which case the dissertation director will be a faculty member of the appropriate department, or on a research problem in social studies education, in which case the dissertation director will be a faculty member of the College of Education. The candidate must present a prospectus of the proposed research to the dissertation committee prior to undertaking the study. Upon completion, an oral examination is conducted in defense of the dissertation.

Continuing requirements for maintaining candidacy are a 3.00 grade-point average plus annual reevaluation.

Special Education
The division offers special education programs in these primary areas: mental retardation; learning disabilities; behavior disorders; early childhood special education; and moderate, severe, and profound mental disabilities. 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.

Programs leading to special education licensure/certification are not available to undergraduates. Undergraduates who wish to pursue a career in special education are encouraged to contact the Division of Curriculum and Instruction for advisement.

Admission
Admission requirements include:
- completed graduate application form;
- copies of official transcripts for all previous college course work;
- official report of the Graduate Record Examination (GRE) General Test (verbal and quantitative);
- three current letters of recommendation;
- evidence of experience or teacher licensure/certification (varies depending on program).

An interview may be requested. In addition to the above, the following represent minimum requirements.

Master of Arts: A 2.75 undergraduate grade-point average (or 3.00 on at least 12 semester hours of graduate course work) and a combined verbal and quantitative GRE score of 1000 are preferred.

Specialist in Education: A 3.25 graduate grade-point average and a combined verbal and quantitative GRE score of 1000 are preferred.

Doctor of Philosophy: A 3.00 undergraduate grade-point average or a 3.50 graduate grade-point average if a graduate degree has been conferred, and a combined verbal and quantitative GRE score of 1000 are preferred. For students without an M.A. thesis, an equivalent project must be completed.

Final admission decisions are made by the special education graduate admissions committee and are based on a composite analysis of the candidate’s likelihood for success in the program. This analysis may include consideration of available resources, comparative standing, and specific program requirements (related primarily to licensure/certification standards).

Applications must be complete to be reviewed. It is the candidate’s responsibility to provide a completed admissions dossier. Students may be admitted for any session.

Master of Arts or certification in Special Education
The primary purpose of the M.A. degree program in special education is to prepare persons to deliver appropriate levels of service to students with disabilities at the preschool, elementary, and secondary levels in either public or private settings. Applicants may request admission for the purpose of obtaining special education licensure/certification without also completing an M.A. degree. Students who do not seek licensure/certification may be admitted selectively to the M.A. program.

Admission
Admission requirements are:
- a completed graduate application form;
- copies of official transcripts for all previous college course work;
- an official report of the Graduate Record Examination (GRE) General Test (verbal and quantitative), with a score of at least 1000; and
- three current letters of recommendation;
- evidence of experience in regular or special education (see each program for specific requirements); and
- a 2.75 minimum undergraduate grade-point average (or 3.00 on at least 12 semester hours of graduate course work).

An interview may be requested.

Special Licensure Requirements
All special education students must complete the following courses or their equivalents in order to be qualified for licensure to teach special education in Iowa. Students who feel they already have fulfilled any of these requirements should consult their advisers.

7E/7S: 100 Foundations of Education 3 s.h.
7P:75 Educational Psychology and Measurement 3 s.h.
or
7P:131 Educational Psychology 3 s.h.
7E: 180 Human Relations for the Classroom Teacher 3 s.h.
7W:91 Audiovisual Equipment for Instruction 1 s.h.
7W:92 Introduction to Microcomputing for Teachers 1 s.h.

Program Core
All special education students must complete the following core requirements in addition to their specialization requirements.

7U:130 Exceptional Persons 3 s.h.
7U:134 Parent-Teacher Communication 3 s.h.
7U:206 Practicum with Exceptional Persons 3 s.h.
7U:238 Assessment of Learning Difficulties 1-3 s.h.

M.A. Program Specializations
Learning Disabilities
The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 30 semester hours.

Learning disabilities (LD)-required of all students:

7E:173 Teaching Elementary School Mathematics 2 s.h.
7E:271 Advanced Reading Clinic Techniques 2 s.h.
7E:272 Advanced Reading Clinic Practicum 2 s.h.

(Students who are unable to complete 7E:271-272 may take 7E:172 Reading Instruction: Teaching Practicum and 7E:174 Diagnostic and Prescriptive Approaches to Reading Instruction K-12.)

7U:131 Introduction to Learning Disabilities 3 s.h.
7U:209 Seminar: Graduate Supervised Teaching 1 s.h.

Additional requirements for grades K-6:
7U:201 Methods: Children with Learning Disabilities 3 s.h.
7U:207 Supervised Teaching: Elementary Learning Disabled 5 s.h.

Additional requirements for grades 7-12:
7U:121 Career Education and Transition 3 s.h.
7U:203 Methods: Adolescents with Learning Disabilities 3 s.h.
7U:204 Methods: Adolescents with Behavioral Disorders 3 s.h.
7U:227 Supervised Teaching: Secondary Learning Disabled 5 s.h.

The remainder of the required 38 semester hours for the M.A. are electives chosen in consultation with the adviser.

Behavioral Disorders
The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 30 semester hours.

Behavioral disorders (BD) core-required of all students:

7U:132 Introduction to Behavioral Disorders 3 s.h.
7U:209 Seminar: Graduate Supervised Teaching 1 s.h.
7U:210 Characteristics and Programs: Persons with Severe Behavioral Disorders 2 s.h.
7U:211 Interventions: Persons with Severe Behavioral Disorders 2 s.h.
7U:212 Characteristics and Programs: Persons with Autism 2 s.h.
7U:213 Interventions: Persons with Autism 2 s.h.
or
7U:252 Seminar: Behavioral Assessment and Evaluation 3 s.h.
### K-6 Additional Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:173</td>
<td>Teaching Elementary School Mathematics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7E:271</td>
<td>Advanced Reading Clinic Techniques</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7E:272</td>
<td>Advanced Reading Clinic Practicum</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

(Students who are unable to complete 7E:271-272 may take 7E:172 Reading Instruction: Teaching Practicum and 7E:174 Diagnostic and Prescriptive Approaches to Reading Instruction K-12.)

### Additional requirements for grades 7-12:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:121</td>
<td>Career Education and Transition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:204</td>
<td>Methods: Adolescents with Behavioral Disorders</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:228</td>
<td>Supervised Teaching: Secondary Behavior Disorder</td>
<td>5 s.h.</td>
</tr>
</tbody>
</table>

The remainder of the required 38 semester hours for the M.A. are electives chosen in consultation with the adviser.

### Mental Disabilities-Mild/Moderate

The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 33 semester hours.

### Mental Disabilities (MD) core—required of all students:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:173</td>
<td>Teaching Elementary School Mathematics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7E:271</td>
<td>Advanced Reading Clinic Techniques</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7E:272</td>
<td>Advanced Reading Clinic Practicum</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

(Students who are unable to complete 7E:271-272 may take 7E:172 Reading Instruction: Teaching Practicum and 7E:174 Diagnostic and Prescriptive Approaches to Reading Instruction K-12.)

### K-6 Additional Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:135</td>
<td>Introduction to Learning Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:202</td>
<td>Methods: Children with Behavioral Disorders</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>7U:204</td>
<td>Methods: Adolescents with Behavioral Disorders</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>7U:228</td>
<td>Supervised Teaching: Secondary Behavior Disorder</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>7U:229</td>
<td>Advanced Reading Clinic Practicum</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

### K-6 Additional Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:117</td>
<td>Interdisciplinary Programming for Persons with Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:135</td>
<td>Mental Retardation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:138</td>
<td>Methods: Children with Psychological Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:139</td>
<td>Assessment and Programming for Persons with Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:191</td>
<td>Supervised Teaching with Physically Handicapped</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>7U:248</td>
<td>Adaptations for Students with Multiple Disabilities</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Cardiopulmonary resuscitation course (no credit)

The remainder of the required 38 semester hours for the M.A. are electives chosen in consultation with the adviser.

### Early Childhood Special Education

The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 45 semester hours.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:118</td>
<td>Language Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:131</td>
<td>Methods: Children with Learning Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:202</td>
<td>Methods: Children with Behavioral Disorders</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>7U:240</td>
<td>Behavioral Principles</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7U:241</td>
<td>Methods: Persons with Moderate/Severe/Profound Mental Disabilities</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Additional requirements for grades K-6:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:135</td>
<td>Mental Retardation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:209</td>
<td>Seminar: Graduate Supervised Teaching</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:216</td>
<td>Methods: Resource Teaching</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7E:173</td>
<td>Teaching Elementary School Mathematics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7E:271</td>
<td>Advanced Reading Clinic Techniques</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

### Additional requirements for grades 7-12:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:133</td>
<td>The Culturally Different in Diverse Settings</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:215</td>
<td>Methods: Adolescents with Mild Mental Retardation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:221</td>
<td>Supervised Teaching: Secondary Mild Mental Disabilities</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>7U:247</td>
<td>Supervised Teaching: Secondary Moderate Mental Disabilities</td>
<td>5 s.h.</td>
</tr>
</tbody>
</table>

The remainder of the required 38 semester hours for the M.A. are electives chosen in consultation with the adviser.

### Physically Handicapped (K-6)

The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 33 semester hours.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:117</td>
<td>Interdisciplinary Programming for Persons with Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:135</td>
<td>Mental Retardation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:138</td>
<td>Methods: Children with Physical Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:139</td>
<td>Assessment and Programming for Persons with Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:191</td>
<td>Supervised Teaching with Physically Handicapped</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>7U:248</td>
<td>Adaptations for Students with Multiple Disabilities</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Cardiopulmonary resuscitation course (no credit)

### Multicategorical Resource Teaching

The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 39 semester hours.

### Required core:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:118</td>
<td>Language Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:140</td>
<td>Manual Communication I</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>7U:117</td>
<td>Interdisciplinary Programming for Persons with Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:248</td>
<td>Adaptations for Students with Multiple Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:275</td>
<td>Families of Young Children with Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:276</td>
<td>Supervised Teaching: Early Childhood Special Education I</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>7U:277</td>
<td>Supervised Teaching: Early Childhood Special Education II</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>7U:278</td>
<td>Seminar: Teaching Early Childhood Special Education</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

Cardiopulmonary resuscitation course (no credit)

### Mental Disabilities -Moderate/Severe/Profound, K-12

The M.A. requires at least 43 semester hours. Students seeking only certification must complete at least 43 semester hours.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:121</td>
<td>Career Education and Transition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:202</td>
<td>Methods: Children with Mild Mental Retardation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:220</td>
<td>Supervised Teaching: Elementary Mild Mental Disabilities</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>7U:244</td>
<td>Supervised Teaching: Elementary Moderate Mental Disabilities</td>
<td>5 s.h.</td>
</tr>
</tbody>
</table>

### Additional requirements for grades K-6:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:135</td>
<td>Mental Retardation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:202</td>
<td>Methods: Children with Behavioral Disorders</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>7U:222</td>
<td>Supervised Teaching: Elementary Multicategorical Resource Teaching Program</td>
<td>5 s.h.</td>
</tr>
</tbody>
</table>

### Recommended for licensure, grades K-6:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:201</td>
<td>Methods: Children with Learning Disabilities</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Additional requirements for grades 7-12:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:121</td>
<td>Career Education and Transition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:204</td>
<td>Methods: Adolescents with Behavioral Disorders</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7U:232</td>
<td>Supervised Teaching: Secondary Multicategorical Resource Teaching Program</td>
<td>5 s.h.</td>
</tr>
</tbody>
</table>

### Recommended for licensure, grades 7-12:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:203</td>
<td>Methods: Adolescents with Learning Disabilities</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Multicategorical Special Class with Integration
Requirements include the core courses from two of the following programs: learning disabilities, behavior disorders, or mental retardation.

For students seeking elementary (K-6) approval, the courses required at the elementary level in the two programs chosen above also must be completed.

For students seeking secondary (7-12) approval, the courses required at the secondary level in the two programs chosen above also must be completed.

Specialist in Education
The program provides advanced graduate training for professionals in the field of special education, including individuals in consultation, supervisory work, and work-study coordination in special education.

In addition to the general graduate admission requirements listed below, requirements for admission to this program include a master’s degree in special education or equivalent; preparation and licensure/certification in special education; and a minimum of one year of full-time teaching experience prior to admission to the program.

The program requires a minimum of 60 semester hours. The flexible plan of study is developed by the student and adviser. Degree requirements include written comprehensive examinations and a research paper (7U:395 Educational Specialist Research, 4 semester hours).

Ed.S. in Special Education Administration
The Ed.S. in special education administration is offered jointly with the Division of Planning, Policy, and Leadership Studies.

Its primary objective is to provide sufficient training and experience to enable graduates to obtain entry-level positions in administration.

The career focus of the program is on middle management positions such as supervisors and assistant directors. Successful completion of the program qualifies students for licensure/certification in Iowa to serve as directors of special education (State of Iowa Endorsement 239) and for licensure/certification in general school administration (State of Iowa Endorsement 171).

The program requires a minimum of 60 semester hours of credit.

Admission to the program is limited by available resources. Five to eight new students are admitted each year. Admission requirements include a master’s degree and licensure/certification in some area of teaching exceptional children, and classroom experience as a teacher or equivalent experience.

Special Education Consultant
The purpose of this program is to prepare consultants to serve in special education programs.

**ADMISSION**
Admission to a certification or M.A. degree program in special education is required. Applicants must hold or meet the requirements for the special education teaching endorsement congruent with the desired consultant authorization. For example, applicants must hold or meet the requirements for a mental disabilities endorsement in order to be recommended for the special education consultant endorsement with authorization in mental disabilities. 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 the desired consultant authorization. Applicants 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**

*Option 1 - For Persons without an M.A. in Special Education*
Completion of an M.A. degree and teaching endorsement program in special education congruent with the consultant desired authorization, plus the three courses listed under "Option 2" below for a total of at least 38 semester hours.

*Option 2 - For Persons with an M.A. in Special Education and an Endorsement Congruent with Desired Authorization*
Three courses:

- 7E:300 Design and Organization of Curriculum 3 s.h.
- 7P:263 Consultation Theory and Practice 3 s.h.
- 7U:260 Special Education Consultation (offered infrequently) 2 s.h.

**Doctor of Philosophy**
The Ph.D. program in special education prepares students for positions in higher education research and teaching, and for curriculum, supervisory, and research positions in state and local education agencies. The program permits students to study and practice extensively in their area of interest in special education.

Admission requirements for the Ph.D. program include a master’s degree or equivalent in special education and a minimum of one year of full-time teaching experience with exceptional children. The admissions committee gives preference to applicants who have had several years of experience.

The program requires a minimum of 90 semester hours beyond the bachelor’s degree. The plan of study is flexible and varies depending on the student’s background and educational goals. In general, students are expected to possess a general background in all facets of special education and one or two areas of specialization. The actual course of study is developed by the student and the academic adviser. Students are required to write comprehensive examinations and complete a doctoral dissertation (7U:493 Ph.D. Thesis in Special Education, 10 semester hours minimum).

**Facilities**
Special facilities available to students in special education include the University Hospital School, for mentally and physically disabled, and the University Psychiatric Hospital/Child Psychiatry Program, for children and youth with behavioral disorders.

**Financial Aid**

Early Childhood, Elementary Education
A number of teaching assistantships are available for graduate students pursuing advanced programs in early childhood and elementary education. Specific assignments vary. Some involve supervising undergraduate majors enrolled in practicums, and some involve teaching sections of undergraduate methods courses and supervising student teachers. Most assistantships are classified as one-half-time. This classification permits students to register for a maximum of 12 semester hours of credit per semester. Graduate students with assistantships must register for a minimum of 6 semester hours per semester.

All assistantships are awarded on a competitive basis. To be considered for an assistantship, applicants must have been admitted to regular status in the Graduate College and accepted in an advanced program by the College of Education. Inquiries concerning assistantships should be directed to the division chair.

Secondary, Special Education
A limited number of assistantships are available for graduate students pursuing advanced degrees. Holders of such assistantships may register for no more than 12 semester hours and, except with special permission, no less than 6 semester hours per semester. Assignments vary. Some involve teaching undergraduate courses or supervising practicum experiences, and others are made up primarily of research activities.

Secondary education graduate students also may be eligible for assistantships in some College of Liberal Arts departments. A candidate with appropriate credentials should apply directly to the specific department or consult the College of Education adviser directing the program in the appropriate field.

Traineeships in selected licensure/certification and master’s degree programs are available to full-time special education students. The Janet
Courses

Early Childhood and Elementary Education

7E:23 Movement and Sport Skills 0-3 s.h.
Same as 28: 10, 7E:23.

7E:70 Growth and Development of the Young Child 3 s.h.
Physical, cognitive, emotional, social development; emphasis on relationships between children, families.

7E:117 Human Growth and Motor Development 2 s.h.
Human growth, development of nervous system; focus on motor development from birth through puberty. Offered fall semesters. Same as 27: 117.

7E:72 Methods and Practicum: Elementary Education 3 s.h.
Practical considerations and curriculum planning for prospective teachers of elementary school physical education. Open only to physical education TEP majors. Offered spring semesters. Corequisites: 7E:117 and 7S:97.

7E:78 Beginning Folk Guitar 2 s.h.
Development of guitar and basic music skills. Consent of instructor required. Same as 25:78.

7E:91 Pre-Education Practicum, Elementary Education 1 s.h.
Students spend six hours per week working with children and teachers in elementary schools; assignments to schools are made in 7E:100. Admission to elementary TEP required. Corequisite: 7E:100.

7E:92 Pre-Education Practicum, Prekindergarten 1 s.h.
Students spend one half day per week working with children and teachers in a prekindergarten setting. Admission to elementary TEP required.

7E:93 Pre-Education Practicum, Kindergarten and Early Elementary 1 s.h.
Students spend two half days per week for eight weeks working with children and teachers in elementary schools; assignments to schools are made in 7E:100. Admission to elementary TEP required. Corequisite: 7E:100.

7E:100 Foundations of Education 3 s.h.
Overview of American education, preschool through secondary; aims, history, philosophy of education; school curriculum, organization, finance, school law, political and social issues. Admission to TEP required. Same as 7S:100.

7E:101 Introduction to Education 3 s.h.
Basic orientation to the field of education; administrative organization, instructional procedures, contemporary problems at both elementary and secondary levels. Same as 7S:101.

7E:103 Administration of Physical Education and Athletics 2-3 s.h.
Administrative issues in both physical education and athletics; topics include theory, budgeting practices, legal liability, public relations, evaluation of personnel. Same as 7S:103, 28:105.

7E:104 Remedial Methods in Speech and Hearing 2 s.h.
Emphasis on elementary grades. Usually taken in conjunction with 7E:192, which provides approximately 70 hours of supervised clinical practice in elementary schools. Primarily for speech pathology and audiology majors. Consent of instructor required.

7E:104 Parent-child Relationships 3 s.h.
Basic factors that influence parent-child interactions; raising children in different family settings.

7E:113 Gifted Young Children 3 s.h.
Identification and conceptualization of intellectual giftedness, educational programming for this age group; for educators, counselors, and psychologists who work with children ages 0-6 years or their parents. Same as 7E:115, 7P: 115.

7E: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. Admission to TEP required.

7E: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 1E: 195.

7E:123 Literature for Children 2 s.h.
Literature intended for children; discussion of children’s interests, capabilities, and reading programs; history and criticism of books for children; illustrations in books and recent trends and issues in literature. Admission to elementary TEP or consent of instructor required. Corequisites: 7E:156, 7E:160, and 7E:164.

7E:125 Methods and Materials: Teaching Children’s Dance 2-3 s.h.
Same as 17: 145.

7E:126 Language and Storytelling for Children 3 s.h.
Rationale, materials, techniques for sharing stories with young people; comparison and evaluation of variant texts in book and audiovisual versions; selecting stories for audiences of different ages; planning story programs; performance techniques. Same as 21: 126.

7E:127 Methods and Materials: Physical Education and Health for Elementary Teachers 2 s.h.
Methods, curriculum. Admission to TEP required.

7E:128 Methods and Materials: Physical and Health Education in Elementary School 4 s.h.

7E:134 Parent-Teacher Communication 1-3 s.h.
Realities of working with parents; interpersonal skills; options for parent support services. Same as 7P: 134, 7U:134.

7E:136 Home/School/Community Partnerships 3 s.h.

7E:137 Physical Education Curriculum: Trends 3 s.h.
Strategies for the K-12 setting. Same as 28: 124, 7S:137.

7E:142 Language Assessment in ESL/Bilingual Education 3 s.h.
Language and psycholinguistic development of the bilingual child, issues in assessment and evaluation, educational implications of bilingualism.

7E:143 Methods: Art 3 s.h.
Application of studio methods to teaching children in Saturday Children’s Art Class Program. Prerequisite: 7E:196.

7E:144 Materials and Methods: Elementary School Instructional Music 2 s.h.
Materials, techniques, methods for teaching band and orchestra instruments in the elementary school.

7E:145 Methods and Materials: Elementary School Music 3 s.h.
Area of specialization in music for choral music education students and elementary education majors. Offered spring semesters.

7E:156 Methods A Practicum 1 s.h.
Observation of, participation in, reflection about language and literacy instruction at K-6 level. Corequisites: 7E:123, 7E:160, and 7E:164.

7E:157 Methods: Early Childhood Education 3 s.h.
Current educational literature emphasizing developmentally appropriate methodology across all curriculum areas and including health, safety, nutritional needs.

7E:158 Guidance of Young Children 3 s.h.
Techniques of preventing behavior problems in child care programs; behavior management; cognitive approaches to encouraging social and moral development of children; three hours of observation weekly of caregivers and children in local child care centers.

7E:159 Early Childhood Education Special Projects 1-3 s.h.
Curriculum, methodology, materials; specific content varies with current issues, developments, needs of students; for prekindergarten directors, and primary teachers, supervisors, and consultants. May be repeated.

7E:160 Methods: Elementary School Language Arts 3 s.h.
Planning processes and development of problem teaching units; approaches to personal self-expression through oral, written, visual modes (creative dramatics, writing, film, etc.); and to language development, concepts concerning language, and skills of oral and written communication. Admission to elementary TEP required. Corequisites: 7E:156, 7E:158, and 7E:164.

7E:161 Methods: Elementary School Social Studies 2 s.h.
Objectives and content for grades K-6; development of work study skills and problem method. Admission to elementary TEP required. Corequisites: 7E:162, 7E:163, and 7E:166.

7E:162 Methods: Elementary School Science 2 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. Admission to elementary TEP required. Corequisites: 7E:161, 7E:163, and 7E:166.

7E:163 Methods: Elementary School Mathematics 2 s.h.
Methods used in kindergarten and grades 1-6; teaching number system and arithmetic operations. Admission to TEP required. Corequisites: 7E:161, 7E:162, and 7E:166.

7E:164 Methods: Elementary School Reading 3 s.h.
Basic methods, trends, recent materials, crucial issues in reading programs of kindergarten, primary, upper elementary grades. Admission to elementary TEP required. Corequisites: 7E:123, 7E:156, and 7E:160.

7E:165 Methods: Multicultural-Bilingual Education 3 s.h.
Methods of instruction for multicultural and bilingual settings in grades K-6; emphasis on cognitive and affective areas of the teaching process, including curriculum and resource development, teaching strategies.

7E:166 Methods B Practicum 1 s.h.
Practicum at the K-6 level involving mathematics, science, social science content areas; scheduling done in related methods courses. Corequisites: 7E:160, 7E:162, and 7E:163.

7E: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; practicum experience in diverse settings with varying age levels (infant/toddler, preprimary, primary).

7E:168 Math Clinic: Teaching Practicum 2-3 s.h.
Work with elementary aged children in mathematics; focus on individual tutoring, peer tutoring, cooperative learning activities.

7E:169 History and Philosophy of Early Childhood Education 3 s.h.
Issues about development, learning, education of young children, including past, present, future speculations; pioneers, including Plato, Comenius, Locke, Froebel, Rousseau, Pestalozzi, Montessori, Dewey.

7E:170 Classroom Management 1-3 s.h.
Activities, techniques, strategies, theories related to effective classroom management. May be repeated.

7E:172 Reading Instruction: Teaching Practicum 3 s.h.
Practice in application of diagnostic teaching techniques and reading curriculum development. Prerequisite: 7E:164 or 7P: 170 or 7S:194. Corequisite: 7E:174.

7E:173 Teaching Elementary School Mathematics 2-3 s.h.
Elementary school mathematics curriculum; emphasis on accommodating varied children’s ability levels, diagnosing pupil errors, testing, developing instructional sequences, remediation and enrichment, selected research results.

7E:174 Diagnostic and Prescriptive Approaches to Reading Instruction K-12 1-4 s.h.
Changing purposes and techniques for assessing reading strengths and weaknesses; corresponding changes in instructional goals as children progress through the reading curriculum. May be repeated. Prerequisite: 7E:164 or 7P: 170.

7E:175 Developing Communication processes and MS 3 s.h.
oral, written, visual/verbal modes that meet a range of purposes, situations, audiences, direct and incidental methods of instruction; ways to develop language across the curriculum; assessment of instructional materials and learning activities and evaluation instruments for communication.
7E: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. May be repeated for different areas (see current Schedule of Courses for specific areas offered).

7E:178 Workshop: Curriculum Development and Implementation 1-4 s.h.
For a specific curricular area; determining curricular needs and arriving educational principles and research to developing materials and activities that suit specific curricular patterns. May be repeated for different areas (see current Schedule of Courses for specific areas offered).

7E:179 Workshop: Teaching Methodology 1-3 s.h.
For a specific curricular area: review of teaching methods, theory, research; planning, developing lessons; demonstrations, observations, simulations of teaching. May be repeated for different areas (see current Schedule of Courses for specific areas offered).

7E:180 Creative Drama in the Classroom 3 s.h.
Values of creative drama, familiarizes students with creative dramatics activities, develops ability to plan drama experiences, and provides guided experiences in leader techniques; includes a seven-session classroom practicum; for students in education, communication studies, theatre arts, recreation, and so on.

7E:181 Piaget in the Classroom 2-4 s.h.
Development of logical thought in the concrete and formal-operational stages; emphasis on learning numerous Piaget-type tasks, presenting this tasks to children; deriving classroom implications from the data; primarily for experienced teachers.

7E: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 7E:182, 8P:182.

7E: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 undertakings of many approaches, methods, techniques in language teaching. Same as 7E:183.

7E:184 Piaget for Teachers 3 s.h.
Specific classroom procedures and determination of appropriate content topics for various grade levels; for teachers interested in examining and implementing the work of Jean Piaget in their classrooms.

7E:185 Introduction to Consulting in Education 2-3 s.h.
Consultation research and practice applied to educational settings; of students in preschoool through college; program areas offered: communication services. Same as 7P:185, 7S:185, 7U:185.

7E: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; product oriented. Same as 7S:186.

7E: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 7C:188, 7S:188, 7U:188.

7E:189 Development and Administration of Child Care Centers 3 s.h.
Topics in starting and managing a child care center; licensing, budgeting, health and safety, food and nutrition, parent involvement, supervising staff, maintaining quality; students visit and evaluate a child care center.

7E:190 Supervised Teaching in the Elementary School: interactive Phase 1-3 s.h.
Student teaching at the elementary level (K-9). Application to the College of Education Office of Student Personnel required. Corequisite: 7E:191.

7E:191 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 1-3 s.h.
Application to Use College of Education Office of Student Personnel required. Corequisite: 7E:190.

7E:192 Special Area Student Teaching 1-3 s.h.
Supervised teaching and observation in specific areas of elementary curriculum (see current Schedule of Courses for specific areas offered). Consent of instructor required.

7E:193 Independent Study 1-3 s.h.
Senior standing and consent of instructor required.

7E:194 ESL Bilingual Lab Practicum in Elementary Education 3 s.h.
Practical approach to dual language instruction with students in small classes where bilingual and English as a second language (ESL) methodology is employed.

7E:195 Multicultural/Bilingual Concepts and Educational Systems 3 s.h.
In-depth examination of educational practices within various communities; educational perceptions of these multicultural communities; perceptions of the educational institutions that serve students from acculturating and linguistically diverse backgrounds. Same as 7P:196.

7E:196 Topics in Curriculum and Instruction May be repeated. Consent of instructor required. Same as 7S:196, 7U:196.

7E:197 Supervised Teaching Early Childhood Center: Interactive Phase 1-3 s.h.

7E:198 Supervised Teaching Pre- and Post-Active Phase 1-3 s.h.
Application to the College of Education Office of Student Personnel required. Corequisite: 7E:197.

7E:204 Literature for Children II 3 s.h.
Analysis and selection of children’s literature for programs of various variety of settings; appropriate methods, research techniques, multimedia approaches to promote pleasure and insight through prose and poetry. Prerequisite: 7E:123 or consent of instructor.

7E:206 Curriculum Development in Music Education 2 s.h.
Curriculum development, instructional materials, analyses of current teaching methods and techniques in school music programs. Same as 7S:206.

7E: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 7S:230.

7E: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 7S:231.

7E: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; differences in achievement; research literature. Same as 7S:234.

7E: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 7S:235, 252E:195.

7E:237 Physical Education: Curriculum Design 2-3 s.h.
Treatment of major social, psychological, biological factors that influence curriculum approaches in physical education; emphasis on current trends; investigative or creative project required for 3 semester hours. Same as 28:227, 7S:345.

7E:238 The Exceptional Learner in Mathematics 2-3 s.h.
Characteristics of low- and high-achieving learners; curriculum organization to accommodate such learners; issues in tracking, mainstreaming; existing curriculum materials; curriculum design project. Same as 7S:238.

7E:249 Research-based Instruction in Science 2 s.h.
Students research student explanations related to topics common to science curricula, analyze the explanations in terms of accepted scientific models, design instructional materials and strategies for their approach; designed for the National Science Foundation program, “Science Teacher As Action Researcher” (STAAAR). Same as 7S:249.

7E:250 Program and Research Problems in science Education 2 s.h.
Program and research problem identification; group involvement in preparing solutions; potential external funding sources. Same as 7S:250.

7E: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 7S:255.

7E:256 science Education: The Nature of Science 3 s.h.
Texts in philosophy, psychology, history, sociology of science that are related to research, practice, current issues in science education. Offered spring semesters. Prerequisite: 97:128. Same as 7S:256.

7E:257 Science Education: Teaching, Learning, and Curriculum Models 2-3 s.h.
Teaching strategies, instructional models, curriculum theory as they relate to science teaching in elementary, secondary, college settings. Offered fall semesters. Same as 7S:257.

7E:258 science Education: Research Models and Conceptual Sciences 3 s.h.
Models of research design and major research efforts in science education; emphasis on current reports and yearly reviews of science education research. Offered spring semesters. Same as 7S:258.

7E:260 Supervision of Elementary School Language Arts 3 s.h.
Curricular models, curriculum development, methodology, materials for elementary language arts; focus on the interactive processes of composition and comprehension through oral, written, visual modes in personal exploration, skill, concept development experiences.

7E:261 Supervision of Elementary School Social Studies 3 s.h.
Curriculum content used for consideration of modern classroom procedures; cooperative problem assignments; provision for individual differences and functional development of study skills.

7E:262 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
Theories of teaching science at the elementary school level, emphasis on procedures that permit Implementation of modern philosophies characterizing elementary school science education; primarily for experienced elementary teachers progressing toward graduate degrees.

7E:264 Building Foundations for Reading: Preparatory and Primary 2-3 s.h.
Understanding of early reading 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.

7E:265 Supervision of Intermediate Grade Reading 3 s.h.
Reading with comprehension, provision for individual differences, research in reading extension of skills taught in primary grades; for teachers, principals, supervisors.

7E:247 Curriculum Development in Early Childhood (5-8 Years) 3 s.h.
Crucial and current problems in selection and organization of curriculum and in methods of teaching to promote learning; theory and practice.

7E:264 Curriculum Development in Early Childhood (0-5 Years) 3 s.h.
Current and crucial issues in curriculum development, research, delivery of services to children in group child care settings. Prerequisite: 7E:157 or equivalent.

7E: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.

7E:272 Advanced Reading Clinic Practice 2-3 s.h.
Practice in selecting and using special instructional procedures; fitting clinical teaching techniques into a balanced developmental teaching framework.

7E:273 Reading Recovery I 2-3 s.h.

7E:274 Reading Recovery II 2-3 s.h.
Training for teachers; tutoring of first-grade children; effective moment-by-moment instructional decision making.

7E: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 7S:285.

7E:293 Individual Instruction in Early Childhood and Elementary Education 2-3 s.h.
Consent of instructor required.
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.

TE:304 Seminar: Current Issues and Research in Elementary Education 4 s.h.
Major problems, research findings, current developments in elementary school instructional programs. Consent of instructor required.

TE: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.

TE: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 current Schedule of Courses for specific areas offered). May be repeated. Consent of instructor required.

TE:333 Seminar Mathematics Education 3 s.h.
Current research, research methodology, curriculum developments in mathematics education. May be repeated. Same as 7S:335.

TE:337 Seminar: Physical Education Theory 3 s.h.
Same as 28:327, 7S:337.

TE:350 Seminar: Science Education 1-2 s.h.
National issues, program features, completed faculty and doctoral candidates' research. Same as 7E:335.

TE:355 Science Education: Ph.D. Internship 2-3 s.h.
Same as 7S:355.

TE:356 Reading Clinic: Supervision arr.
Supervised experience in guiding and improving teacher performance in clinical practices. Consent of instructor required.

TE:358 Laboratory Practice in Supervision arr.
Individual practicum experiences in a variety of supervisory roles. Consent of instructor required.

TE:359 Research Project arr.
Individual research projects in a specific curricular area; for advanced students. May be repeated. Consent of instructor required.

TE:392 Field Service Project arr.
Individual field service project in a specific curricular area; for advanced students. May be repeated. Consent of instructor required.

TE:393 M.A. Thesis in Early Childhood and Elementary Education arr.
Consent of instructor required.

TE:395 Education Special Research in Early Childhood and Elementary Education arr.
Research involving design, data analysis, writing of results. Consent of instructor required.

TE:405 Seminar: Child Art and Art Education 2-3 s.h.
Analysis and evaluation of current concepts of child art and development, perception, creativity, art education; historical development of theories of child art and development, and art education. Same as 7E:405.

TE:406 Research in Art Education arr.
Individual research under supervision; applicable to thesis preparation and to doctoral prospectus development. May be repeated. Same as 1E:406, 7S:404.

TE:407 Research: Science Education arr.
Consent of instructor required.

Secondary Education

7S:23 Movement and Sport Skills Same as 28: 10, 7E:23.
O-3 s.h.

7S:90 Introduction and Practicum: Art 2 s.h.
Students observe and assist art teachers and students in elementary or secondary schools; four to six hours per week in the school plus on campus class meetings. Admission to TEP required.

7S:91 Introduction and Practicum: English and Speech 3 s.h.
Students observe and assist English or speech teachers and students in secondary schools; 12 hours per week in the school plus on campus class meetings. Admission to TEP required.

7S:92 introduction and practicum: Foreign Language 3 s.h.
Students observe and assist foreign language teachers and students in secondary schools; four to six hours per week in the school plus on campus class meetings. Admission to TEP required.

7S:94 Introduction and practicum: Journalism 3 s.h.
Experience in secondary schools. Admission to TEP required.

7S:95 Introduction and Practicum: Mathematics 3 s.h.
Students design and teach lessons that have varying instructional intent and that use multiple instructional strategies; study and practice methods of classroom management; 50-60 hours in cooperating schools. Admission to TEP required.

7S:96 Introduction and Practicum: Music 2 s.h.
Students observe and assist music teachers and students in elementary or secondary schools; four to six hours per week in the school plus on-campus class meetings. Admission to TEP required.

7S:97 Introduction and Practicum: Physical Education 3 s.h.
Instructional design, teaching strategies, unit/lesson planning, classroom management, secondary-level practicum of 30-40 contact hours. Admission to TEP required.

7S:99 Practicum Introduction and Practicum: Social Studies 2-3 s.h.
Students observe and assist social studies teachers and students in secondary schools; four to six hours per week in the school plus on-campus class meetings. Admission to TEP required.

7S:100 Foundations of Education 3 s.h.
Overview of contemporary American education, preschool through secondary; including aims, history, philosophy of education; school curriculum, organization, school law, finance, political, social issues. Admission to TEP required. Same as 7E:100.

7S:101 Introduction to Education 3 s.h.
Basic orientation in the field of education; administrative organization, instructional procedures, contemporary problems at both elementary and secondary levels. Same as 7E:101.

7S:102 Directing Forensic Activities 3 s.h.
Forensic program planning, organization, evaluation at the secondary level; establishment of curricular forensic programs; prepares students to direct competitive activities. Same as 36:107.

7S:103 Administration of Physical Education and Athletics 2-3 s.h.
Administrative issues in both physical education and athletics: topics include theory, budgeting practices, legal liability, public relations, evaluation of personnel. Same as 7E:103, 28:105.

7S:105 Advanced Methods: Art 3 s.h.
Art education theory at elementary and secondary levels; art curriculum, unit, and lesson planning; evaluation, motivation, instructional materials; observational techniques.

7S:112 Introduction to Museology 3 s.h.
Introduction to history, philosophy, function, management of museums. GER: humanities. Same as 24:102, 28:102, 97:115, 131:30.

7S:113 Methods: Secondary School Journalism 3 s.h.
Methods and materials for teaching high school journalism; publication policies, staff organization, production schedules, techniques for advising student publications; experience in simulated teaching situations. Offered fall semesters. Same as IQ:101.

7S: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. Same as IP:190.

7S:116 Methods: Foreign Language 3 s.h.

7S:117 Methods: Elementary School Foreign Language 3 s.h.
Methods, materials, procedures, theoretical base for ensuring effective foreign language instruction in elementary schools.

7S:118 Precious Literacy 1 s.h.
Identification and programming for youngsters who demonstrate extreme precocity in reading; published curricular materials; development of long-range instructional goals.

7S:122 Assessment and Programming for Mathematically Talented Youth 1 s.h.
Diagnostic testing, prescriptive instruction approach to programming for students who are extremely talented in mathematics; topics include programming grades K-12, appropriate enrichment, pacing the accelerated mathematics curriculum throughout grades K 12. Same as 7P: 122.

7S:126 Materials and Methods in Family Life Education 3 s.h.
Philosophy, resources, methods of presenting family life education materials in elementary, middle, junior high, high school, adult education.

7S:130 Workshops for Secondary School Journalism and Communication Teachers 1-2 s.h.
Teaching journalistic writing and editing, photography, design, typographical; current technology; developing curriculum and advising student publications; for teachers responsible for journalism program or classes. Same as 19:102.

7S:144 Curriculum and Methods: Middle/Junior High Mathematics 3 s.h.
Modern subject matter, organization of content, techniques of teaching and assessing in grades 5-8. Prerequisites: 7S:95, 22M:50, 22M:55, 22M:70, and 22S:120; or consent of instructor.

7S:135 Curriculum and Methods: High School Mathematics 3 s.h.
Modern subject matter, organization of content, and techniques of teaching and assessing in grades 9-12. Prerequisites: 7S:95,22M:50, 22M:55, 22M:70, and 22S:120; or consent of instructor.

7S:136 Home/School/Community Partnerships 3 s.h.
Issues related to collaboration among families, educators, community members in implementing school programs. Same as 7E:136, 7P:136, 7U:136.

7S:137 Physical Education Curriculum: Trends 3 s.h.
Strategies for the K-12 setting. Same as 7E:137, 28:124.

7S:138 Practicum: Band Instrument Care and Repair 1 s. h.

7S:139 Child and Adolescent Voice Production Principles, techniques of voice production and pedagogy Same as 25:111.

7S:140 Band Methods and Materials 2 s.h.
High school and elementary school methods required for teaching certificate; for instrumental music education majors.

7S: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.

7S:142 Methods and Materials: Secondary School General Music Literature, methods, materials, organizational plans of general music courses in secondary schools; role of music in allied arts and humanities elated arts courses.

7S:143 Instrumental Techniques 1-3 s.h.
Same as 25:105.

7S:144 Psychology of Music 2 s.h.
Cognition of music, affective response, aesthetic response, musical ability.

7S:145 instrumental Conducting 2 s.h.
Advanced skills for instrumental conducting, score analysis, rehearsal techniques, literature selection. Prerequisite: 25: 107. Same as 25:108.

7S:146 Methods of Secondary Physical Education 3 s.h.
Use of videotapes of student micro-taught lessons to study the spectrum of methodologies, teaching behaviors, classroom procedures, contemporary approaches to self-analysis of teaching. Prerequisite: 7S:97.

7S:147 Choral Methods 3 s.h.
Organization, implementation of effective choral music programs for all ages. Same as 25:109.
7S:148 Choral Conducting and Literature 3 s.h.
Advanced skills appropriate to choral conducting, analysis, literature, and style, implemented to develop a secure approach to choral art; students preparing to teach in the elementary or secondary schools must register under 7S:148.'
Prerequisite: 7S:147. Same as 25:110.
7S:149 Behavioral Research in Music 3 s.h.
Designed to prepare music educators to conduct research on music behavior.
7S:150 String Methods and Materials 2-4 s.h.
Same as 25:112.
7S:151 Science Methods I: Elementary school seminar and Practicum 2 s.h.
Integration of instructional theory and science curriculum with classroom practice; students participate in a series of clinical experiences in science, with emphasis on methods for personalizing the science curriculum.
7S:152 Science Methods II: Resources, Research, Teaching Strategies, and Curriculum Development for K-12 Science 3 s.h.
Students develop a research based rationale for teaching science; teaching strategies, self evaluation, lesson design; students are videotaped teaching in a ninth grade class.
7S:153 science Methods III: Middle/ Junior High school 2 s.h.
Communication skills, self evaluation, cognitive development, individualized instruction; generally deals with middle school/junior high school issues.
7S:158 Methods and Practicum in Science Health 3 s.h.
Methods, materials, instructional planning, management, practicum in school health programs. Prerequisite: 28:140. Same as 28:126.
7S:160: Methods of Communication 3 s.h.
Patterns in teaching, curricular programs, objectives, instructional methods and materials, effects of oral and written criticism and evaluation, testing and grading textbooks and reference materials, and sources of publications; contemporary communication education theory and practice. Same as 36:160.
7S: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.
7S:171 Talents Unlimited 1 s.h.
Structured, competency-based program that applies the multiple talent theory approach to classroom situations; designed to help K-12 teachers and counselors recognize and nurture multiple talents in the areas of productive thinking, communication, decision making, planning, and academic areas.
7S:172 Teaching 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.
7S:178 Workshop in Teaching Communication and Forensics 1-3 s.h.
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. Same as 36:178.
7S:181 Approaches to Teaching Literature 3 s.h.
Same as 8P:140.
7S: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 7E:182, 8P:182.
7S: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 7E:183.
7S:185 Introduction to Consulting in Education 2-3 s.h.
Consultation research and practice applied to educational settings; of students in school; college; program areas offering consultation services. Same as 7E:185, 7P:185, 7U:183.
7S: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; product oriented. Same as 7E:186.
7S: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. May be repeated. Corequisite: student teaching.
7S: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 7C:188, 7E:188, 7U:188.
7S:189 Elementary School Special Subject Area 1-4 s.h.
Supervised teaching experience in a single subject in grades 1-6.
7S:190 Individual Projects in Laboratory Practice 1-3 s.h.
Projects in curriculum and instruction related to student teaching experience supervised by the University; culminates in written report on projects.
7S:191 Observation and Laboratory Practice in the Secondary School 1-4 s.h.
Student teachers acquire experience in performing the duties of regular classroom teachers under supervision of experienced personnel in secondary schools. Consent of instructor required.
7S:192 Observation and Laboratory Practice in the Secondary School 1-4 s.h.
Continuation of 7S:191. Consent of instructor required.
7S:193 Teaching Literature to Adolescents 3 s.h.
Reading and evaluation of literature suitable for junior and senior high school students. Same as 8P:198.
7S:194 Methods: High School Reading 2-3 s.h.
Methods and materials used in teaching reading in all junior and senior high school content areas. Offered fall, spring, and summer sessions.
7S:195 Developing Reading Skills in the Secondary School 2-3 s.h.
Improving junior and senior high school students' reading skills through remedial and developmental instruction; implementing continuous instruction in reading skills through junior and senior high school, fostering an interest in reading. Offered spring, and summer sessions.
7S:196 Topics in Curriculum and Instruction 1-3 s.h.
Consent of instructor required. Same as 7E:196, 7U:196.
7S: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. Same as 35:196.
7S:198 Coaching Practicum 1-2 s.h.
Supervised experience in coaching intercollegiate teams under the direction of certified secondary school coaches. Open only to students completing teaching and coaching certification programs. Admission to TEP and consent of instructor required.
7S:199 independent Study 1-3 s.h.
7S: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. Same as 7E:200, 22M:195.
7S:201 Seminar: Current Topics in Music Education 1-4 s.h.
Major areas of professional and research interest. May be repeated.
7S:202 Second Language Program Management 3 s.h.
Preparation of precollege language teacher and student for supervising, administering foreign language programs at all levels.
7S:206 Curriculum Development in Music Education 2 s.h.
Curriculum development, instructional materials, analysis of current teaching methods and techniques in school music programs. Same as 7E:206.
7S:230 Workshop in School Mathematics 1-3 s.h.
One to three weeks of intensive examination of and experience with recent developments in school mathematics teaching methods and curriculum relevant to a selected issue. Same as 7E:230.
7S: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 7E:231.
7S:234 Foundations of Mathematics Education 2-3 s.h.
History of United States 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 7E:234.
7S: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 7E:250, 22M:195.
7S: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.
7S:238 The Exceptional Learner in Mathematics 2-3 s.h.
Characteristics of low- and high achieving learners; curriculum organization to accommodate such learners; issues in tracking, mainstreaming; existing curriculum materials; curriculum design project. Same as 7E:238.
7S: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.
7S:240 Foundations of Music Education 2 s.h.
Historical, philosophical, sociological, psychological foundations of music education as the bases for developing school music programs.
7S:241 Instrumental Music Workshop 1-3 s.h.
Materials and innovative instructional procedures for teaching instrumental music in public schools and colleges. May be repeated. Same as 25:220.
7S:244 individual Projects in Music Education 1-2 s.h.
Projects of special concern to individual music teachers in the public schools.
7S:246 Music Workshop: Individual Projects 1 s.h.
Specific application of innovative practices to local school settings. May be repeated.
7S:249 Research-Based Instruction in science 1-2 s.h.
Same as 7E:249.
7S:250 Program and Research Problems in Science Education 2 s.h.
Identification of program and research problems; group involvement in preparing solutions; potential external funding sources. Same as 7E:250.
7S:251 Preparation of Curriculum Materials for Science 1-3 s.h.
Preparation of instructional materials for science courses. May be repeated.
7S: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 semester and summer sessions.
7S:253 Recent Curriculum Developments in Science 1-3 s.h.
Review of national curriculum efforts for science school, including materials, rationale, teaching strategies Offered spring semester and summer sessions.
7S:254 Administering and Supervising K-12 Science Programs 1-3 s.h.
problems, practices, responsibilities, techniques characterizing the position of science supervisor; articulation of K-12 programs; principles for supervisor training of classroom teachers. May be repeated. Offered spring semesters and summer sessions. Same as 7E:254.
7S:255 science Education: Issues, History, and Rationale 3-2 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 7E:255.
7S:256 Science Education and 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: 97:128 and previous work in history or sociology of science. Same as TE:256.

7S:257 Science Education: Teaching, Learning, and Curriculum Models 2-3 s.h. Theories and techniques for designing printed and laboratory material for science programs. Offered fall semesters. Same as TE:257.

7S:258 Science Education Research Models and Conceptual Schemes 3 s.h. Same as TE:258.

7S:260 Restructuring Science Courses 2-3 s.h. Coexisting learning model applied to existing science courses; emphasis on student centeredness. May be repeated.

7S:261 Leadership and Change in School Science 2-3 s.h. Developing leadership skills for science education reform. May be repeated.

7S:262 Elements of Change in Science Education 2-3 s.h. Current restructuring efforts; theoretical characteristics of restructuring; SS&K, STS-constructivist paradigms used to explore strategies for diffusion.

7S:263 Alternative Assessment in Science Education 2-3 s.h. Comprehensive exploration; theoretical basis, strategies for day-to-day use in secondary classroom.

7S:264 New and Emerging Pedagogies in Science Education 2-3 s.h. Constructivist learning model in science education; the theoretical model, its range of applications to everyday pedagogical practice.

7S:265 Action Research in Science Education 2-3 s.h. Research based strategies to document, improve teacher effectiveness; premise and background review; student research projects.

7S:266 Mentoring of Science Educators 2-3 s.h. Self-analysis, interpersonal communication, leadership, and mentoring versus evaluation. May be repeated.

7S:267 STS as an Approach to Science 2-3 s.h. Meaning, application of science/technology/society approach.

7S:268 Science Concepts Applied to Local Issues 2-3 s.h. Science concepts as product of instructional process.

7S:277 Seminar: Social Studies Education 3 s.h. Periodical literature, trends, curricular developments, research in various aspects of social studies education; for master’s and doctoral candidates in social studies education.

7S:279 Experimental Research in Music Education 3 s.h. Design, performance, reporting of experimental research studies chosen to illustrate methods of experimental control and statistical evaluation in music. Prerequisite: 7S:149.

7S:280 Workshop: Teacher Training for Advanced Placement Courses 1 s.h. Focus on a particular academic content area. Consent of instructor required.

7S:281 Junior High School and Middle School Curriculum 2-3 s.h. Comparison of practices in junior high school and middle school; objectives and content in various subject areas; current trends; curriculum planning.

7S: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 TE:280.

7S:291 Secondary School Curriculum 2-3 s.h. Theory and development of secondary school curriculum; analysis of components of curriculum; practices and issues in various subject areas.

7S:293 Individual Instruction in Secondary Education arr. Consent of instructor required.

7S:294 Seminar secondary Reading 3 s.h. Analysis and evaluation of pertinent research in secondary reading; therapeutic procedures. Consent of instructor required. Prerequisite: 7S:194.

7S:315 M.A. Seminar: English Education arr. Significant developments in English education; primary and collaborative readings. Consent of instructor required. Same as RP:405.

7S:316 Seminar: Recent Developments in Literature for Adolescents arr. Recent literature for teenagers; research on their choices. Same as RP:316.

7S:335 Seminar: Mathematics Education arr. Analysis of current research, research methodology, curriculum developments in mathematics education; topics vary. Primarily for Ph.D. candidates. May be repeated, same as TE:335.

7S:337 Seminar: Physical Education Theory 3 s.h. Same as TE:337, 28:327.

7S:342 Supervision and Administration in Music Education 2 s.h. Problems and responsibilities of music supervisors, including curriculum, facilities, financing, supervision, in-service training and reporting study of factors influencing music curriculum decisions.

7S:343 Choral Music Workshop 1 s.h. Materials and innovative instructional procedures for teaching choral music in general pedagogical classroom.

7S:344 Special Workshops in Music 1 s.h. Current topics in teaching and learning music in public schools and colleges. May be repeated.

7S:345 Physical Education: Curriculum Design 2-3 s.h. Treatment of major social, psychological, biological factors that influence curriculum approaches in physical education. Emphasis on current trends; investigative or creative project required for 3 semester hours. Same as TE:237, 28:227.

7S:350 Seminar: science Education 1-2 s.h. Discussion of completed faculty and doctoral candidates’ research, national issues, program features. Same as TE:350.

7S:355 Science Education: Ph.D. Internship 2-3 s.h. Same as TE:355.

7S:356 Science Education internships: Teacher Education Supervision and Administration arr. Consent of instructor required.

7S:367 Seminar: Current Issues in Art Education 2-3 s.h. Analysis of literature in art education and related disciplines. May be repeated.

7S:368 Ph.D. seminar: Current Research in Science Education 2-3 s.h. Significant ongoing research programs in the field; emphasis on faculty research.

7S:391 Problems of Curriculum Planning 2-3 s.h. Organizing and selecting program of curriculum improvement; techniques for developing curriculum materials; includes field experience.

7S:392 Field Service Project in secondary Education arr. Consent of instructor required.

7S:393 Master’s Degree Thesis arr. Consent of instructor required.

7S:395 Educational Specialist Research in secondary Education arr. Consent of instructor required.


7S:406 Research in Art Education arr. Individual research under supervision; applicable to thesis preparation and to doctoral/prospectus development. May be repeated. Same as TE:406.


7S:415 Ph.D. Seminar: English Education arr. Recent research and theory in education as it affects English in the secondary schools. May be repeated. Consent of instructor required. Same as RP:425.

7S:445 Social and Psychological Factors in Music Education 3 s.h. Social and psychological factors that affect curriculum and instructional practices in music. Open to doctoral students in music education, and other graduate students with consent of instructor.


Special Education

Courses at the 100 level are open to students in education and related disciplines.

7U:100 Mainstreaming the Exceptional Learner 3 s.h. Disabled and gifted; strategies for effective treatment, collaboration between regular and special education teachers; remediation of academic, behavioral, social problems. Admission to TEP required.

7U:117 Interdisciplinary Programs for Disabled 3 s.h. Theory and practice of interdisciplinary programming; roles and responsibilities of different disciplines serving persons with disabilities, cooperative service strategies, case management, individual program planning; includes case studies, role plays, simulations. Consent of instructor required. Same as 42:117.

7U:121 Career Education and Transition 3 s.h. Curriculum, programs, and delivery systems that help persons with disabilities become employable; techniques of job and task analysis; identifies agencies designated to assist persons with disabilities; fieldwork stations and job training sites are required.

7U:130 Exceptional Persons 3 s.h. Children at all levels of exceptionality, from talented and gifted through profoundly disabled; special needs populations.

7U:131 Introduction to learning Disabilities 3 s.h. The field’s status, history, theory, definitions, teaching approaches, programs; unique topics of elementary and secondary school-age students; emphasis on cognitive processes.

7U:132 Introduction to Behavioral Disorders 3 s.h. Emotional and behavioral issues, definition, history, and problems of classification, origins of disorders, basic program approaches, school placement, programming for elementary and secondary students.

7U:133 The Culturally Different in Diverse Settings 3 s.h. Problems in teaching culturally different children of school age; relevant research on the influence of a disadvantaged background on students’ learning potentials. Same as 7C:133.

7U:134 Parent-Teacher communication 1-3 s.h. Realities of working with parents; interpersonal skills; options for parent support services. Same as 7E:134, 7P:134.

7U:135 Mental Retardation 3 s.h. Causes and treatment of mental retardation; current issues in mental retardation; educational programming and the role of schools in teaching children with mental retardation.


7U: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 required. Same as 7C:137.

7U:138 Methods: Children with Physical Disabilities 3 s.h. Special techniques and adaptations for working with physical disabilities; skill development in classroom management, communicating with parents, counseling the physically disabled. Consent of instructor required.

7U:139 Assessment and programming for Persons with physical Disabilities 3 s.h. Medical, therapeutic, educational aspects: several professions involved in evaluation, treatment, general management of children with disabilities; nature of various handicap conditions and causes, and special considerations of each.

7U:141 Programming and Curriculum for the Gifted 3 s.h. Fundamental issues; focus on curriculum approaches to working with the gifted.

7U:185 Introduction to Consulting in Education 2-3 s.h. Consultation research and practice applied to educational settings; of students in preschool through college; program areas offering consultation services. Same as 7E:185, 7P:185, 7S:185.

7U: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 7C:188, 7E:188, 7S:188.
7U:190 Interdisciplinary leadership Curriculum 2 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.

7U:191 Supervised Teaching with Physically Handicapped
Consent of instructor required.

7U:192 Supervised Teaching with Mild MR
Consent of instructor required.

7U:193 Supervised Teaching with Preschool Handicapped
Consent of instructor required.

7U:194 Supervised Teaching with Moderate MR
Consent of instructor required.

7U:196 Topics in Curriculum and Instruction
Consent of instructor required. Same as 7E:196, 7S:196.

7U:199 Individual Instruction in Special Education: Undergraduate Specialized study of topics not included in other courses. Consent of instructor required.

7U:201 Methods: Children with Learning Disabilities Methods and materials appropriate for working with children who have various process and academic types and degrees of learning disabilities. Prerequisites: 7U:131 and 7U:238.

7U:202 Methods: Children with Behavioral Disorders Managing behavior for academic and affective learning; instructional resources; consultation with parents and peers. Prerequisites: 7U:132 and 7U:238.

7U:203 Methods: Adolescents with Learning Disabilities Educational strategies and methods for teaching adolescents with learning disabilities; materials used; intervention approaches for different secondary settings. Prerequisites: 7U:131 and 7U:238.

7U:204 Methods: Adolescents with Behavioral Disorders Practical skills for working with youth with behavioral disorders in school and community settings; affective and behavioral assessment, effective communication skills, structure and management strategies, adaptation of instructional content, design of innovative program models. Prerequisites: 7U:132 and 7U:238.

7U:206 Practicum with Exceptional Persons Practicum experience with students with disabilities; experiences differ depending upon student’s program of study. Consent of instructor required.

7U:207 Supervised Teaching: Elementary Learning Disabled 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:208 Supervised Teaching: Elementary Behavior Disorders 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:209 Seminar: Graduate Supervised Teaching 1 s.h.
For students enrolled in graduate student teaching practicum. Special education major and consent of instructor required. Corequisites: 7U:207 or 7U:208 or 7U:220 or 7U:222.

7U:210 Characteristics and Programs: Persons with Severe Behavioral Disorders 2 s.h.
Characteristics of children and youth with severe behavioral disorders; emotional implications of these characteristics and the functional life needs; demonstration of programs for this severely disabled population. Prerequisite: 7U:132 or consent of instructor.

7U:211 Interventions: Persons with Severe Behavioral Disorders 2 s.h.
Intervention methods for children and youth with severe behavioral disorders; skills in communication, management, curriculum, program support, assessment. Prerequisite: 7U:132, and 7U:238 or 7U:240 or consent of instructor.

7U:212 Characteristics and Programs: Programs with Autism introduction to autism; definition, assessment, research information, communication skills, speech, language development of persons with autism. Consent of instructor required.

7U:213 Interventions: Persons with Autism 1-2 s.h.
Methods and materials for teaching persons with autism; information for working with their parents; persistent problems and adult care. Prerequisite: 7U:212 or consent of instructor.

7U:214 Methods: Children with Mild Mental Retardation 3 s.h.
Methods of developing programs; teaching and assessing progress in math, language arts, reading, social learning behavior and classroom management; home-school relationships. Prerequisites: 7U:130, 7U:135, and 7U:238.

7U:215 Methods: Adolescents with Mild Mental Retardation 3 s.h.
Methods of assessing and teaching skills in academic and vocational areas; classroom management; transition from secondary school to work. Prerequisites: 7U:130, 7U:135, and 7U:238.

7U:216 Methods: Resource Teaching 3 s.h.
Methods, materials for working with students with mild disabilities in elementary and secondary resource programs. Prerequisites: 7U:130, 7U:238, and two of the following: 7U:132, 7U:135.

7U:220 Supervised Teaching: Elementary Mild Mental Disabilities 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:221 Supervised Teaching: Secondary Mild Mental Disabilities 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:222 Supervised Teaching: Elementary Resource Programs 5 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:225 Supervised Teaching: Elementary Multicultural Special Class 5, 10 s.h.
Student teaching students with disabilities. Open only to special education majors. Consent of instructor required.

7U:226 Supervised Teaching: Secondary Multicultural Special Class 5 s.h.
Student teaching students with disabilities. Open only to special education majors. Consent of instructor required.

7U:227 Supervised Teaching: Secondary Learning Disabled 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:228 Supervised Teaching Secondary Behavior Disorders 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:232 Supervised Teaching: Secondary Resource Programs 5 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U: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; prospective directors of special education and school administrative personnel. Same as 7E:236.

7U: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. Consent of instructor required. Same as TP:238.

7U:240 Behavioral Principles 2 s.h.
Principles of behavior modification; defining/measuring behaviors; functional behavior analysis; proactive/reactive treatment strategies; behavioral assessment/treatment of stereotypic/self-injurious behavior; behavioral assessment/treatment of aggressive/disruptive behaviors; use of single-case experimental designs.

7U:241 Methods: Persons with Moderate/Severe/Profound Mental Disabilities I 3 s.h.
Instructional domains; functional, age-appropriate, community curriculum development; meaningful assessment; integration with their schools and communities; domestic and community functioning; leisure/recreation, vocational skills; functional academics. Prerequisites: 7U:130, 7U:135, 7U:238, and 7U:240, or consent of instructor.

7U:242 Methods: Persons with Moderate/Severe/Profound Mental Disabilities II 3 s.h.
Systematic instruction and application to functional skills training; design of appropriate instructional programs; data collection systems. Prerequisite: 7U:241 or consent of instructor.

7U:243 Issues Teaching Persons with Moderate/Severe/Profound Disabilities 3 s.h.
Current issues that affect lives of disabled persons and those who work with them. Prerequisite: 7U:130 or consent of instructor.

7U:244 Supervised Teaching: Elementary Moderate Mental Disabilities 5, 10 s.h.
Student teaching in a special education classroom. Corequisite: 7U:246.

7U:245 Supervised Teaching Severe/Profound 3.5 s.h.
Student teaching in special education classroom. Students who are severely/profoundly disabled. Corequisite: 7U:246.

7U:246 Seminar: Teaching Moderate/Severe/ profound 1 s.h.
Corequisite: 7U:244 or 7U:245.

7U:247 Supervised Teaching Secondary Moderate Mental Disabilities 5, 10 s.h.
Student teaching in a special education classroom. Corequisite: 7U:246.

7U:248 Adaptations for Students with Multiple Disabilities 3 s.h.
Enhancing participation of persons with multiple disabilities; partial Participation, individualized adaptations; positioning and handling techniques; integration of therapy with educational programs. Prerequisite: 7U:130 or consent of instructor.

7U: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 Division 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. Prerequisite: 7U:240, same as TP:352.

7U:260 Special Education Consultation 2 s.h.
Skills for conducting in-service needs of special education teachers, delivering staff in-service programs, evaluating effectiveness of in-service programs.

7U:271 Assessment of Young Children with Disabilities 3 s.h.
Theory and practice for interdisciplinary assessment of young children and family needs. Prerequisite: 7U:130 or consent of instructor.

7U:272 Development of Young Children with Disabilities 3 s.h.
Normal and atypical development of young children; emphasis on implications of specific disabilities. Prerequisite: 7U:130 or consent of instructor.

7U:273 Methods: Early Childhood Special Education Ages 0-3 3 s.h.
Methods and materials for working with special-needs infants and young children up to age 3, including medically fragile children. Pre- or corequisite: 7U:271.

7U:274 Methods: Early Childhood Special Education Ages 3-6 3 s.h.
Methods and materials for working with children ages 3-6, including alternative modes of communication. Pre- or corequisite: 7U:271.

7U:275 Families of Young Children with Disabilities 3 s.h.
Research and practice in early intervention; emphasis on impact of the special-needs child on family life, parent-child interaction patterns, facilitating psychosocial support, developing cooperative relationships with parents, family involvement in planning and implementation.

7U:276 Supervised Teaching Early Childhood Special Education I 3.5 s.h.
Student teaching in a home-based early intervention program. Prerequisite: 7U:273.

7U:277 Supervised Teaching Early Childhood Special Education II 3.5 s.h.
Student teaching in a center-based early intervention program. Prerequisite: 7U:274.
The Division of Planning, 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 division reflect the diversity of purpose.

Iowa Community college Licensure

Instructor
To qualify for a professional license with authorization to teach in an arts and sciences field of an area community college in Iowa, students must hold a master's degree granted by an approved institution, with specialization in a field of instruction offered in the arts and sciences division of an area college.

All licenses require 3 semester hours of 7F:180 Human Relations for the Classroom Teacher. Also required is course work in areas of professional preparation appropriate to teaching in a community college, which may be satisfied in several ways. Students should consult with their adviser or the program chair.

Administrator
Administrators of units or departments are required to hold or complete a bachelor's degree during the term for which the license is granted. Instructional administrators are required to hold a master's degree with a specialization in administration, a subject field taught in the institution, vocational-technical education, adult education, or student services. Both types of administrators must have four years of successful educational work experience, of which a minimum of two have been at the postsecondary level. Experience must include a minimum of two years of teaching or experience appropriate to the area of administration.

The program in higher education offers approved course work leading to administrator endorsements as well as a course in supervision and evaluation (7H: 172), which fulfills state evaluator training requirements. Applicants should consult an advisor to select course work that is appropriate to their area of administration and that meets the college's approval program requirements.

Graduate Programs

Educational Administration
The program in educational administration prepares individuals for leadership positions. Its programs lead to the M.A., Ed. S., and Ph.D. degrees and to administrative licensure/certification. Educational administration offers programs jointly with other divisions in the College of Education and with other colleges in the University.

Licensure/Certification
To be eligible for recommendation by the University of Iowa for licensure/certification in Iowa as an elementary principal, secondary principal, or superintendent, students must complete the appropriate program. The specific requirements for each program are available through the division office and the College of Education Office of Student Services.

Students who hold an M.A. degree must satisfy all core requirements and must complete at The University of Iowa the minimum semester-hour
program for the licensure/certification level they seek. An administrative licensure/certification program at a level different from that characterizing the student’s prior preparation and experience must be planned with an adviser. Because of the specific requirements for each administrative licensure/certification, candidates are required to plan their program with their adviser’s approval.

Master of Arts
The M.A. program prepares individuals for appointments as elementary or secondary school principals and central staff, and for positions in area education agencies and state departments of education. It is a nonthesis program requiring a minimum of 32 semester hours.

ADMISSION
Applicants must satisfy Graduate College requirements and are selected 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.

COURSE REQUIREMENTS
With the aid of an adviser, the student prepares a plan of study including the following core requirements.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>7D:201</td>
<td>Foundations of School Administration</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:236</td>
<td>Administration of Students with Special Needs</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:261</td>
<td>The Principalship</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:298</td>
<td>Legal Aspects of School Personnel</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:383</td>
<td>Supervision and Evaluation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:300</td>
<td>Design and Organization of Curriculum</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

For Iowa principalship licensure/certification, students must meet the human relations requirement of the state of Iowa. Students specialize in elementary, secondary, or central staff administration by completing one of the programs outlined below. Candidates may choose electives approved by the adviser to satisfy the following degree requirements.

Elementary Level

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7D:258</td>
<td>Contemporary Management Strategies for the Elementary Principal</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:401</td>
<td>Field Service Project in Elementary Administration</td>
<td>arr.</td>
</tr>
<tr>
<td>Electives</td>
<td>Electives selected with approval of adviser</td>
<td></td>
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</tbody>
</table>

Secondary Level

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7D:260</td>
<td>Contemporary Management Strategies for the Secondary Principal</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:402</td>
<td>Field Service Project in Secondary Administration</td>
<td>arr.</td>
</tr>
<tr>
<td>Electives</td>
<td>Electives selected with approval of adviser</td>
<td></td>
</tr>
</tbody>
</table>

Central Staff Administration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7D:295</td>
<td>Financial Management of Local School Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:404</td>
<td>Field Service Project in Central Administration</td>
<td>arr.</td>
</tr>
</tbody>
</table>

EDS. IN SPECIAL EDUCATION ADMINISTRATION

The Education Specialist in special education administration program is offered jointly with the Division of Curriculum and Instruction. The program provides sufficient training and experience to enable graduates to obtain entry-level positions in administration. The career focus of the program is on middle management positions such as supervisor and assistant director. Successful completion of the program qualifies the student for licensure/certification in Iowa to serve as a supervisor of special education (State of Iowa Endorsement 233, 238) or director of special education (State of Iowa Endorsement 239). It also qualifies the student for licensure/certification in general administration (State of Iowa Endorsement 171). The program requires a minimum of 62 semester hours.

ADMISSION to the program is limited by available resources. Five to eight new students are admitted each year. In addition to the general requirements, admission requirements include a master’s degree, licensure/certification in some area of teaching exceptional children, qualification for a consultant’s endorsement, and classroom experience as a teacher or equivalent experience.

Doctor of Philosophy

The Ph.D. program prepares students for leadership positions at all levels of education (school administration, research, teaching at the college or university level) through individually designed programs that include course work in related disciplines and research pursuits.
Emphasis is placed on the integration of theory and practice in the program.

The Ph.D. in educational administration is a flexible program that prepares professionals for leadership positions at all levels of administrative practice and for academic teaching and research positions. Sufficient course work and related experiences are planned individually. Students are expected to achieve competence in the areas of 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 in the Ph.D. program is divided into 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.

Commonly selected specialization areas are general administration, elementary school administration, secondary school administration, systems and research, school finance, curriculum, legal aspects, theory, and school personnel. Students must demonstrate proficiency in two research tool areas.

ADMISSION
Applicants must satisfy Graduate College requirements and are selected through a faculty review process. The division admits a maximum of ten students in the fall semester or the preceding summer session. Factors considered include recommendations from college or university faculty that speak to the candidate’s scholarship and potential for academic success, grade-point average, and Graduate Record Examination (GRE) General Test scores. Also considered is a written statement addressing one of the following 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.

Complete application materials must be submitted by January 1 for summer session or fall semester admission. Admission decisions are made by the division faculty; applicants are notified by February 15.

CORE COURSES
Core courses are designed to provide the necessary background for further study, including research in specialized areas, and to 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 government and the financing of public education, evaluation of administrative leadership theories, and options in research methodology and quantitative analysis.

Each core course carries four semester hours 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. Scholarship is reflected in writing, reading, and research in all doctoral seminars.

COGNATES
Students specializing in administration must complete a 9-semester-hour cognate outside the College of Education with the adviser’s approval.

COMPREHENSIVE EXAMINATIONS
Doctoral students must satisfactorily complete an extensive six-hour comprehensive examination in the six common areas of educational administration and a three-hour examination based on the student’s areas of specialization and approved by the student’s adviser and the division 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 for the semester during which they take the exam, and they may not register for more than 3 semester hours of Ph.D. thesis credit during that semester. They also 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 wish to use some aspect of the educational administration program as an area of concentration for which they would request a comprehensive examination should consult with an adviser in the Division of Planning, Policy, and Leadership Studies early in their sequence of study.

Any of the areas of specialization open to doctoral students in educational administration are open to other doctoral students who meet the necessary registration prerequisites for specific courses. Students should complete approximately 12 semester hours in one area of specialization 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 semester hours 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 adviser and then by the members of their doctoral committee. Student and adviser determine when the prospectus is complete. A final evaluation of the prospectus and approval to proceed may or may not be granted at the end of the prospectus committee meeting. Dissertation prospectus meetings are not held during summer sessions.

Students must accumulate 10 semester hours 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 time of graduation. They must be registered at The University of Iowa during the session in which they graduate.

RESIDENCY
Each doctoral candidate must successfully complete two semesters (a minimum of 9 semester hours excluding thesis credit on campus) to fulfill the residency requirement. The following sample Ph.D. program requires a minimum of 90 semester hours and assumes that students enter with an M.A. and 32 semester hours of graduate credit.

Core Requirements
7D:291 Administration of Educational Programs and Personnel 4 s.h.
7D:294 Politics and Economics of the Governance and Financing of Public Education 4 s.h.
7D:297 Administrative Leadership Theory 4 s.h.
7D:370 Research Methodology and Quantitative Analysis 4 s.h.

Other Required Courses
Cognate courses selected with approval of adviser 9 s.h.
Research design and/or statistics 6 s.h.
Thesis 10 s.h.
Electives selected to permit specialization; students typically include two or more doctoral seminars and accumulate 12 or more semester hours in a special area.
Total 90 s.h.

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.

General requirements for admission are as stated by the Graduate College. A personal interview with one or more members of the social foundations faculty is desirable and may be required. An undergraduate and/or graduate emphasis in philosophy, the humanities, or the social sciences is strongly recommended. Students must maintain a 3.00 overall grade-point average to remain in the program.

Master of Arts
Students in the M.A. program must take a minimum of 18 semester hours of work in social foundations, which should include at least two courses in each of the five areas of specialization. The remainder of the required 32 semester hours of course work must be in an area of concentration appropriate to students’ career and academic goals. For example, students interested in philosophy of education usually take these courses in the Department of Philosophy. Students are not required to write a thesis.

Masters 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
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.

Master of Arts

The M.A. program in higher education prepares individuals for entry- and middle-level administrative, instructional management, continuing education, and policy positions in two- and four-year institutions. It is a proper preparation for positions such as assistant dean, assistant to the president, director, in-service director, and division or program chair in selected areas. It is a nonthesis program.

ADMISSION

Applicants for admission must satisfy the requirements of the Graduate College. Candidates are selected on the basis of 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 for consideration for regular admission. Complete application materials must be submitted by November 1 for spring semester admission and April 1 for summer session and fall semester admission.

REQUIREMENTS

Requirements for the Ed.S. major in higher education are as follows.

At least 28 semester hours in the area of specialization, to be determined in consultation with the adviser

Ten semester hours of electives, to be approved by the adviser

Research conducted under registration in 7H:395 Educational Specialist Research in Higher Education for 4 semester hours

Two 3-hour comprehensive examinations: one covering the field of higher education in general, and one covering one of the five concentrations in higher education, perhaps reflecting an area of specialization within the concentration, followed by an oral examination

RELATED FIELD

Students majoring in another field who want to complete a related field in higher education should consult with the higher education adviser early in their studies. Plans of study are developed individually.

TEACHING INTERNSHIP (ED.S. PROGRAM ONLY)

Program participants teach half-time for a full semester at cooperating community colleges under the supervision of an experienced faculty member in that college and with field supervision from The University of Iowa. Interns participate as fully as possible in the academic life of the host community college, and they usually 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.

Doctor of Philosophy

The Ph.D. program is designed for persons who are likely to serve as administrators, specialists, researchers, and teachers in postsecondary
institutions or related public or private agencies. It requires a minimum of 90 semester hours beyond the baccalaureate degree.

The program in higher education offers five areas of concentration: general administration, academic planning and program development (including an emphasis on academic administration), community college administration, continuing education, and policy studies.

ADMISSION

Applicants for admission to the doctoral program must satisfy the requirements of the Graduate College. Candidates will be selected on the basis of grade-point average, GRE General Test scores, and promise for professional growth. Transcripts, GRE General Test scores, three strong letters of recommendation, and a statement of educational goals are required for regular admission.

Complete application materials must be submitted by November 1 for spring semester admission and April 1 for summer session and fall semester admission.

REQUIREMENTS

All higher education students are required to participate in the core experiences (16-19 semester hours). In addition, candidates choose one area of concentration and must earn 16-24 semester hours of credit in that area. Candidates choose a related field of at least 12 semester hours or a minor (up to 30 semester hours), which may be met by appropriate previous course work at the M.A. level that complements the area of concentration. The dissertation research (12-15 semester hours) must deal with a specific problem related to the area of concentration.

These three components—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.

While the doctoral program places heavy emphasis on administration and policy studies at both the theoretical and applied levels, students are expected to take course work outside the division, using the flexibility of the program to develop expertise in areas such as organizational analysis and the design and evaluation of instruction.

Comprehensive examinations for the doctorate cover the general area of higher education, the candidate’s area of concentration, and the minor and/or related field.

Students must complete a scholarly paper before applying to take the comprehensive examination. The paper should demonstrate the student’s ability to identify a scholarly study topic; formulate a scholarly problem or conceptual framework for addressing the topic; show familiarity with and facility in using relevant scholarly literature; and reflect writing and organizational skills at a graduate professional level.

Courses

Educational Administration

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<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>7D:110</td>
<td>Administrative and Policy Issues in Gifted Education</td>
<td>1 s.h.</td>
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<tr>
<td>7D:201</td>
<td>Foundations of School Administration</td>
<td>3 s.h.</td>
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<tr>
<td>7D:205</td>
<td>Collective Bargaining in Education</td>
<td>3 s.h.</td>
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<tr>
<td>7D:212</td>
<td>Individualized Instruction, Personnel</td>
<td>arr.</td>
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<tr>
<td>7D:213</td>
<td>Individualized Instruction, Finance</td>
<td>arr.</td>
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<tr>
<td>7D:214</td>
<td>Individualized Instruction, Law</td>
<td>arr.</td>
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<tr>
<td>7D:216</td>
<td>Individualized Instruction, Elementary</td>
<td>arr.</td>
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<tr>
<td>7D:217</td>
<td>Individualized Instruction, Secondary</td>
<td>arr.</td>
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<tr>
<td>7D:218</td>
<td>Individualized Instruction, Curriculum</td>
<td>arr.</td>
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<tr>
<td>7D:219</td>
<td>Individualized Instruction, Supervision</td>
<td>arr.</td>
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<tr>
<td>7D:220</td>
<td>Individualized Instruction, Middle School</td>
<td>arr.</td>
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<tr>
<td>7D:236</td>
<td>Administration of Students with Special Needs</td>
<td>3 s.h.</td>
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<tr>
<td>7D:258</td>
<td>Contemporary Management Strategies</td>
<td>3 s.h.</td>
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<tr>
<td>7D:260</td>
<td>Contemporary Management Strategies</td>
<td>3 s.h.</td>
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7D:262 School Organization Patterns 3 s.h.
Organizational approaches analyzed with specific attention devoted to emerging patterns, new trends in instructional procedures.

7D:285 School and Community Relationships 2-3 s.h.
Community analysis, politics and education, power groups and influences, school issues and public responses, public relations strategies.

7D:291 Administration of Educational Programs and Personnel 3-4 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.

7D:293 Individual Instruction in Educational Administration arr.
Individually designed course based on readings, special projects, and/or studies that reflect joint instructor/student interest.

7D:294 Politics and Economics of Financing Public Education 3-4 s.h.
Theories, models, research relating to educational governance and finance considered with issues in policy development, analysis, appraisal, planning; their interaction in American public education.

7D: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.

7D:297 Administrative Leadership Theory 3-4 s.h.
Administrative leadership theory drawn from social psychology, sociology, political science, communications, business and their applications for analysis and formulation of strategies for performing leadership functions in educational administration.

7D: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.

7D: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.

7D:300 Seminar: Social Change arr.
Social consequences of economic and political transformations; impacts of rural urban migration; gender and ethnicity as products, consequences of systems transformation. Same as 34:274, 42:274, 44:274.

7D:301 Seminar: Urbanization arr.
Problems of urban centers related to education, city government, institutions; small scale research projects developed by students; specialists in urban problems are resource people. Same as 30:324, 34:279, 44:337.

7D:302 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
Comprehensive examination of problems associated with administration of curricular development, Implementation, appraisal efforts; for advanced students with prior course work in administration and curriculum.

7D:304 Seminar: Supervision and Administration 2-3 s.h.
In-depth study of issues of major significance to school organizational and instructional practice; evaluation of prior research and consideration of research proposals; for experiential supervisors and administrators. Consent of instructor required. Prerequisite: 7D:261 or equivalent.

7D:360 Seminar: School Business Management Administration 1-3 s.h.
Problems of school business management with emphasis on contemporary issues; enables students to design, conduct, analyze studies in school business management. Prerequisite: 7D:265.

7D:361 Seminar: The Economics of Education arr.
Relationship between education and economy, including supply and demand, resource allocation and productivity, educational planning, efficiency, effectiveness. Prerequisite: 7D:294.

7D:367 Seminar: Current Issues in Special Education Administration arr.
New developments in administration; major content changes each year. May be repeated. Consent of instructor required. Prerequisite: 7D:236.
7D:370 Research Methodology and Quantitative Analysis 4 s.h.
Approaches to research and evaluation; design variety, report style, writing, literature review; role of cognitive and affective research questions, interview schedules, observational data; research and evaluation as planning activities. Prerequisite: TP: 143 or equivalent.

7D:371 Research Practicum arr.
Small-scale research projects developed and assigned; supervised experience in planning, design, management, analysis, reporting of research activities; assignments to current and current faculty research projects; student assumes major responsibility. Consent of instructor required.

7D:375 Educational Administration Practicum arr.
Supervised experience in working with educational administration problems including organization, planning, evaluation, decision making.

7D:380 Seminar: Value problems in the Administration of American Education 3 s.h.
Philosophical and sociological ideas underlying the American system for administration of public education; various ideas on place of both conformity and dissent in democratic society and democratic educational system; contemporary issues.

7D:381 Analysis and Appraisal of Curriculum 2-3 s.h.
Comprehensive investigation of systematic procedures for identifying and evaluating the essential features and constituent elements of a given school district’s curricular offering; for persons in administration, curriculum, and supervision programs or positions.

7D:383 Supervision and Evaluation 3 s.h.
Constructive leadership in educational organizations; analysis of research related to teacher and supervisor behaviors; evaluation procedures and behaviors that enhance leadership opportunities; positive aspects of due process and collective bargaining for educators in administrative or supervisory roles.

7D:384 Seminar for Education Executives 0-4 s.h.
Problem solving within an organization; specific problems determined by administrators attending; for practicing school administrators.

7D:390 Selected Topics in Educational Administration arr.
Individual and group investigation of contemporary problems and issues in educational administration. Consent of instructor required. Prerequisite: 7D:201.

7D:395 Educational Specialist Research in Educational Administration arr.
Supervision of the design, research, writing of a research project of significant quality for upper-level graduate work provided through individual instruction. Consent of adviser required.

7D:401 Field Service Project in Elementary Administration arr.
Individual project based in a school setting with emphasis on elementary administration; under instructor’s approval and supervision. Consent of instructor required.

7D:402 Field Service Project in Secondary Administration arr.
Individual project based in a school setting with emphasis on secondary administration; under instructor’s approval and supervision. Consent of instructor required.

7D:403 Field Service Project in Special Education Administration arr.
Individual project based in a school setting with emphasis on special education administration; under instructor’s approval and supervision. Consent of instructor required.

7D:404 Field Service Project in Central Administration arr.
Individual project based in a school setting with emphasis on central administration; under Instructor’s approval and supervision. Consent of instructor required.

Supervision of research, design, writing of a thesis at Ph.D. level provided through individual instruction. Consent of adviser required.

Social Foundations of Education

7F:15 Introduction to Leadership 3 s.h.
Leadership and life skills for use in college and in developing academic and career goals; multiculturalism, communication, motivation, self-esteem, ethical decision making. Open to freshmen, same as 7H:15.

7F:99 Politics of Education 2-3 s.h.
Political setting of education at several levels--federal, state, and local--and consideration of factors that condition internal school and district politics. GER: social sciences.

7F: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.

7F:104 Education in the Third World Educational Institutions and development issues, including role of media, and multinational corporations and foreign aid; educational dilemmas currently facing Third World governments.

7F:107 History of Western Education 2-3 s.h.
Educational philosophies of significant individuals in history of education and relevance of their ideas in terms of contemporary educational practice in the United States.

7F:117 Philosophies of Education 2, 3, 5 s.h.
Principal educational philosophies and philosophers that have influenced Western education; emphasis on how philosophical ideas and conflicts have shaped the educational scene.

7F: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.

7F: 134 Education and the World of Work 2-3 s.h.
Relationship between education and work at the levels of individual and organizational behavior; relationship between educational and economic systems; sources include economics, psychology, sociology, education. Same as 7H:134.

7F:135 John Dewey and Education 2-3 s.h.
Dewey’s philosophy of “instrumentalist,” with emphasis on his theories of knowledge, evaluation, aesthetics, especially as applied to educational theory and practice.

7F: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.

7F:170 Survey Research and Design 3 s.h.
Types of survey instruments; ethical issues; sampling problems; logging, collecting, cleaning procedures; construction and administration of social survey to a select population on topic of current interest; detailed examination of techniques of questionnaire construction. Same as TP: 155.

7F: 180 Human Relations for the classroom Teacher 3 s.h.
Social factors such as discrimination, diversity, equity, racism, sexism, and ethnic and socioeconomic pluralism and their influence on American schools and classrooms; for teacher education candidates.

7F:205 Research Process and Design 3 s.h.
Research process, with emphasis on development of critical thinking and research skills; analysis of selected recent research in the field; students draft a research problem. Same as 7H:205.

7F:310 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.

7F:215 Seminar: Theory and Practice of Leadership 2-3 s.h.
Theory-based literature and critiques of leadership as presented in various literary genres, such as biography, novels, plays, poetry, philosophical treatments. Same as 7H:215.

7F:220 History and Philosophy of Postsecondary Education 3 s.h.
Major themes and developments in American higher education; ideologies, people, movements that have particularly influenced those developments. Same as 7H:220.

7F:225 Education and Public Policy 2-3 s.h.
Same as 7H:225.

Seminar for intensive study of one problem, issue, or work field. May be repeated.

7F: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 14:275, 42:275, 44:275, 102:275, 113:275.

Consent of instructor required.

7F:304 American Contribution to Educational Philosophy 2 s.h.
American philosophy and its influence on American public education.

7F:306 Education in China 2-3 s.h.
Educational development in modern China from social, political, literacy perspectives; analysis of post 1949 educational policy shifts.

7F:311 Seminar: Research Topic in Higher Education 2-3 s.h.
Topic submitted by students or faculty. May be repeated. Same as 7H:311.

7F:316 Policy, Planning and Implementation in Education 2-3 s.h.
Same as 7H:316.

7F:360 Seminar: History and Philosophy of American Higher Education 3 s.h.
Organizational culture related to development of social, intellectual, institutional life in the United States; effects on present and future of higher learning in the United States; comparative analysis. Prerequisite: TP: 220 or consent of instructor. Same as 7H:360.

Consent of instructor required.

Higher Education

7H:15 Introduction to Leadership 3 s.h.
Same as 7H:15.

7H:13 Individual Study: Higher Education 3 s.h.
Consent of instructor required.

7H:100 Issues and Policies in Higher Education 3 s.h.
Current selected functions, issues, policies of American higher education.

7H:110 Introduction to Continuing Education 3 s.h.
Historical, philosophical, Social influences on current functions, trends of continuing education in the United States.

7H:12 Teaching of Adults 3 s.h.
Problems associated with adults in learning role; recognized variations in teaching techniques for adults.

7H:177 Foundations of Vocational Education 2-3 s.h.
Vocational education programs, with special emphasis on federal and state programs, educational services, career development, job satisfaction, and changing needs of business and society.

7H:125 Introduction to Distance Education 3 s.h.
Instruction in which student and teacher are physically separated; print, audio, video, computer delivery systems; focus on applications, instructional designs, future developments. Same as 7H:125.

7H:134 Education and the World of Work 2-3 s.h.
Same as 7H:134.

7H:171 The Community College 2-3 s.h.
Character of community college as a postsecondary institution; functions, students, faculty, control, financing, administration, historical evolution.

7H:172 Supervision and Evaluation of Post-Secondary Employees 2 s.h.
Knowledge, skills, attitudes of evaluator in institutions of higher education; orientation, pre and post observation conferences, legal contexts, growth planning.

7H:175 Post-High School Staff Development Workshop 0-2 s.h.
Administrative Dimensions Workshop provides an environment where community college administrators can share knowledge and experiences.

7H:190 Introduction to Postsecondary Teaching 2 s.h.
Current trends, topics in postsecondary occupational education: instruction evaluation, legislation, licensure, curriculum development, professionalism.
Psychological and Quantitative Foundations: Education

7H: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.

7H:192 Curriculum Development: Application to Community Colleges 3 s.h.
Comprehension of a national curriculum process common to education in general, and its application to community college and health careers.

7H:193 Evaluation: Application to Community Colleges 2-3 s.h.
Methods for educational evaluation in community college programs, including teaching and program evaluation; emphasis on achievement testing.

7H:199 Topics in Higher Education arr.
Students and faculty submit topics for consideration. May be repeated.

7H:200 Administration of Student Services 3 s.h.
Principles and practices of administration and leadership in the field. Recommended: 7H:100.

7H:205 Research Process and Design 3 s.h.
Research process, with emphasis on development of critical thinking and research skills; analysis of selected recent research in the field; students draft a research problem. Same as 7H:239.

7H:215 Seminar: Theory and Practice of Leadership 2-3 s.h.
Theory based literature and critiques of leadership as presented in various literary genres, such as biography, novels, plays, poetry, philosophical treatises. Same as 7F:215.

7H:216 Finance and Economics of Higher Education 2-3 s.h.
Analysis and appraisal of research and issues related to public and private funding of higher education; costs, benefits, outcomes, resource management.

7H:218 The Law and Higher Education 2-3 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.

7H:220 History and Philosophy of Postsecondary Education 3 s.h.
Major themes and developments in American higher education; ideologies, people, movements that have particularly influenced those developments. Same as 7F:220.

7H:222 Introduction to Planning, Policy Analysis, and Evaluation 3 s.h.
Basic theories and techniques; emphasis on academic and related educational policy issues.

7H:224 Organizational Theory and Administrative Behavior 3 s.h.
Theories and concepts of organizational behavior applied in situational, organizational, administrative contexts of American higher education.

7H:225 Education and Public Policy 2-3 s.h.
Policy process; emphasis on related literatures of organizational theory and policy analysis; critical analysis of problems and sources of variation in policy development and decision processes. Same as 7F:225.

7H:226 Higher Education Management 2-3 s.h.
Variables that influence decision making process in American higher education; application oriented, involving analysis of students' administrative skills. Prerequisite: background in organizational and administrative theory or consent of instructor.

7H:250 Administration of Technical Educational Programs 2-3 s.h.
Administrator's role in relating education to work; consideration of legal, financial, and staffing aspects of vocational technical education; student and employer needs.

7H:251 Development of Continuing Education Programs 3 s.h.
Theorists applied in developing and delivering continuing education programs; characteristics of populations to be served; marketing potential of a national curriculum process; administrative needs, instructional resources and staffing, support services, budgeting, evaluation.

7H:261 Problems and Issues in Continuing Education 2 s.h.
Perspectives; institutional roles; interrelationships between youth and adult education; process, program, potential of field.

7H:270 Intern Seminar arr.
Prepares students to assume faculty roles in a community college setting; responsibilities of crafts in methods of course planning, instruction, evaluation; current issues and legal aspects.

7H:295 Master's Project arr.
Research for the nonthesis program; topic to be approved by adviser.

7H:310 Seminar: Education for the Professions 2-3 s.h.
Characteristics of the professions and their educational implications, the role of theory and practice, clinical experiences; students analyze education for selected profession.

7H:311 Seminar: Research Topic in Higher Education 2-3 s.h.
Topic submitted by students or faculty. May be repeated. Same as 7F:311.

7H:312 Seminar: Continuing Education 2 s.h.
Nature, scope, trends of research as a dimension of continuing education. Consent of instructor required.

7H:315 Curriculum Development in Higher Education 2-3 s.h.
Basic educational models and techniques of design and Implementation appropriate to development of educational programs.

7H:316 Policy, Planning and Implementation in Education 2-3 s.h.
Review of research, applications. Same as 7F:316.

7H:317 Administrative Decision-Making in Higher Education 2 s.h.
Analysis of administrative problems and cases in higher education; emphasis on writing the organization. Prerequisite: 7H:224 or 7H:226 or consent of instructor.

7H:318 Legal Issues in Student Services 3 s.h.
Analysis of legal issues, the application of design of policies, procedures for student services in postsecondary institutions. Prerequisite: 7H:218.

7H:320 Seminar: Quality Management and Quality Improvement in Education 2-3 s.h.
Theories, processes, tools of quality management and improvement; case materials, related empirical studies on implementation of quality principles in education.

7H:330 Strategic Marketing and Institutional Development 3 s.h.
Marketing concepts in context of higher education organizations; use of these concepts in college planning, decision making. Broadened awareness of marketing concepts. Prerequisite: 7H:220 or consent of instructor.

7H:333 Practicum in Higher Education 2 s.h.
Consent of instructor required.

7H:360 Seminar: History and Philosophy of American Higher Education 3 s.h.
Organizational culture analyzed and related to development of social, intellectual, institutional life in the United States; emphasis on present and future of higher learning in the United States; comparative analysis. Prerequisite: 7H:220 or consent of instructor. Same as 7F:360.

7H:370 College Teaching Internship arr.
Instruction of supervised one-half-time teaching at a community college; concurrent assignments to gain knowledge of institution governance and procedures. May be repeated. Consent of adviser required.

7H:395 Educational Specialist Research in Higher Education 2 s.h.
Supervision of design, research, writing of a research project for Ed.S. candidates. Consent of instructor required.

7H:401 Prosseminar in Higher Education I-2 s.h.
Current topics and major areas of professional and research interest. For Ph.D. majors in higher education. May be repeated. Consent of instructor required.

Consent of instructor required.

Chair: David F. Lehman

Associate professors: Gordon N. Cantor, William E. Coffman, Albert N. Hieronymus, Siegmar Muelu, Bill Carl Snider, Lawrence M. Stolarow

Adjunct associate professors: Mark A. Albanese, E. James Macye

Adjunct professors: Robert D. Ankenmann, Gregg M. MacMann, Joyce L. Moore, Audrey Quails, James Quinn, Sharan Sackett, Eneida G. Vazquez

Instructors emeriti: Elizabeth J. Forell, Calvin E. Mether

Lecturers: G. John Achrazoglou, William E. Martin, Jr.

Degrees: M.A., Ed.S., Ph.D.

The division offers programs in five areas: educational measurement and statistics, counseling psychology, educational psychology, school psychology, and instructional design and technology. There are two general goals of these programs: 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 division offers an undergraduate minor in the combined areas of educational psychology, measurement, and statistical analysis.

The purpose of the minor is to provide an enriched background in educational psychology, educational testing, and research methods in education. A student selects a division adviser who helps the student choose 18 semester hours in psychology, educational psychology, school psychology, and instructional design and technology. There are two general goals of these programs: 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.

Psychological and Quantitative Foundations: Education
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7P:25 Elementary Statistics and
Inference may be used to satisfy this requirement.

Graduate Programs

Educational Measurement and Statistics

Master of Arts
The M.A. in this field prepares students for positions that require a basic knowledge of educational measurement, program evaluation, and data analysis. Such positions occur in research centers, testing organizations, large school systems, and state and federal education agencies. The program also is appropriate for students who seek to broaden their knowledge of measurement and research methodology for personal development.

ADMISSION
Grade-point average requirements for admission to the program are the same as those established by the Graduate College. Applicants who score lower than 500 on the quantitative, verbal, or analytical section of the Graduate Record Examination (GRE) General Test typically are not admitted. However, if the applicant’s native language is not English and there is offsetting evidence of superior ability, the faculty may adjust the GRE admissions requirement. Applicants should have at least one course in college mathematics. Some work experience as a teacher or researcher is highly desirable.

The faculty reviews applications as they are received. Complete applications must be received by July 1, December 1, or May 1, respectively, for consideration for fall, spring, or summer admission.

REQUIREMENTS
The degree may be taken without thesis (32-semester-hour minimum) or with thesis (minimum of 28 semester hours of course work plus 2-4 semester hours of thesis credit). All students must complete a core of courses totaling approximately 26 semester hours. 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. If a student already has completed equivalent courses at another institution, more advanced courses may be added to the core.

The six hours of final comprehensive examinations typically include three-hour examinations in educational measurement and in applied statistics. With the approval of the M.A. committee, the 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.

Doctor of Philosophy
This doctoral program prepares students for senior professional positions in the fields of educational measurement, program evaluation, and statistical methods. Such positions generally are found in colleges and universities, state departments of education, large public and private school systems, testing agencies, and research centers.

ADMISSION
Applicants for admission to the program must hold an M.A. from an accredited institution. The grade-point average requirement is the same as that for the Graduate College. If an applicant scores lower than 500 on the verbal, quantitative, or analytical sections of the Graduate Record Examination (GRE) General Test and there is no offsetting evidence of superior ability, admission will not be granted. However, the faculty may adjust the GRE standards for students whose native language is not English.

Applications are reviewed as received. Complete application materials must be received by July 1, December 1, or May 1, respectively, for consideration for fall, spring, or summer admission.

Students who expect to concentrate in the area of statistics should have training in college mathematics through differential and integral calculus. The absence of such training is a deficiency that must be made up during the first year of residence. At least one year of professional experience in teaching, research, or a related field is highly desirable.

Applicants are encouraged to include a personal statement about their vocational goals. The faculty reviews applications as they are received.

REQUIREMENTS
In addition to the substantive courses in educational measurement and statistics offered by the division, all students must complete the following related courses.

22C:100 Introduction to Computing with FORTRAN (or equivalent) 2 s.h.
7P:131 Educational Psychology 3 s.h.
7P:220 Educational Research Methodology 3 s.h.
7C:254 Appraisal in Counseling 3 s.h.

The student’s adviser specifies additional course work in areas appropriate to the student’s interests and vocational objectives. These courses typically include additional work in educational psychology and courses offered by other College of Education divisions and University departments.

Students who concentrate in the area of statistics, with the intention of teaching on the college level, are required to take courses in the mathematical theory of statistics. Those who concentrate in the area of educational measurement and evaluation are advised to take courses in curriculum, counseling, and higher education. All students must develop familiarity with computer programming techniques and computer software designed for statistical analysis.

Candidates who enter the program without completing an M.A. thesis must complete a substitute project approved by three members of the division faculty. The project must be completed before the Ph.D. comprehensive examinations may be written. A minimum of 90 semester hours is required for the degree, including 12 or more semester hours of thesis credit.

The record of every student admitted to the program is reviewed after completion of approximately 18 semester hours of course work. The division faculty considers course grades, evidence of critical and analytical skills, development since admission to the program, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied are dropped from the program.

Following completion of the major portion of their course work, candidates must write comprehensive examinations. Typically, these consist of three 3-hour written examinations over the fields of applied statistics, educational measurement, and program evaluation, or approved substitute areas such as educational psychology or mathematical statistics. A substitute area generally is one in which the candidate has at least 9 semester hours of course work. In lieu 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 members may seek further evidence of the candidate’s command of the three fields. A single decision is rendered on all aspects of the comprehensive examinations.

Counseling Psychology

Doctor of Philosophy
The doctoral program in counseling psychology was granted full accreditation by the American Psychological Association in 1983. Full accreditation was renewed in 1991.

The program’s goal is to prepare doctoral-level 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 higher education, counseling centers, clinics, private practice settings, and hospitals.

ADMISSION
Applications are complete when the following items have been received:
Graduate College application form;
official transcripts of all previous undergraduate and graduate work;
official report of Graduate Record Examination (GRE) General Test scores; the GRE Advanced Test in Psychology is encouraged but not required;
personal statement outlining career goals and reasons for seeking advanced training as a counseling psychologist; and
three letters of recommendation from persons in a position to assess the applicant’s potential for completing the doctoral program.

The faculty gives preference to applicants who meet the following criteria: undergraduate grade-point average above 3.00 (on a 4.00 scale); graduate grade-point average above 3.50; and GRE General Test score (verbal plus quantitative) above 1200; undergraduate major, minor, or substantial course work in psychology; previous research and counseling experience. The faculty encourages applications from minorities, women, and persons from a wide range of backgrounds and academic preparation. A maximum of eight students is accepted each year.

The deadline for completed applications is January 15. Admissions decisions are made by March 15. All students must begin the program in the fall semester after admission.

REQUIREMENTS

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 semester hours 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. Six semester hours also are required in the area of individual differences.

Statistics and Research Design

7P:243 Intermediate Statistical Methods 3 s.h.
7P:246 Design of Experiments 4 s.h.
or 7P:244 Correlation and Regression 4 s.h.
7P:257 Educational Measurement and Evaluation 3 s.h.

Counseling Psychology Core

7C:255 Vocational Psychology 3 s.h.
7P:223 Introduction to Counseling Psychology Practice/Research I 3 s.h.
7P:225 Introduction to Counseling Psychology Practice/Research II 2 s.h.
7P:235 Multicultural Counseling 3 s.h.
7P:251 Individual Intelligence Testing 3 s.h.
7P:305 Psychotherapy I: Dynamic and Phenomenological Approaches 3 s.h.
7P:310 Psychodiagnosits 3 s.h.
7P:356 Processes and Outcomes in Counseling and Psychotherapy 3 s.h.
7P:365 Psychotherapy II: Cognitive and Behavioral Approaches 3 s.h.
7P:465 Issues and Ethics in Professional Psychology 3 s.h.
7P:434 Practicum in Counseling Psychology 3 s.h.
7P:453 Advanced Practicum in Counseling Psychology (may be repeated) 3-9 s.h.

Students must enroll in practica to reach a specified level of client contact, supervision, and additional experience hours. At least one practicum must be served at the University Counseling Service, unless the faculty approves a waiver. Placements other than the University Counseling Service must have prior approval of the counseling psychology faculty. Students must successfully complete at least one semester of 7P:434 Practicum in Counseling Psychology before enrolling in 7P:453 Advanced Practicum in Counseling Psychology. Waivers of practicum requirements may be granted under special circumstances by a majority vote of the counseling psychology faculty.

Other Requirements

Elective courses are determined in collaboration with the major adviser.

A research project equivalent to the master's thesis must be completed prior to the comprehensive examinations. Up to 6 semester hours of credit may be applied to this project. The dissertation research study is planned in collaboration with the doctoral student’s major adviser. Dissertation credit can range from 12 to 15 semester hours.

Students spend a calendar year at 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, successful completion of the master’s equivalency research requirement, and successful completion of practicum requirements.

Comprehensive examinations are written in three areas: counseling psychology research/theory, counseling psychology methods/applications, counseling psychology ethics/issues. It is strongly recommended that students complete comprehensive examinations prior to the internship.

Students must show appropriate levels of emotional balance and interpersonal skills and act within the American Psychological Association’s Ethical Principles of Psychologists.

Educatioanal Psychology

Master of Arts

This program provides an overview of educational psychology as an area of scholarly inquiry. It includes course work in human development, cognition/learning, motivation, socialization/personality, educational measurement, and research methods. The program does not prepare students for entry into a specific vocation. Rather, it contributes to a broad understanding of the psychological principles on which education builds.

ADMISSION

Admission requirements are the same as those established by the Graduate College. Teaching experience is desirable but not required. Applications for fall admission must be received by May 1 for fall semester, by October 1, for spring semester, and by March 1 for summer session. Admission decisions are announced approximately one month after the application deadline.

REQUIREMENTS

Students may earn the degree with or without thesis. The M.A. without thesis requires a minimum of 32 semester hours of course work; with thesis, it requires a minimum of 28 semester hours of course work plus 2-4 semester hours of thesis credit. Both programs require 7P:143 Introduction to Statistical Methods or the equivalent. Students who intend to apply for admission to the Ph.D. program should take the M.A. with thesis.

Students plan the remainder of the program in consultation with their advisers, choosing courses from the following four areas: human development, cognition/learning, motivation/personality, and individual differences. Students are encouraged to take at least one course in each of these areas. The faculty also encourages degree candidates to enroll in at least two courses outside the division.

The record of every student admitted to the program is reviewed near the end of the second semester in residence. The program faculty considers course grades, evidence of critical and analytical skills, development during the year, and promise for continued growth. Deficiencies identified in the review are discussed with the student. Students may be dropped from the program at the discretion of the faculty.

Students must complete six hours of comprehensive examinations consisting of a three-hour objective test and a three-hour essay examination or project. The objective test covers fundamental concepts in educational psychology. Several options are available for the essay examination or project, all of which focus on the student’s area of specialization. Students choose among these options in consultation with their advisers and with their M.A. committees.

Doctor of Philosophy

This doctoral program prepares graduates for a variety of careers that share a concern for the application of psychological principles to educational practices. Such careers include professorships at the university and college levels and research or administrative positions in educational agencies, clinics, hospitals, testing organizations, and public schools.

ADMISSION

An applicant seeking admission to the program must hold an M.A. from or be an M.A. candidate in good standing at an accredited institution. Applicants whose M.A. is not directly relevant to educational psychology may be admitted conditionally. The student must complete the M.A. program before taking the Ph.D. comprehensive examinations.

The graduate grade-point average and Graduate Record Examination (GRE) requirements for admission are the same as those established by the Graduate College. Candidates may be admitted conditionally on the basis of other evidence, such as high grade-point average, strong academic preparation, and highly supportive recommendations. Applications for fall semester admission must be received by February 1. Admission decisions are announced approximately one month after the application deadline. Students who receive an earlier decision and those who cannot meet the February deadline may request an expedited application or a special review.
REQUIREMENTS

The program requires a minimum of 72 semester hours beyond the bachelor’s degree and encompasses four substantive areas: human development, cognition/learning, motivation/socialization/personality, and individual differences. Students must complete at least one course in each of the four areas, with three of these courses above the 100 level. In addition, students must demonstrate substantial competence in at least one of these areas.

Additional requirements include 7P-220 Educational Research Methodology: a minimum of 6 semester hours of 200-level course work in statistics and one graduate-level course in measurement; and 10 semester hours of Ph.D. thesis credit. Alterations in these requirements can be made for individual students with the approval of a committee composed of three members of the educational psychology faculty. Students are encouraged to take course work outside the College of Education in their area of interest. Candidates who earned an M.A. without thesis must undertake a project in lieu of the thesis. This project must be approved by three members of the educational psychology faculty. Candidates plan their programs jointly with their advisers.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The program faculty considers course grades, evidence of critical and analytical skills, development during the year, and promises for continued growth. Deficiencies identified in the review are discussed with the student. Students may be dropped from the program at the discretion of the faculty.

After candidates have completed the major portion of their course work, they must take a comprehensive examination. Three options are available: preparation of an integrative review article, completion of an extended research activity culminating in a written report, or completion of a nine-hour series of written examinations. Students choose among these options after consulting with their advisers and gaining the approval of their Ph.D. examining committees. For students who elect the last of these options, six of the nine hours of examinations must be based on course work in educational psychology offered by the division or on closely related course work offered by other University departments. A comprehensive examination taken outside the educational psychology program must be planned in consultation with the educational psychology faculty. The proposed examination schedule must be approved by the comprehensive examination committee.

School Psychology

Specialist in Education

The Ed.S. option provides course work and supervised field experience in the areas of education and psychology, enabling graduates to qualify for certification as school psychologists (State of Iowa Endorsement 40).

ADMISSION

The program is open only to Ph.D. students in the school psychology program.

REQUIREMENTS

The degree requires a minimum of 67 semester hours, including courses in psychological foundations, psychoeducational foundations, school psychology, and research methods. Degree requirements include a written comprehensive examination and a research paper prepared in conjunction with course 7P:342 Research project in School Psychology (3 semester hours).

Doctor of Philosophy

The Ph.D. program in school psychology prepares students for positions in higher education and for consultative, supervisory, research, and administrative positions in public and private agencies.

ADMISSION

Preference is given to applicants with undergraduate majors in psychology or education, grade-point averages above 3.00, and verbal and quantitative scores above 500 on the Graduate Record Examination (GRE) General Test. The faculty also encourages applications from school psychologists with an M.A. or Ed.S. Applications must include three letters of recommendation and a personal statement of interest and goals. Complete application materials, including transcripts and test scores, must be received by February 1 for consideration for fall semester admission. Decisions are made by March 15. A maximum of ten students are admitted to the program each year.

REQUIREMENTS

The program requires a minimum of 120 semester hours. Course work is chosen from four areas: psychological foundations, psychoeducational foundations, school psychology, and research methods. The course of study is developed by the student and the academic adviser. Students are required to write comprehensive examinations, carry out a research project equivalent in scope to an M.A. thesis, participate in an internship, and complete a dissertation on an approved topic.

Instructional Design and Technology

Master of Arts

The M.A. program in instructional design and technology provides students with the basic knowledge and skills to work in educational technology and training environments such as schools, business and industry, health care, government, and consulting agencies. The program requires 35 semester hours of course work and either a thesis or a project.

ADMISSION

Regular admission requires a minimum grade-point average of 2.80 on all previous course work and a score of 500 or higher on both the quantitative and verbal sections of the Graduate Record Examination (GRE) General Test. If these requirements are not met but there is compelling evidence of superior ability, a conditional admission may be granted. Regardless of the admission status, all students are expected to maintain a grade-point average of at least 3.00. Applicants are encouraged to include with the application a personal statement about their interest in the field.

Applications for admission must be received by May 1 for fall semester, October 1 for spring semester, and March 1 for summer session. Admissions decisions are announced approximately one month after the application deadlines.

REQUIREMENTS

The degree requires the following core courses (or approved equivalents).

7P:107 Psychological Bases of Instructional Design
7P:150 Introduction to Educational Measurement
7W:120 Introduction to Instructional Design and Technology
7W:135 Computer Applications for Instruction
7W:220 Advanced Instructional Design and Technology

Students plan the remainder of their programs in consultation with their advisers, choosing course work in one of the following specialization areas: classroom instruction, computer applications, instructional development, training and human resource development, and media production. Students who have not had previous experience in designing instruction or training must complete a practicum experience. A final project or thesis is required. If the degree is done with a thesis, 7P: 143 Introduction to Statistical Methods is required.

The program culminates with a six-hour set of comprehensive examinations based on core and specialization area courses. The examinations are divided into two- or three-hour parts as follows: general instructional design, 2-3 hours; area of specialization, 2-3 hours; other, O or 2 hours.

Specialist in Education

The educational specialist program in instructional design and technology consists of 60 semester hours of course work beyond the bachelors. The Ed.S. usually is considered a final degree.

ADMISSION

Regular admission requires a grade-point average of at least 3.00 on all previous course work and a score of 500 or higher on both the quantitative and verbal sections of the Graduate Record Examination (GRE) General Test. If the requirements are not met but there is compelling evidence of superior ability, the conditional admission may be granted. Regardless of the admission status, all students are expected to maintain a grade-point average of at least 3.00. Applicants are encouraged to discuss their plans with a faculty member and to submit a personal letter with the application describing their interests in instructional design and any additional information that may be helpful in the admissions process.
Applications for admission must be received by May 1 for fall semester, October 1 for spring semester, and March 1 for summer session. Admission decisions are announced approximately one month after the application deadlines.

REQUIREMENTS
Course work required for the degree includes the core of the M.A. program or equivalents, five research-related courses, and 18 semester hours in one area of specialization: classroom instruction, computer applications, instructional development, training and human resource development, or media production. In addition, the student must complete 6 semester hours of course work in a cognate area outside the College of Education. Students who have not had previous experience in designing instruction or training are required to complete a practicum.

The program culminates with the completion of a final project and a six hour set of comprehensive examinations based on courses in the core, research, and specialization area. The examinations are divided into two or three parts: general instructional design, 2-3 hours; area of specialization, 2-3 hours; other, O or 2 hours.

Doctor of Philosophy
The Ph.D. program in instructional design and technology provides a broad background for persons interested in teaching, research, and leadership positions. The 90-semester-hour program emphasizes the acquisition of knowledge and skills needed to expand the understanding of instruction and training and their effects on learning and performance.

ADMISSION
Basic requirements are a grade-point average above 3.20 on previous course work and a score of 500 or higher on both the quantitative and the verbal sections of the Graduate Record Examination (GRE) General Test. Other factors considered are the nature of previous course work and experience, language proficiency, and letters of recommendation. Applicants must include a personal letter with the application, describing their interests in the instructional design field, the Iowa program, and any additional information that may be pertinent. Potential applicants are strongly encouraged to discuss their plans with a faculty member.

Applications for admission must be received by May 1 for fall semester, October 1 for spring semester, and March 1 for summer session. Admission decisions are announced approximately one month after the application deadlines.

REQUIREMENTS
Course work required for the degree includes the core of the M.A. program or equivalents, five research-related courses, and 18 semester hours in one area of specialization: instructional development, computer applications, or training and human resource development. In addition, students must complete 9 semester hours of course work in a cognate area outside the College of Education.

Near the end of the course work requirements, students must submit a formal paper that reflects their ability to organize and present a topic at the conceptual level expected for the dissertation. The completed paper must be approved by a faculty committee before the comprehensive examination may be taken. All students must successfully pass a nine-hour set of comprehensive examinations that cover the core, including the research-related courses, and the area of specialization. The examinations are divided as follows: general instructional design, 3-5 hours; area of specialization, 3-4 hours; other, O or 3 hours.

The program culminates with the successful preparation and defense of a dissertation.

Financial Aid
The division normally employs several advanced graduate students as teaching, research, and production assistants. The appointments are typically half-time for the academic year, and holders are permitted to carry a study and/or research load of up to 12 semester hours per semester. Candidates should address inquiries to the chair of the division.

Other types of graduate assistantships are supported by the Iowa Testing Programs. Duties are varied, including responsibilities such as test development and data analysis. There are also other assistantships supported by the Iowa Testing Programs that are not specific to the programs cited above. Inquiries should be directed to the program directors.

Courses

Psychology, Measurement, Statistics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>TP-25</td>
<td>Elementary statistics and inference</td>
<td>3 s.h.</td>
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<tr>
<td>TP-50</td>
<td>Cross cultural psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-75</td>
<td>Educational Psychology and Measurement Principles of cognitive and social development, learning, memory, problem solving, individual differences, testing, classroom management; their relationship to education.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-80</td>
<td>Psychology of Academic Learning</td>
<td>3 s.h.</td>
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<tr>
<td>TP-101</td>
<td>Methods of Student Assessment</td>
<td>3 s.h.</td>
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<tr>
<td>TP-102</td>
<td>Human Intelligence</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-106</td>
<td>Child Development</td>
<td>3 s.h.</td>
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</tbody>
</table>

Psychological and Quantitative Foundations . Education 329
7P:150 Introduction to Educational Measurement 3 s.h.
Test development procedures, reliability, validity, item writing, evaluation of item characteristics and test batteries; interpretation of scores from standardized achievement and aptitude tests; no background in statistics assumed.

7P:155 Survey Research and Design
Same as 7E:170.

7P:160 Standardized Testing and Public Policy
Analysis of the history and current status of psychometric models of test bias and fair selection; standards developed by professionals for test use; court decisions, federal legislation, administrative guidelines, selection and educational assignment. Prerequisite: 7P:257 or equivalent.

7P:165 Introduction to program Evaluation 3 s.h.
Models, designs, data collection techniques that guide program evaluation; current issues, controversies.

7P:169 Introduction to Personality
Theory and research on individual differences in personality; attention to role of personality in learning and cognitive performance.

7P:170 Introduction to Psychology of Reading 3 s.h.
Psychological and linguistic analysis of the reading process; implications for teaching methods, materials; factors related to reading performance.

7P:176 Psychology of Writing 3 s.h.
The writing process compared and contrasted with speaking, listening, reading, research, theoretical models of the writing process, writing and thinking, impediments to writing, facilitating writing, writing instruction, computers in writing instruction, writing, evaluating writing; emphasis on psycholinguistic and psychological fundamentals necessary for understanding current research and practice; introductory course for advanced undergraduate or graduate students.

7P:181 Introduction to Theories of Learning 3 s.h.
Role of learning theories in psychology and education; types of theories; overview of theories, past and present, as they relate to teaching.

7P:185 Introduction to Consulting in Education 2-3 s.h.
Consultation research and practice applied to educational settings; of students in preschool through college; program areas offering consultation services. Same as 7E:185, 7E:185.

7P:193 Special Readings and Projects arr.
Supervised individual study. Senior standing and consent of instructor required.

7P:195 Topics in Psychological and Quantitative Foundations arr.
Selected topics in any area of psychological and quantitative foundations offered according to interest and demand.

7P:196 Multicultural and Bilingual Concepts and Educational Systems 3 s.h.
Same as 7E:195.

7P:202 Cognitive Development 3 s.h.
Advanced topics in human abilities; emphasis on information-processing research and theories of abilities and ability development. Prerequisite: 7P:102, 7P:143, and 7P:257; or consent of instructor.

7P:206 Advanced Child Development 3 s.h.
Theories of behavioral development; analysis of current controversies in the field; the school as a context for development. Prerequisite: 7P: 106 or equivalent.

Same as 7E:245.

7P:209 Neuropsychology of Learning Seminar 3 s.h.

7P:210 Social Psychology of Disability 3 s.h.
Advanced research and research exemplifying social psychology of disability; issues in mental/physical disability from individual, societal perspective; emphasis on clarifying research, theoretical strategies in psychology of disability. Doctoral student standing and consent of instructor required. Same as 70:250.

7P:220 Educational Research Methodology Procedures for planning, conducting, reporting research; evaluation of current methods in educational research. Prerequisite: 7P:143.

7P:223 Introduction to Counseling psychology Practice/Research 3 s.h.
Laboratory-based course; learning and performance of basic helping skills; integration of these skills with counseling theories and broader counseling strategies.

7P:225 Introduction to Counseling Psychology Practice/Research II 2 s.h.
Historical, theoretical, professional, scientific traditions associated with counseling psychology; focus on developing a research orientation to the field.

7P:231 Adult Development and Learning 3 s.h.
Research and theory on adult development and learning between ages 30 and 60; emphasis on direct implications for applications to education and training. Same as 7W:231.

7P:235 Multicultural Counseling 3 s.h.
Today's multicultural counseling issues; theoretical, practical aspects of the counseling process; implications for interventions in diverse populations. Prerequisite: introductory course in counseling skills.

7P:236 Topics in Multicultural Counseling 3 s.h.
Cultural identity development and adaptation; acculturation and assimilation; same experience of diverse groups in Western Society; implications for counselors and psychologists. Prerequisite: 7P:235 or consent of instructor.

7P:243 Intermediate Statistical Methods 3 s.h.
Foundations 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: 7P:143 or equivalent. Same as 22S:148.

7P: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: 7P:243 or equivalent. Same as 22S:177.

7P:245 Application of Multivariate Statistical Techniques 4 s.h.
Multivariate analyses of variance, discriminant analysis, factor analysis; use of multivariate statistical computer packages. Prerequisites: 7P:244 and 7P:246, or equivalents. Same as 22S:161.

7P: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. Prerequisites: 7P:243 or equivalent. Same as 22S:159.

7P: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 relationship to classical parametric procedures. Prerequisites: 7P:245 or 22S:120 or consent of instructor. Same as 22S:163.

7P: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: 7P:252 or equivalent or consent of instructor.

7P: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: 7P:243 or equivalent, and elementary knowledge of computer programming.

7P: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: 7P:244 or consent of instructor.

7P: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, questionnaire packages; development and evaluation of instrument development and evaluation of instrument characteristics. Prerequisites: 7P:143 and 7P:150, or equivalent.

7P:257 Educational Measurement and Evaluation Using Standardized Instruments 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. Prerequisite: 7P:143 or equivalent.

7P:258 Theory and Technique in Educational Measurement 3 s.h.
Mathematical theories underlying educational and psychological measurement; nature and use of item data, estimation of test reliability and validity, derivation of norms, scaling, equating test batteries. Consent of instructor required. Prerequisites: 7P:243 and 7P:257, or equivalent.

7P:259 Scaling Methods 3 s.h.
Unidimensional and multidimensional scaling techniques; introduction to available computer programs for data analysis; applications in educational and psychological research. Prerequisite: 7P:243 or recommended. Recommended: 7P:249.

7P: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 program development. Prerequisites: 7P:243 and 7P:257.

7P:265 Program Evaluation Theoretical and practical considerations in evaluation of educational, social programs; evaluation design, methodology; meta-evaluation; evaluation utilization. Prerequisites: 7P:150 and 7P:143, or equivalents.

7P: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 and learning. Prerequisite: 7P:169 or equivalent.

7P: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. Consent of instructor required.

7P:282 Cognitive Processes in School Learning 3 s.h.
Theoretical and empirical research investigating the cognitive processes involved in school learning, including reading, writing, mathematics, specific subject matter. Prerequisites: introductory course in learning and 7P:131, or equivalent.

7P:283 Cognitive Development 3 s.h.
Information processing and neuro-physiological theories of cognitive development and their educational implications; individual differences in cognitive development.

7P:285 Advanced Theories of Motivation 3 s.h.
Characteristics and practical implications of current theories in human motivation; discussion of motivation and assessment concerns, individual differences, intervention strategies, theory refinement and integration. Prerequisite: 7P:111 or consent of instructor.

7P:292 supervised Research in Educational Psychology I-3 s.h.
Faculty-guided research activity or seminars on identification of research problems, development of research designs and materials, the conduct of research studies. Consent of instructor required.

7P:293 Individual Instruction in Psychological and Quantitative Foundations arr.
Consent of instructor required.

7P:305 Psychotherapy I: Dynamic and Phenomenological Approaches 3 s.h.
Major psychodynamic and existential-phenomenological theories of personality; emphasis on implications for psychotherapy.

7P:310 Psychodiagnosics 3 s.h.
Major psychometric instruments in normal and abnormal personality measurement; emphasis on integrating demographic, interview, psychometric data into a coherent conceptualization of client dynamics and functioning; for Ph.D. students. Consent of instructor required.

7P:320 History and Systems of Psychology 3 s.h.
Philosophical underpinnings of psychology, early systems in psychology, and developments in the twentieth century.

7P:331 Seminar: Educational Psychology I: Current Topics arr.
Intensive investigation of a specific research topic from the educational psychology field. Consent of instructor required.
TP:232 Seminar: Educational Psychology II 3 s.h. Consent of instructor required. Psychological issues in the psychology of learning and cognition that have implications for understanding teaching and learning. Consent of instructor required.

TP:334 Seminar: Educational Psychology IV 3 s.h. Consent of instructor required. In-depth examination of selected topics in motivation. Consent of instructor required.

TP:356 Seminar: Educational Psychology VI 3 s.h. Preparation for responsibilities in school and clinical practice. Major cognitive and behavioral theories of personality and psychotherapy; emphasis on Implications for clinical practice.

TP:357 Seminar in Counseling Psychology 3 s.h. Advanced knowledge of the state of process and outcome research on psychotherapeutic procedures. Ph.D. candidacy appropriate field required.

TP:365 Psychotherapy II: Cognitive and Behavioral Approaches 3 s.h. Advanced knowledge of the state of process and outcome research on psychotherapeutic procedures. Ph.D. candidacy appropriate field required.

TP:375 Topics in Educational Measurement and Evaluation 1-3 s.h. May be repeated. Critical examination of current issues and problems of the professional worker in the field of educational measurement and evaluation as reflected in the research literature and other professional communication media.

TP:380 Practicum in College Teaching 3 s.h. Supervised college teaching experience in courses related to major academic areas, in collaboration with faculty instructor teaching such courses.

TP:393 M.A. Thesis in Psychological and Quantitative Foundations 1-6 s.h. Consent of instructor required. Fieldwork component for master's thesis.

TP:394 Supervised Research in Counseling Psychology 1-3 s.h. Supervised research in counseling services. May be repeated. Consent of instructor required.

TP:434 Practicum in Counseling Psychology 3 s.h. Supervised practice in counseling services. May be repeated. Consents: TP:223 and TP:225, or equivalent; and consent of instructor.

TP:450 Practicum in Program Evaluation 3 s.h. Supervised experiential design and implementation of components of program evaluations. Consent of instructor required. Prerequisites: Two courses in program evaluation, including TP:265.

TP:453 Advanced Practicum in Counseling Psychology 3 s.h. Supervised work in counseling services. May be repeated. Prerequisites: TP:434 or equivalent, and consent of instructor.

TP:455 Generalizability Theory 2 s.h. Application of analysis of variance methods and general linear model to estimate components of measurement error variance, basic concepts, models, assumptions, interpretation of components. Prerequisite: TP:246 or 22S:159 or equivalent.

TP:465 Issues and Ethics in Professional Psychology 3 s.h. Professional ethics; issues in professional practice of psychology.

TP:493 Ph.D. Thesis in Psychological and Quantitative Foundations 1-6 s.h. Consent of instructor required.


7P:224 Preparacticum in School Psychology 3 s.h. Preparation for responsibilities in school and clinical practice.

Instructional Design Technology 7W:91 Audiovisual Equipment for Instruction 3 s.h. Operation of audiovisual equipment most frequently available to the classroom teacher; still and motion picture projector, audio cassette and video cassette recorder, duplicator, laminator, dry mount press.

7W:92 Introduction to Microcomputing for Teachers 1 s.h. Operation and applications of microcomputers in schools; evaluation and selection of application programs; applications including CAI (tutorials, drills, in BASIC, games, tests) and tools (word processors, spreadsheets, database systems).

7W:105 Design and Production of Media for Instruction 3 s.h. Basic techniques in production of black and white photographs, traditional and computer graphics, audiotapes, videotapes, computer-assisted instruction, other media used in design of instructional materials.

7W:107 Psychological Bases of Instructional Design 3 s.h. Effect of adjunct materials, pacing and organizational structure, graphic materials, testing and grading, presentation mode, learning styles, group size and organization; physical factors such as light and temperature. Same as TP:107.

7W:120 Introduction to Instructional Design 3 s.h. Principles, techniques for designing instructional and training programs, instructional strategies, learner and course evaluation.

7W:121 Designing and Developing Instructional Materials 3 s.h. Basic skills: traditional and computer graphics techniques; selection and evaluation criteria. Same as 50:161.

7W:125 Introduction to Distance Education 3 s.h. Print, audio, video, computer delivery systems; focus on applications, instructional designs, future developments. Same as TH:125.

7W:130 Photography for Instruction 3 s.h. Planning, production of instructional materials using black and white photographic techniques and color slides; basic skills; selection and evaluation criteria.

7W:134 Instructional Videotape Production 3 s.h. Planning and production of videotaped units for instructional applications; operation of VTR equipment, lighting, sets, scripting editing, graphics for videotape production; selection and evaluation criteria and guidelines for diffusion; practical experience in working with professional clients.

7W:135 Computer Applications for Instruction 3 s.h. Use of tools, general application software for education; theory evaluation, development of basic instructional software (computer assisted instruction).

7W:139 Beginning Computer Graphics 3 s.h. Two and three-dimensional line graphics; first part of course is devoted to computer programming in BASIC, second part deals with simple two and three-dimensional graphic concepts including scaling, rotation, translation, perspective.

7W:151 CAI Authoring Tools 3 s.h. Programming and authoring tools for computer assisted instruction; may include Authorware Professional for Windows, Plus, Hypercard, Toolbook. Prerequisite: 7W:135.

7W:180 Special Topics in Instructional Design and Technology 3 s.h. Areas of special interest for selected groups; content varies.

7W:193 Independent Study for Undergraduates and Non-Majors 1 s.h. Opportunity for students to investigate areas of their concern. Consent of instructor required.

7W:200 Needs and Task Analysis 3 s.h. Principles, strategies for determining organizational needs related to human performance; analysis of jobs, tasks. Consent of instructor required. Prerequisite: 7W:120.

7W:209 Development of CAI 3 s.h. Application of learning theory and authoring tools to the design, development, evaluation of computer assisted instruction. Consent of instructor required. Prerequisite: 7W:135.

7W:220 Advanced Instructional Design 3 s.h. The instructional design process; focus on designing, developing, delivering, evaluating an instructional solution to a human performance problem. Consent of instructor required. Prerequisite: 7W:120.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
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<tr>
<td>7W:222</td>
<td>Instructional Strategies</td>
<td>3 s.h.</td>
<td>Review of the literature on instructional strategies, including large- and small-group activities. PSI and case studies with emphasis on issues related to design, selection, evaluation. Prerequisite: 7W:120 or consent of instructor.</td>
</tr>
<tr>
<td>7W:225</td>
<td>Computer-Managed Instruction</td>
<td>3 s.h.</td>
<td>Design and development of microcomputer software for delivery of instruction, diagnostic testing, resource management. Topics include routing, selection, presentation of instruction, human factors, data collection and management, test construction, classroom logistics. Consent of instructor required. Prerequisites: 7W:135 and 7W:151.</td>
</tr>
<tr>
<td>7W:231</td>
<td>Adult Development and Learning</td>
<td>3 s.h.</td>
<td>Research on adult development, learning ages 30-60+. Emphasis on implications for applications to education, training, same as 7P:231.</td>
</tr>
<tr>
<td>7W:234</td>
<td>Advanced AI Development</td>
<td>3 s.h.</td>
<td>Theory and development of multimedia programs that use videodisc, CD-ROM, computer animation, digital audio. Emphasis on team-development of software. Consent of instructor required. Prerequisite: 7W:209.</td>
</tr>
<tr>
<td>7W:235</td>
<td>Advanced Topics in AI</td>
<td>3 s.h.</td>
<td>Analysis of current research and development activities in computer-based instruction. Prerequisites: 7P:220 and 7W:135.</td>
</tr>
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<td>7W:245</td>
<td>Instructional Computer Simulations</td>
<td>3 s.h.</td>
<td>Theory and development of computer-based simulations, games; research on design characteristics and effectiveness; design, development, evaluation of simulation software by student teams. Consent of instructor required. Prerequisite: 7W:234.</td>
</tr>
<tr>
<td>7W:263</td>
<td>Consultation Theory and Practice</td>
<td>2-3 s.h.</td>
<td>Analysis of consultation theories and practices from the related fields of instructional design, counseling, school psychology. Prerequisite: 7W:120. Same as 7C:263, 7P:263.</td>
</tr>
<tr>
<td>7W:291</td>
<td>Independent Study: Instructional Design for Majors</td>
<td>Arr.</td>
<td>Students investigate areas of their concern. Consent of instructor required.</td>
</tr>
<tr>
<td>7W:366</td>
<td>Organizational Development and Change</td>
<td>3 s.h.</td>
<td>Program development and change or grant writing; includes theory, research, applications. May be repeated. Same as 7C:366, 7P:366.</td>
</tr>
<tr>
<td>7W:370</td>
<td>Practicum in Instructional Design and Technology</td>
<td>Arr.</td>
<td>Supervised experience in an applied setting.</td>
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<tr>
<td>7W:371</td>
<td>Internship in Instructional Design and Technology</td>
<td>Arr.</td>
<td>Supervised administrative and other nonteaching experience in public schools, social agencies, higher education, or industry. Consent of instructor required.</td>
</tr>
<tr>
<td>7W:387</td>
<td>Topical Seminar in Instructional Design and Technology</td>
<td>Arr.</td>
<td>May be repeated.</td>
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<tr>
<td>7W:391</td>
<td>M.A. Project in Instructional Design and Technology</td>
<td>Arr.</td>
<td>Project for the M.A.</td>
</tr>
<tr>
<td>7W:393</td>
<td>M.A. Thesis in Instructional Design and Technology</td>
<td>Arr.</td>
<td>Consent of instructor required.</td>
</tr>
<tr>
<td>7W:395</td>
<td>Ed.S. Project in Instructional Design and Technology</td>
<td>Arr.</td>
<td>Consent of instructor required.</td>
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College of Engineering

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Dean: Richard K. Miller
Associate dean, research and graduate studies:
A. Jacob Odgaard
Associate dean, academic programs:
John P. Robinson
Assistant to the dean: Norlin W. Boyd
Director, Center for Computer-Aided Design:
Edward J. Haug
Acting director, Institute of Biomedical Engineering: Vijay K. Goel
Director, Institute of Hydraulic Research:
Virenda C. Patel

Degrees: B. S. E., M. S., Ph.D.
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 coupled with a full understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares young 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 has two major responsibilities. The first is to provide high-quality undergraduate engineering programs by maintaining contemporary engineering curricula and laboratories, as well as support services such as academic advising and engineering career counseling.

The second responsibility is to provide graduate programs in modern areas of engineering that lead to the Master of Science and Doctor of Philosophy degrees. Graduate education involves intensive research activities of a creative nature that are expected to result in original contributions to the literature at the Ph.D. level.

Programs

The College of Engineering offers programs leading to the Bachelor of Science in Engineering (B.S.E.) degree in the major fields of biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering. Programs leading to the Master of Science and Doctor of Philosophy degrees are offered in the fields of biomedical engineering, chemical and biochemical engineering, civil and environmental engineering, electrical and computer engineering, industrial engineering, and mechanical engineering.

Any of the undergraduate programs offered by the College of Engineering may be combined with a program leading to a bachelor’s degree in the College of Liberal Arts, an M.B.A. degree in the College of Business Administration, and a second bachelor’s degree in the College of Engineering. In addition, a combined bachelor’s-master’s degree program is available through each of the engineering majors and the Graduate Program in Urban and Regional Planning (see “Urban and Regional Planning” in the College of Liberal Arts section of the Catalog). These combined degree programs usually may be completed in about five years. In addition, a minor in the College of Business Administration or a minor or minors in any degree-granting department may be approved by the student’s major college. Any of the undergraduate programs may be combined with any of the undergraduate programs offered by the College of Engineering.

The bachelor’s degree programs in biomedical, chemical, civil, electrical, industrial, and mechanical engineering are accredited by the Accreditation Board for Engineering and Technology (ABET).

Undergraduate Programs

Academic Recognition

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. Honors students may participate in a collegewide honors seminar with faculty and other honors students. Junior and senior engineering students with college and cumulative grade-point averages of 3.30 and higher are eligible to apply to the program. Successful completion of departmental requirements leads to a B.S.E. with honors, which is recorded on the student’s University academic record.

Freshman and sophomore students interested in honors are encouraged to participate in the University Honors Program, which provides access to all of the services offered by the Shambaugh House Honors Center. Students also are encouraged to join the Association of Iowa Honors Students, which sponsors a variety of social and educational activities each year.

Engineering students are the second largest collegiate group in the University Honors Program.

For more information or to apply, contact the Office of the Dean, College of Engineering.

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 and approved by a selected honors committee and the director of the honors program.

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 averages for all college-level study undertaken up to their final registration.

To be eligible for this form of recognition, students must take their final 60 semester hours of study in residence at the college and must have completed at least 45 semester hours of study in the college before their final registration. Students in the combined engineering/liberal arts program are eligible for this recognition regardless of the college in which they complete their residency requirements.

President’s List

Students who earn a 4.00 grade-point average for two consecutive semesters (excluding summer sessions) on at least 12 or more semester hours of graded work, with no 1 or O grades standing on the current or past semester’s record, are recognized by inclusion on the president’s list.

Dean’s List

Engineering students who achieve grade-point averages of 3.50 and above during a given semester on 12 or more semester hours of graded work, with no 1 or O grades standing on the current or past semester’s record, are recognized by inclusion on the dean’s list for that semester.

Degree Requirements

The Bachelor of Science in Engineering (B.S.E.) degree requires a minimum of 128 semester hours of credit, including satisfaction of the specific requirements of the engineering program as described in the following sections. Candidates for the B.S.E. degree must be enrolled in the College of Engineering for at least the last 30 semester hours, or 45 of the last 60 semester hours, or a total of 90 semester hours. They must have a 2.00 minimum grade-point average on all college work used to satisfy the degree requirement as well as on all work undertaken at The University of Iowa. In addition, candidates must have completed 22M:35 Engineering Calculus I and 22M:36 Engineering Calculus II, or their equivalents, with a grade of C- or better in each course.

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 must file another application for a degree for the next applicable session. Students do not need to be registered to apply for a degree.

Admission Requirements

To qualify for admission to the College of Engineering as a freshman, Iowa resident 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, one-half year of trigonometry, and one-half year beyond trigonometry; 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; completed the ACT standardized test with a composite standard score of 24 or above and a standard score of 24 or above in mathematics (or equivalent SAT scores); and ranked in the upper one-half of their high school graduating class.

One-half year of a high school computer programming course is highly recommended. Nonresident freshman applicants must have completed the same high school requirements as required and recommended for resident applicants, and must have: completed the ACT standardized test with a composite score of 25 or above and a mathematics score of 25 or above (or equivalent SAT scores); and ranked in the upper 30 percent of their graduating class.

Transfer applicants must complete the same high school course requirements as entering freshmen and must submit an official high school transcript as well as a transcript of college work undertaken at other institutions. Each transfer applicant must have: completed at least one semester of calculus or its equivalent, and at least one semester of chemistry or physics for engineering and science majors; and maintained at least a 2.25 cumulative grade-point average. Freshman and transfer applicants who do not meet the foreign language requirement may be admitted on a conditional basis for a maximum of four regular semesters in order to complete two semesters of an introductory, college-level foreign language.

Students who do not meet the other high school course requirements may be admitted upon special review by the College of Engineering, and 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 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:9 Elementary Functions before enrolling in the first engineering calculus course.

Courses taken at The University of Iowa to make up deficiencies do not count toward graduation. For more information about making up specific unit deficiencies, consult with the assistant to the dean. Fulfillment of the minimum requirements for admission does not ensure admission to the College of Engineering. The college selects applicants who appear to be best qualified for the study and practice of engineering.

Undergraduate Curriculum

The faculty of each engineering program has established a set of required and elective courses that must be satisfactorily completed as part of the requirements for a degree in that program. The established set of courses is known as the curriculum for that program. General guidelines for establishing the course requirements in each program are provided by the national accrediting body, the Accreditation Board for Engineering and Technology (ABET). The purpose of the curriculum in each program is to prepare students for the practice of engineering in that program.

Curriculum Stems

The curriculum for each program is divided into four major curriculum stems: mathematics and basic sciences; engineering sciences; engineering design; and humanities and social sciences. In addition to the four major stems, there are a few general background courses that fall outside of the stems. These courses are scheduled in the freshman year. They include Engineering I and II and Rhetoric, which is a freshman course in writing, speaking, and critical reading. The Engineering I and II courses cover a breadth of topics from engineering as a profession to computer-aided graphics. All of the courses in the curriculum stems are sequenced to develop meaningful patterns so that students better 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 two in chemistry and physics. The faculty of each engineering program has specified at least one additional mathematics or science course beyond these minimum requirements that provides a base appropriate for that major.

Engineering Sciences

The second curriculum stem, engineering sciences, builds upon the math and science stem in order to bridge from fundamental principles to applications and creative practice. The engineering sciences 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 statics, thermodynamics, and electrical circuits, as well as other engineering courses relevant to each major.

Engineering Design

Engineering design, the third curriculum stem, 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 impact.

Because of the need to utilize a spectrum of basic and applied subject matter, which involves course work taken early in the curriculum, the design courses and activities usually begin in the junior year and end with a capstone course or activity in the senior year.

Humanities and Social Sciences

The fourth stem involves course work in the humanities and social sciences. This stem serves to engender an appreciation for and understanding of society and culture.

Freshman and Sophomore Years

Approximately one-half of the course requirements in each engineering program are common to all engineering majors. These common course requirements constitute a core program. Most of the courses in the core program are scheduled in the freshman and sophomore years, along with a few program-specific courses. Hence, students generally may postpone making a decision about which engineering major to pursue or may change their engineering major through the freshman year with minimal loss of time or credits.

Exceptions to the common freshman year are biomedical engineering and chemical engineering, both of which require a second chemistry lecture course during the second semester of the freshman year. By careful planning, undecided engineering majors may schedule the common courses and postpone the decision about a major until as late as the end of the third semester. However, because of prerequisite sequencing, such delays may result in an extra semester or a summer session. The curriculum for each engineering program is listed in the sections devoted to each major in this section of the Catalog.

The following are freshman-year courses that are common to all engineering curricula. (Not all students complete all of these courses in the freshman year.)

First Semester

4:13 Principles of Chemistry I 3 s.h.
10:3 Accelerated Rhetoric 4 s.h.
22M:35 Engineering Calculus I 4 s.h.
57:5 Engineering I 3 s.h.
Humanities or social science elective 3 s.h.

Second Semester

4:16 Principles of Chemistry Lab I 2 s.h.
22M:36 Engineering Calculus II 4 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
29:17 Introductory Physics I 4 s.h.
57:6 Engineering II 3 s.h.

Course 4:14 Principles of Chemistry II is recommended during the second semester for students who are biomedical or chemical engineering majors. Students in these majors usually postpone taking 22M:40 Matrix Algebra for Engineers until the first semester of the sophomore year. Students pursuing a major in industrial engineering should review the social science requirement specified for that major before selecting any social science courses.

The above list of courses that art common for all the engineering majors assumes that entering freshmen qualify for the advanced rhetoric class, 10:3. Students who do not meet the eligibility requirement for 10:3 are required to complete the two-course sequence 10: I-2 Rhetoric, for a
total of 8 semester hours. However, only 4 semester hours may be applied toward the
degree requirement for rhetoric.

Credits earned for courses below the level of
the requirements specified in each
course are offered only once a year.

Students pursuing three semesters of courses
common to all majors may encounter a delay in
graduation because of scheduling problems for
program courses, and following an introductory-level course,

Third Semester

22M:41 Differential Equations for
Engineers 3 s.h.
29:18 Introductory Physics II 4 s.h.
57:7 Statics 2 s.h.
57:8 Electrical Circuits 3 s.h.
57:9 Thermodynamics I 3 s.h.

Students selecting a major in this program
should consult “Industrial Engineering” in this
section of the Catalog for their required sciences
courses.

Courses that are primarily mathematical or
scientific in nature and those that are designed
specifically to develop introductory language
skills or speaking, writing, artistic, or music
skills are not acceptable as science or humanities
electives even though they are offered through departments listed below.

Humanities electives may be selected from any
of the following departments and schools:

American Studies; Art History; Classics; Asian Languages
and Literature; Theatre Arts; English; History;
Literature, Science, and the Arts; Music;
Philosophy; Religion; Linguistics; or others
approved by the curriculum committee of the
College of Engineering.

Following an introductory-level course, students
select a minimum of 3 semester hours of
advanced (100-level) course work to secure

sufficient depth of knowledge in an elected
subject of study. This advanced course work
must be in the same department as the
introductory course unless prior approval has
been obtained from the curriculum committee
of the College of Engineering. Language courses
do not satisfy any of the humanities
requirements unless the courses are at or
beyond the second-year level.

Social science electives may be selected from
the following departments and schools:
Anthropology, Urban and Regional Planning,
Economics, Geography, Political Science,
Psychology, Sociology, Journalism and Mass
Communication, Social Work, or others
approved by the curriculum committee of the
College of Engineering. To ensure an adequate
depth of knowledge in a chosen area of study
and following an introductory-level course,
students select a minimum of 3 semester hours of
advanced (100-level) course work. This
advanced course work must be in the same
department as the introductory course unless
prior approval has been obtained from the
curriculum committee of the College of
Engineering.

Combined Engineering/
Liberal Arts Program

Students may earn two University of Iowa
baccalaureate degrees in a combined program in
the Colleges of Engineering and Liberal Arts.
Successful candidates are awarded a B.S.
(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.

Students in this 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 advisers, one in their major department
in the College of Engineering and the other in
their major department in the College of Liberal
Arts.

To enter the combined degree program,
students must be eligible for admission to the
College of Engineering. Interested students
should schedule an appointment with the
assistant to the dean of the College of
Engineering. Students must be approved for
candidacy in the combined degree program by
the College of Engineering and must be
admitted to both the College of Engineering and the College of Liberal Arts.

Students who enter the program are required to
complete the General Education Requirements
and the requirements for the major in the
College of Liberal Arts. Liberal arts high school
course or unit requirements for admission apply
to combined degree program applicants.

It is crucial that students enroll in the proper
mathematics course early in
their course of study to expedite the completion of
their program. The specific engineering
courses taken by students varies according to
the engineering major selected. Since courses in
natural sciences, mathematics, humanities, and
social sciences are accepted regularly for credit
by both colleges, in many cases students satisfy
the requirements of both colleges by taking a
particular course.

To qualify for both degrees in the combined
degree program, candidates must complete an
overall total of 158 semester hours of credit,
including at least 30 semester hours of courses
offered by the College of Engineering and at
least 30 semester hours of courses offered by
the College of Liberal Arts.

Combined College of
Engineering/M.B.A.
Program

An Accelerated Professional Track (APT)
program has been initiated by the College of
Business Administration for superior engineering
students who want to begin their M.B.A.
studies while finishing their undergraduate
degree. Engineering students with interest and
competence in the applied sciences and business
administration may enhance their managerial
career opportunities through the APT.

This program allows superior undergraduate
students to enroll in required M.B.A. course
work during their junior and senior
undergraduate years. Students may complete up
to one-half of the M.B.A. curriculum while
undergraduates and go on to receive an M.B.A.
with just one year of graduate study.

To qualify for the APT program, students must
have completed two years of engineering study,
earned a 3.50 minimum grade-point average and
indicated their intent to pursue both degree
programs simultaneously on a full-time basis.

Admission to the APT program does not
guarantee admission to the Graduate College.
However, since the undergraduate admission
requirements are very high and the undergraduate
curriculum demanding, it is
anticipated that admitted students will readily
qualify for admission to the graduate M.B.A.
program upon application.

APT students are required to work in
cooperative education or summer internships
but may petition to fulfill this requirement with
previous work experience. This professional
employment experience with private industry is
considered to be an important part of the APT
program and generally takes place the summer
following the spring conferral of the engineering
degree.

The M.B.A. curriculum is designed for
upper-level students; no previous course work
in business is required. The program consists of
36 semester hours of core material, 12 semester
hours of concentration courses, and 12 semester
hours of free elective credit. A total of 60
semester hours is required for the M.B.A.
degree, of which 30 may be completed before
the bachelor’s degree is awarded. Depending
upon the engineering major selected, at least 9
semester hours of required course work in the
engineering curriculum can be completed with
M.B.A. courses (6N:213, 6N:228, and one or
more additional courses as approved by the
engineering major department).
Engineering students are assigned a major adviser in the College of Engineering. Upon acceptance into the APT program, advising for M.B.A. course work is provided by College of Business Administration staff. Coordination of the combined degree program for APT students is provided by the assistant to the dean of the College of Engineering and the associate dean of the College of Business Administration.

**Combined B.S. in Engineering/M.S. or M.A. in Planning**

A program combining a bachelor's degree in engineering with a master's degree in urban and regional planning has been developed for students who want 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.

Planners devise courses of action in response to a variety of problems and opportunities and assess the likely outcome of these actions. They are involved in diverse fields such as public transit, low-income housing, neighborhood preservation, environmental protection, infrastructure finance, downtown revitalization, social services, and economic development.

Students in the program may acquire a B.S. in engineering and an M.A. or M.S. in planning in a total of five or more academic years. Students should apply for the joint program either when they apply for admission to the College of Engineering or before they complete their sophomore year following matriculation. A letter requesting admission to this program should be submitted by the student to the College of Engineering.

As with the combined engineering/M.B.A. program, admission to this program does not guarantee admission to the Graduate College, which is required in order to complete the degree requirements in the planning program. Hence, students in this combined degree program should be aware of the admission requirements for the graduate planning program and be prepared to meet these requirements when they apply for admission to the program (near the time when they are completing the B.S.E. degree requirements).

The curriculum is based on the philosophy that planners must develop the theoretical and analytical skills that permit them to identify issues and recommend alternate ways of resolving these issues. In addition, planners must develop the professional skills (e.g., report writing, presentations and briefings, computer literacy, team management) that allow them to function effectively in various organizational and political environments. Students become well versed in topics such as economic theory, quantitative methods, information presentation techniques, and approaches to citizen involvement.

At the heart of The University of Iowa planning program is an integrated core curriculum. Its purpose is to provide a rigorous foundation for the analysis of public and social issues. The core program is completed by engineering students in the last two years of the undergraduate program. Sectoral majors (areas of concentration) are organized around public policy problem areas. They include transportation, housing and community development, environmental quality, urban infrastructure, and economic development. Students fulfill the sectoral major requirement by completing 9 semester hours of credit in courses offered by various departments and schools of the University, including the graduate planning program and the College of Engineering. They complete these courses after graduating from the College of Engineering and while enrolled in the graduate program in urban and regional planning.

Each student is assigned an adviser from engineering and one from planning. During the first four years of the program, students work primarily with their engineering adviser and the assistant to the dean of the College of Engineering. For the fifth year, students confer with their graduate planning adviser.

**Two Bachelor's Degrees in Engineering**

Recent College of Engineering graduates and current students may earn two bachelor's degrees in engineering. The requirements for the second degree are to complete, with a 2.00 minimum grade-point average, at least 30 additional semester hours of residence course work beyond the requirements of 128 semester hours for the first degree program. The additional semester hours must include all courses required by the program selected for the second degree, including the senior-level design course sequence of the second degree program as well as any specific social science elective requirements. The technical electives selected for the second degree program 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 plan of study, which must be approved by the faculty of the second degree program and submitted to the office of the dean, before they may initiate course work in the second degree program. The proposed academic plan of study 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. The approved plan must be submitted to the office of the dean and placed in the student's permanent file before the student begins course work in the second program. Any changes in the plan must be approved by the student's faculty adviser in the second program and by the department chair of that program (the college petition form may be used for this purpose) and submitted to the office of the dean for inclusion in the student's permanent file.

**Minors**

While fulfilling degree requirements in engineering, undergraduate students also may fulfill requirements for a minor in the College of Business Administration. A minor or minors in any degree-granting department or approved program in the College of Liberal Arts. 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.

Students must inform the registrar's office of their fulfillment of minor requirements when they apply for a degree. This assures that the minor designation is included on their transcript.

**Minor in Business Administration**

Requirements for this minor are two economics courses (6E:1 and 6E:2), two accounting courses (6A:1 and 6A:2), a marketing course (6M:100), a management course (6F:100), a finance course (6F:100), a computer course (6K:70), and a legal course (6L:47). In addition to these required courses, students usually complete a calculus course, and a probability and statistics course.

Engineering majors satisfy the mathematics and statistics requirements with courses 22M:35 and 22S:39. A 2.00 grade-point average in courses applicable to the minor is required. Students who want to complete a Master of Business Administration degree later should select courses that satisfy M.B.A. requirements.

**Minor in Liberal Arts**

Requirements for this minor are a minimum of 15 semester hours in the minor department, at least 12 of which are in advanced courses at The University of Iowa and acceptable to the department. Students should confer with the minor department to identify acceptable courses. Students must achieve a 2.00 grade-point average in the courses applicable to the minor. Courses to be counted toward the minor may not be taken pass/nonpass.

**Cooperative Education Program**

Cooperative education for engineering students, coordinated by Engineering Career Services, involves the integration of academic work with practical experience in an organized program. Participating students spend alternate periods in full-time academic study on campus and in full-time engineering-related employment in business, industry, or government.

Students can earn a substantial portion of college expenses during the work periods, but the success of the program depends on the work experience having significant educational value as well. This is assured by careful monitoring of the work experience provided by participating employers and by matching student interest and ability to the work situation.

The insight gained by involvement in the practical application of subject matter studied in the classroom usually results in improved motivation during the study periods, with a corresponding improvement in academic record. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the many nontechnical considerations involved in any engineering project.

The co-op phase ordinarily begins during or immediately following the sophomore year and
continues until the beginning of the senior year. The total time for the degree program under this option usually is five years and includes the equivalent of at least one full year of work experience. The program is an option available to qualified students on a voluntary basis.

### Undergraduate Academic Advising Center

Students who are considering engineering but want to explore various fields of study before they declare a specialized major should enroll in the College of Liberal Arts as open majors. They will be assigned an adviser from the Undergraduate Academic Advising Center. With the advisers’ help, students select courses appropriate for the engineering program while they explore other fields of interest. Students meet frequently and regularly with their advisers for the intensive advising support they need as they evaluate their educational alternatives and plan their programs of study. The advisers’ offices are located in Burge Hall and Dey House. For more information, contact the Undergraduate Academic Advising Center.

### Academic Standards

#### Semester Load limit

A normal academic load is about 16 semester hours of course work for a semester, 8 semester hours for a summer session. No student may register for more than 18 semester hours in one semester, or 9 semester hours in a summer session, without permission.

#### Classification of Students

Students in the College of Engineering are classified by the number of semester hours of credit earned applicable to a bachelor’s degree in engineering. Freshman—0 to 29 semester hours Sophomore—30 to 59 semester hours Junior—60 to 89 semester hours Senior—90 or more semester hours

#### Grading System

The college uses a letter grading system with a plus or minus to designate gradations of performance between the letters. The numerical equivalents of the letter grades with the plus and minus options are as follows.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.33</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>D-</td>
<td>0.67</td>
</tr>
<tr>
<td>F (failing)</td>
<td>0</td>
</tr>
</tbody>
</table>

This grading system is used for all students in both undergraduate and graduate engineering courses. Grades of D- are passing grades; that is, courses completed with grades of D- or better count toward collegiate requirements. Grades of A+ have a value of 4.33 in calculating grade-point averages for a student, but the averages displayed in University records will be truncated so they do not exceed 4.00.

#### Academic Probation and Good Standing

Students enrolled in the College of Engineering who fail to attain the following minimum semester and cumulative grade-point averages based on all work taken at The University of Iowa are placed or continued on academic probation.

- Freshman—1.80
- Sophomore—1.90
- Junior—1.95
- Senior—2.00

Students whose semester and cumulative grade-point averages equal or exceed those appropriate to their classification are considered to be in good standing in the college. Students are removed from, or placed on, academic probation only at the end of a semester. Students are not permitted to reregister without specific approval following two consecutive semesters on probation. Students who have not made satisfactory improvement in scholarship may be dismissed from the college; they may petition the assistant to the dean for permission to reenroll after an interval of two regular semesters.

#### Dropping and Adding Courses

Courses may be added with permission of the adviser and the instructor during the first three weeks of the semester or first one and one-half weeks of the summer session. Courses may be dropped with permission of the adviser and the instructor at any time during the first ten weeks of the semester. Only under compelling circumstances may courses be dropped after the tenth week, in which case special approval must be granted by the adviser, the course instructor, and the associate dean. Under no circumstance are students permitted to drop after the beginning of the scheduled final examination period.

#### Limits of Withdrawing from Courses

Undergraduates receive the mark of W for any course dropped after the third 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 as degree candidates to the College of Engineering in fall 1991 and after are limited to an overall maximum of five Ws while they are enrolled in the College of Engineering. Freshmen entering the University directly from high school with no prior full-time college experience are permitted to exclude Ws they receive during their first two sessions of enrollment.

Engineering students admitted before fall 1991 are limited to a maximum of five Ws beginning with their fall 1994 registration. Ws earned by these students before fall 1994 do not count toward the maximum of five.

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 will not be removed from the record. Requests for such exclusions are made to the assistant to the dean.

#### Withdrawal of Registration

Students in good academic standing who withdraw their registration during the final four weeks of a regular semester, or during the final three or two weeks of a twelve- or eight-week summer session, respectively, are not permitted to enroll for the semester immediately following without specific approval from the assistant to the dean.

Students on scholastic probation who withdraw their registration at any time without good cause are considered as having been dismissed for poor scholarship.

Withdrawal cards for students enrolled in the college are signed by the assistant to the dean only upon recommendation by the student’s adviser and department chair.

#### Pass/Nonpass Option

A maximum of two courses taken in the Colleges of Liberal Arts or Business Administration on a pass/nonpass basis may be applied toward satisfaction of the humanities and social sciences requirement. Students who want to take such courses in liberal arts or business administration pass/nonpass must meet the conditions and follow the procedures specified by those colleges. The pass/nonpass option may not be used for courses taken to satisfy the rhetoric requirement.

Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass/nonpass basis under the following conditions:

- the signatures of the adviser and instructor must be obtained on the proper form, and the completed form must be submitted to the registrar 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- or above; the mark of N (nonpass) is given for grades of D+ 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 hours;
- 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

Students may elect to repeat a course with only the new grade being counted in their grade-point average. This option can be elected
only prior to completion of a course for which the repeated course is a prerequisite. The option may be applied to no more than three courses, and it may be applied only once to a given course.

Transfer students may apply the option on a prorated basis. For example, students who transfer no more than 42 semester hours of applicable engineering course work may use this option for a maximum of three courses, while students who transfer between 42 and 86 semester hours of credit may use this option for no more than two courses, and students who transfer 86 or more semester hours may use this option for only one course. Students who want to exercise this option should apply to the assistant to the dean.

Satisfactory/Fail Courses

The noncredit professional seminar courses required in each of the professional programs are offered only satisfactory/fail. 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) or O (no report) that is not replaced by a final grade prior to the announced deadline during the student’s next regular semester of registration is replaced by a final grade of F (failure). Students with incomplete from the spring semester are exempt from completing the course during the succeeding summer session.

Credit by Exam or by Substitution

Advanced Placement Program

Students who have pursued college-level courses in high school through the Advanced Placement Program (APP) of the College Entrance Examination Board and have achieved satisfactory scores on the comprehensive examination administered though the APP are awarded college-level credit. For example, students earning scores of 3, 4, or 5 in an AB-level calculus course in the APP receive 4 semester hours of credit for 22M:35 Engineering Calculus I. Likewise, students earning scores of 3, 4, or 5 in a BC-level calculus course receive 8 semester hours of credit for 22M:35-36 Engineering Calculus I-II. Credit earned through other APP courses also may be applied to other engineering course requirements as appropriate to content and level, so long as credit for those requirements has not already been earned through other exams or course enrollments. Questions about APP credits should be directed to the assistant to the dean.

CLEP Credit

Credit earned through the College-Level Examination Program (CLEP) may be applied to fulfillment of the lower-level portion of the humanities and social sciences requirement. Hence, a maximum of 10 semester hours of credit may be satisfied by credit earned on any of the following CLEP exams: the social science subtest and the historical perspective subtest of the social science general exam; and any appropriate subject exams in social sciences and humanities.

Completion of the depth requirement in the social sciences and humanities using CLEP credit to satisfy the beginning-level prerequisite can be accomplished as follows.

Social sciences: CLEP credit in the social science subtest of the social science general examination, followed by a 100-level course in any acceptable social science area

Humanities: CLEP credit in the historical perspective subtest of the social science general examination, followed by a 100-level course in history

Credit earned on other CLEP subject exams also may be applied to meet other course requirements as appropriate in content and level on a nonduplicative basis. Questions about CLEP exams and credits should be directed to the assistant to the dean.

Credit by Examination

Students who have acquired knowledge in engineering subject matter from sources other than formal course registrations may be granted the opportunity to obtain credit toward graduation by examination. For example, credit for an engineering core course may be earned by achieving a satisfactory test score on a comprehensive exam similar to a final exam for that course. Conditions and limitations of this policy are established by the faculty of the College of Engineering. Students who want to apply for such an examination should contact the assistant to the dean.

Credit by Validation

Students with course credits obtained at an unaccredited institution may request validation of the credit up to a maximum of 12 semester hours. Credit by validation may be granted after students have completed at least 24 semester hours of course work at The University of Iowa that includes appropriate courses for which the work to be validated are prerequisites. Students who want to use this option should contact the assistant to the dean during their first semester of enrollment in the College of Engineering.

Credit from Other Colleges

Course requirements in engineering may be satisfied by credits earned from courses taken in other colleges of the University 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 assistant to the dean either prior to 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 assistant to the dean if, on a course-by-course basis, there is a match in the content and level of the transfer courses, and the grades earned for such courses are C or higher. Students who want to satisfy the engineering social sciences and humanities requirements or The University of Iowa rhetoric requirements by transfer work should contact the assistant to the dean for details.

Students planning to attend a two- or four-year institution before transferring to the College of Engineering are well advised to discuss the planned transfer with officials at both schools before embarking on a transfer program. The College of Engineering does have recommended course lists for most Iowa community colleges and some four-year colleges. The course lists are available by contacting the assistant to the dean. Once students are enrolled in the College of Engineering, all course work they have taken at other institutions must be preapproved by the assistant to the dean if credit for it is to be applied to meet engineering degree requirements.

By policy of Iowa’s State Board of Regents, a student who has earned 64 semester hours of college credit from all sources may transfer no more credit from a two-year college toward meeting the 128 semester hours required for graduation. If a student has earned more than 64 semester hours of credit from a two-year college, the credit and grades are used in computing the grade-point average and may be used to satisfy course requirements even though they may not be counted toward the total hours needed for graduation.

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. The petition form is available in the office of the dean. The form must be completed by the student and approved by the student’s adviser and by the chair of the academic department in which the student is majoring.

If the petition involves a required engineering core course, then it also must be approved by the associate dean who acts on behalf of the dean. The form must be completed by the student and approved by the student’s adviser and by the chair of the academic department in which the student is majoring.

For students in the College of Engineering, the credit and grades are used in computing the grade-point average and may be used to satisfy course requirements even though they may not be counted toward the total hours needed for graduation.

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 adviser. The mark of R will be assigned to those registered for the course for zero credit where attendance and performance are satisfactory; if unsatisfactory, the mark of W will be assigned. Courses completed with a mark of R do not
To register for a course on an audit basis, students must 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 the adviser’s signature and must register for O semester hours. To change grades, any changes must be made during the first three weeks of a semester or one and one-half weeks of a summer session.

Misconduct and Complaints

Student Academic Misconduct

Regulations dealing with cases of cheating or plagiarism are delineated by a collegiate policy. In cases of cheating on an exam or quiz, the policy recommends that the instructor reduce the student’s grade, including the assignment of an 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 if they want to protest the action.

Student Complaints Concerning Faculty Actions

In cases where complaints do not involve alleged student academic misconduct, students with complaints against faculty first should attempt to resolve the issue with the faculty member. 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 faculty ombudsman when attempting to resolve a complaint. 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 Organizations and Activities

The College of Engineering student body is organized as the Associated Students of Engineering. This organization provides a mechanism for planning and carrying out activities involving the entire college, such as the student and faculty picnic, the homecoming corn monument, MECCA, and sponsoring of a nationally prominent speaker during National Engineers’ Week. The organization also assists in the functioning of general student interest.

Engineering students publish their own student journal, *Hawkeye Engineer*. All positions are staffed by students, with faculty serving only in an advisory capacity.

The following technical societies are represented by University of Iowa student chapters: American Institute of Chemical Engineers, Institute of Industrial Engineers, Society of Computer Simulation, American Society of Civil Engineers, American Society of Mechanical Engineers, Institute of Electrical and Electronics 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. Senior and graduate engineering students who have special ability in research are eligible for election to Sigma Xi. The work of students who are outstanding in their respective fields is recognized by Alpha Eta Mu Beta, honorary biomedical engineering society; Phi Lambda Upsilon, honorary chemistry and chemical engineering society; Omega Chi Epsilon, honorary chemical engineering society; Chi Epsilon, honorary civil engineering society; Eta Kappa Nu, honorary electrical and electronics engineering society; Alpha Pi Mu, honorary industrial engineering society; and Pi Tau Sigma, honorary mechanical engineering society.

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 Registration

Registration as a professional engineer is governed by the laws of each state. The minimum requirements include graduation from an accredited engineering curriculum of at least four years, followed by at least four years of practical experience. The agency that controls and monitors the licensing procedure in Iowa is the State of 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 at the University near the time of graduation. (Graduates of unaccredited programs must complete at least one year of professional experience to be eligible to take the engineering fundamentals exam.) 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 an advanced exam in a specialty area following a minimum of four years of approved professional experience. At this point, the graduate engineer is a registered “Professional Engineer.”

Graduate Programs

The general rules and regulations for the graduate programs are established by the Graduate College. However, the specific admission and degree requirements for each graduate engineering program are included in the sections devoted to the individual programs. Also included in those sections is a description of the financial aid available in each program and the principal areas of study and research.

College Facilities

Engineering Library

The Engineering Library is a center of college activity. Its collection includes 90,000 books and 600 periodicals. It is equipped with CD-ROM stations and videocassette players and provides study spaces for 100 library users.

Iowa Computer-Aided Engineering Network (ICAEN)

This facility provides primary support for instructional computing in the College of Engineering. ICAEN consists of approximately 100 engineering workstations. Each of these is a powerful computer joined with a high-resolution video display for graphics applications. These workstations are tied together by a high-speed network, allowing all stations to share common data, programs, and peripheral devices.

The workstations are augmented by a large number of Apple Macintosh computers that can function as stand-alone facilities, be tied to the workstation network or Weeg Computing Center facilities, or be used to access national computer networks. A variety of printers, plotters, and other specialized devices are available through the ICAEN system.

Software supported by ICAEN includes several programming languages, graphics and word processing facilities, and electronic mail. Also available are a number of contemporary software packages for computer-aided engineering, including two- and three-dimensional drafting and design, data analysis, mathematical evaluation, surface and solids modeling, finite element modeling and analysis, computer-aided manufacturing, system simulation, control system analysis, and electronic design.

ICAEN facilities are used by students throughout the undergraduate and graduate engineering programs and in all engineering disciplines. Several large student laboratories...
provide engineering students with access to ICAEN. The Howard J. Elder Laboratory for Engineering Computing, located on the fourth floor of the Engineering Building, houses 20 workstations and 40 Macintoshes, together with printers, plotters, and other related equipment. A second, functionally identical facility, the Robert G. Hering Laboratory for Engineering Computing, is located on the third floor. A third student facility, intended to support more advanced applications, also is located on the third floor. Several of the lab facilities are available to students 24 hours per day.

Small workstation clusters for software and course development work are located in several engineering departments. Remote clusters are located in the chemical engineering department in the Chemistry-Botany Building and in the Hydraulics Laboratory of the Iowa Institute of Hydraulic Research.

**Computer Services**

In addition to local facilities provided by ICAEN, services of the Weeg Computing Center are available to students and faculty of the college. Access to Weeg facilities is available at student computing laboratories in the college.

The college’s Center for Computer-Aided Design, located in the Engineering Research Facility, has extensive computer facilities, including a large workstation network, an Alliant FX/8 mini-supercomputer, an Alliant FX/2800 supercomputer, and advanced graphics equipment for research in computer-aided design and real-time interactive simulation.

The electrical and computer engineering department has a network of SUN workstations for teaching and research. In addition, a number of minicomputers and microcomputers are available within the college for specialized use by students and faculty.

**Engineering Career Services**

Engineering Career Services (ECS) provides comprehensive career services to all College of Engineering students. A trained staff is available to assist students individually at every stage of the career planning and job search process, from discovering skills and abilities to developing specific strategies that make the job search efficient and successful.

ECS helps students gain hands-on experience during their undergraduate study by helping them seek summer internship and cooperative education positions, as early as their freshman summer. Services for graduating students include current job listings, on-campus interviewing, and help with resume writing, job search skills, and interviewing skills.

Major ECS resources available to all engineering students include employer information, publication of current job openings (part-time, summer, and cooperative education) and information on hiring trends.

**College Organization**

The College of Engineering is organized into six departments and three research units. The six departments are biomedical engineering, chemical and biochemical engineering, civil and environmental engineering, electrical and computer engineering, industrial engineering, and mechanical engineering. Each department offers undergraduate and graduate degree programs. Information about each of the degree programs follows in later sections.

The three research units are the Iowa Institute of Hydraulic Research, the Center for Computer-Aided Design, and the Iowa Institute of Biomedical Engineering.

**Iowa Institute of Hydraulic Research**

The Iowa Institute of Hydraulic Research (IIHR) has been widely acknowledged for many years to be an international leader in numerous areas of hydraulic engineering and fluid mechanics. Its research activities began in 1919 and in 1931 it was organized formally to coordinate capabilities, facilities, and resources available at the University for research on problems in engineering hydraulics and hydrology. It soon broadened its scope of activities to include fluid mechanics.

Active programs of basic and applied engineering research are conducted at IIHR in five modern, well-equipped laboratories with total floor space exceeding 72,000 square feet. Programs currently are being pursued in the following areas: sediment-transport mechanics; river engineering; dispersion processes; ice/arctic engineering; hydraulic structures; water resources simulation; computational hydraulics and fluid mechanics; hydrology; ship hydrodynamics; boundary layers (with emphasis on thick and three-dimensional boundary layers); turbulence and turbulent shear flows; and water-quality dynamics.

High-level involvement of graduate students is a hallmark of most IIHR projects. Because it is a unit of the College of Engineering, and because it is heavily involved in fluids engineering for industry and in fundamental research programs, IIHR provides unique opportunities for valuable research and engineering experience to advanced-degree students and postdoctoral trainees as part of their educational programs.

**Center for Computer-Aided Design**

The Center for Computer-Aided Design was founded in 1982 to enhance research and development of mechanical system design methods using modern computer technology and simulation-based tools. In 1987, the Industry/University Cooperative Research Center for Simulation and Design Optimization of Mechanical Systems, sponsored by the National Science Foundation, was formed within the center. It is currently supported by some 20 industrial members. To advance research in vehicle driving simulation, the center established the Iowa Driving Simulator in 1990. As a result of the center’s ground-breaking research and its commitment to state-of-the-art simulation technology, the U.S. Department of Transportation in 1992 selected the center to be the host site for the National Advanced Driving Simulator (NADS).

The center’s research program focuses on mechanical system dynamic analysis and design, control systems analysis, structural optimization, dynamic systems visualization, and operator-in-the-loop simulation. A research facility, including an Alliant FX/2800 supercomputer, an Alliant FX/8 mini-supercomputer, a heterogeneous network of workstations ranging from desktop systems to high-performance 3-D graphics workstations, and other related computer equipment, supports the faculty, staff, and students associated with the center. Center researchers also have access to the Iowa Driving Simulator. The most advanced facility of its kind in the United States, the simulator is composed of an Evans and Sutherland CT6 Image Generator and Gould front-end computer, a Harris Nighthawk 4404 real-time computer, and the center’s Alliant FX/2800. The center also makes this resource available to researchers from other University departments and to non-University researchers.

Faculty, staff, and students participating in the center lead the nation in research on operator-in-the-loop simulation and mechanical systems design and analysis. The center distributes the technology and software developed by its researchers to government and industrial participants for use in a broad range on mechanical and structural design activities.

**Iowa Institute of Biomedical Engineering**

The Iowa Institute of Biomedical Engineering was founded primarily to maximize the economic benefits that Iowa can realize from the University’s recognized strengths in the interdisciplinary areas of biomedical engineering and science. The institute accelerates the development of innovative biomedical and health care products from research and development, secures patents for newly developed products and processes, and transfers these innovations to Iowa industries.

The institute also helps Iowa industries improve productivity through effective utilization of new biomedical engineering techniques. It has developed ties with several Iowa companies and has provided research information on the construction of specialized vehicles for persons with disabilities and antivibration materials designed to alleviate the severity of industrial injuries caused by pneumatic tools.

Graduate and undergraduate student participation in interdisciplinary research and development is encouraged and supported by the institute. Institute faculty members engage in numerous consulting activities for industry, government, and other universities.

**Course Numbering System**

The title of each course offered by the College of Engineering is preceded by a two-digit prefix and a three-digit suffix separated by a colon.

The first digit of the prefix is 5, which identifies the course as one offered by the College of Engineering.
The second digit of the prefix identifies the engineering core courses or the courses offered by the departments as follows.

1–Biomedical engineering
2–Chemical and biochemical engineering
3–Civil and environmental engineering
5–Electrical and computer engineering
6–Industrial engineering
7–Engineering core
8–Mechanical engineering

The two- or three-digit suffix of a course number identifies the level and type of course. Generally the suffix numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduates, and numbers 200 and above designate courses primarily for graduates. The table below provides a more detailed listing of course numbers and the information they convey about level and type of course.

1-6–Freshman core courses
7-19–Sophomore core courses
20-29–Junior core courses
30-89–Required courses in undergraduate programs
91-94–Undergraduate professional program seminars
95-97–Contemporary topics courses for undergraduates
98–Individual investigation courses for undergraduates
101-109–Courses for which little or no engineering, science, or mathematics background is required
110-189–Undergraduate elective or lower-level graduate course
190–Readings courses for nonmajors
191-194–Seminars for undergraduates and graduates
195-197–Contemporary topics courses for undergraduates and graduates
198–Individual investigations for graduates
199–M.S. thesis research
210-289–Upper-level graduate courses
291-294–Seminars for graduates
295-297–Contemporary topics courses for graduates
299–Ph.D. thesis research

The courses offered by each department are listed in the department’s section by discipline, starting with the lowest-level course and proceeding to the highest-level course. A brief description is included for each course. The prerequisites and corequisites listed in each course description are given in terms of the course prerequisite and corequisite requirements. Undergraduate nonmajors may enroll in engineering courses only by consent of the assistant to the dean. Consent for enrollment in an engineering course is based on space available as well as on whether the student has the mathematics, science, and engineering background considered necessary to satisfactorily undertake the course work.

Engineering Core Courses

All of the undergraduate engineering curricula, which are detailed in the following sections, build upon a core program as described in the earlier section entitled “Undergraduate Curriculum.” Course descriptions follow for those courses of the core program that are offered through the College of Engineering.

Not all of the following courses are required for each engineering major. Course requirements in a specific major are given in the curriculum listing in the section for that major. None of the following courses are available to nonmajors unless special permission is obtained from the assistant to the dean.

57:000 Cooperative Education Training
Assignment: Engineering
For undeclared and undeclared engineering majors participating in the Cooperative Education Program; students register in this course during work assignment periods. Admission to Cooperative Education program and consent of faculty adviser required.

57:1 Engineering Honors Seminar
May be repeated. Admission to the College of Engineering Honors Program and sophomore standing required.

57:2 h-teaching Internship: Engineering
Students work with a professor teaching a course already completed by the students; students learn how to design and grade an exam, prepare for and give lectures, hold office hours for students, and develop classroom materials. Students must be nominated by department chair and meet eligibility requirements (available from associate dean of engineering).

57:5 Engineering I
3 s.h.

57:6 Engineering II
3 s.h.

57:7 statics
2 s.h.
Vector algebra, forces, couples, results of force-couple systems; Newton’s laws, friction, equilibrium analysis of particles and finite bodies, centroid, moments of inertia, applications. Prerequisite: 22M:35. Corequisites: 22M:36 and 29:17.

57:8 Electrical Circuits
3 s.h.

57:9 Thermodynamics I
3 s.h.
Basic elements of classical thermodynamics, including first and second laws, reversibility and irreversibility, Carnot cycle, properties of pure substances; closed simple systems and one-dimensional steady-flow open systems, engineering applications. Prerequisites: 4:13 and 29:17. Corequisite: 22M:36.

57:10 Dynamics
3 s.h.
Vector calculus, Newton’s laws, 3 D motion of multiparticle systems and 2-D motion of rigid bodies; applications. Prerequisites: 57:7 and 22M:36.

57:12 Linear Systems Analysis
3 s.h.
Analysis of continuous and discrete time systems; system classifications; system descriptions in terms of differential or difference equations and block diagrams; frequency domain analysis using Fourier and Laplace transforms; time domain analysis using convolution. Prerequisites: 57:8 and 22M:41.

57:14 Engineering Economy
3 s.h.
Basic concepts of engineering economy: time value of money, cash flow equivalence, depreciation, tax considerations, cost accounting overview; main analysis techniques-present worth, uniform annual cost, rate of return, benefit/cost ratio, replacement analysis and break even analysis. Prerequisite: 22M:36.

57:15 Materials Science
3 s.h.
Foundation course; relationship between structure and properties of materials at atomic, micro, macro levels. Prerequisite: 4:13. Corequisite: 22M:35.

57:17 Computers in Engineering
3 s.h.
Digital systems and corel using microprocessor based computers; computer organization, machine language, addressing formats, data types, assembly language, assemblers, cross development systems, serial and parallel I/O; system control using polling and interrupts; lab arranged. Sophomore standing required. Prerequisite: 57:6.

57:18 Principles of Electronic Instrumentation
4 s.h.
Principles of operation of diodes and field-effect and bipolar transistors; bias and small-signal design and analysis techniques; FETs as switches and amplifiers; operational amplifier circuits; IC fabrication technology; signal conditioning and data conversion; laboratory included. Prerequisite: 57:8.

57:19 Mechanics of Deformable Bodies
3 s.h.
Elementary theory of deformable bodies, stress, strain; application to beams, columns, shells, pressure vessels, axial, transverse, bending torsion, combined and buckling loads. Prerequisite: 57:7. Corequisite: 22M:41.

57:20 Mechanics of Fluids and Transfer
3 s.h.
Laws governing fluid flow and transport processes; hydrostatics; transfer of mass momentum and energy; laminar and turbulent flow and boundary layers; engineering applications, including measurement of fluid and flow properties. Prerequisites: 22M:42, 57:9, and 57:10.

57:21 Principles of Design I
3 s.h.
Two to three week projects involving identification, modeling, analysis of design problems using optimization principles, methodology, computer-aided design. Sophomore standing required. Prerequisites: 22M:60 and 57:7.

57:22 Principles of Design II
3 s.h.
Probabilistic and statistical aspects of engineering design; probabilistic models, distribution fitting, discrete time simulation, project management, component and system reliability; emphasis on model construction, design of simulation experiments, applications in engineering design, technical report writing. Prerequisites: 57:21 and 22S:39.

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Chair: Vijay K. Goel
Associate professors: Edwin L. Dove, Robert Tucker Viisting associate professor: David Wilder
Assistant professors: Kevin Dellsperger, Glenn A. Myer, Maria Siebes
Adjunct assistant professor: Dennis McGowan (V.A. Hospital, Des Moines, Iowa)
Undergraduate degree: B.S.E. in Biomedical Engineering
Graduate degrees: M. S., Ph.D. in Biomedical Engineering

The past two decades have seen a tremendous growth of technological activity in biology and medicine. As engineers have increasingly become involved with projects in the life and
Undergraduate Program

The curriculum outlined below is built on the foundation provided by the College of Engineering core curriculum and has been developed to prepare students for the challenges and opportunities associated with careers in the biomedical engineering profession. The program has been carefully designed to enable students to satisfy the entrance requirements of the Graduate College and, with the selection of a three-course sequence in organic chemistry in the elective courses, the Colleges of Medicine and Dentistry.

Curriculum

The humanities and social science electives must be selected to satisfy the requirements of the College of Engineering.

FRESHMAN YEAR

First Semester
- 413 Principles of Chemistry I 3 s.h.
- 10:3 Accelerated Rhetoric (or 10:1-2) 4 s.h.
- 22M:35 Engineering Calculus I 4 s.h.
- 57:5 Engineering I 3 s.h.
- 51:90 BME Freshman/Sophomore Forum 0 s.h.

Second Semester
- 414 Principles of Chemistry II 3 s.h.
- 416 Principles of Chemistry Lab I 2 s.h.
- 22M:36 Engineering Calculus II 4 s.h.
- 29:17 Introductory Physics I 4 s.h.
- 57:6 Engineering II 3 s.h.
- 51:90 BME Freshman/Sophomore Forum 0 s.h.

SOPHOMORE YEAR

First Semester
- 22M:40 Matrix Algebra for Engineers 2 s.h.
- 22M:41 Differential Equations for Engineers 3 s.h.
- 29:18 Introductory Physics II 4 s.h.
- 57:7 Principles of Biology I 4 s.h.
- 51:90 BME Freshman/Sophomore Forum 0 s.h.

Second Semester
- 22M:42 Vector Calculus for Engineers 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:9 Thermodynamics I 3 s.h.
- 57:10 Dynamics 3 s.h.
- 72:154 Biomedical Engineering Physiology 4 s.h.
- 51:90 BME Freshman/Sophomore Forum 0 s.h.

JUNIOR YEAR

First Semester
- 57:17 Computers in Engineering 3 s.h.
- 57:18 Principles of Electronic Instrumentation 4 s.h.
- 51:40 Biological Systems Analysis I 3 s.h.
- Engineering science core elective (see "Engineering Science Core Electives," below) 3 s.h.
- *Humane or social science elective 3 s.h.
- 51:91 Professional Seminar: Biomedical Engineering 0 s.h.

Second Semester
- 22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
- Engineering science elective (see below) 3 s.h.
- 57:21 Principles of Design I 3 s.h.
- 51:70 Biomaterials I 4 s.h.
- 51:80 Biomedical Measurements I 3 s.h.
- 51:91 Professional Seminar: Biomedical Engineering 0 s.h.

SENIOR YEAR

First Semester
- 51:95 Biomedical Engineering Systems Design 3 s.h.
- Biomedical engineering design elective (see "Biomedical Engineering Electives," below) 3 s.h.
- Biomedical engineering science elective (see below) 3 s.h.
- Biomedical engineering elective (see below) 3 s.h.
- *Humane or social science elective 3 s.h.
- 51:91 Professional Seminar: Biomedical Engineering 0 s.h.

Second Semester
- 51:96 Biomedical Engineering Design Project 4 s.h.
- Biomedical engineering electives (see below) 5 s.h.
- *Humane or social science electives 6 s.h.
- 51:91 Professional Seminar: Biomedical Engineering 0 s.h.

*The humanities and social science electives must be selected to satisfy the requirements of the College of Engineering.

Engineering Science Core Electives

One of these:
- 57:12 Linear Systems Analysis 3 s.h.
- 57:15 Materials Science 3 s.h.
- 57:19 Mechanics of Deformable Bodies 3 s.h.
- 57:20 Mechanics of Fluids and Transfer Processes 4 s.h.

Engineering Science Electives

One of these:
- 57:12 Linear Systems Analysis 3 s.h.
- 57:15 Materials Science 3 s.h.
- 57:19 Mechanics of Deformable Bodies 3 s.h.
- 57:20 Mechanics of Fluids and Transfer Processes 4 s.h.

A 100-level, 51-prefix course or other engineering science course approved by the adviser

Biomedical Engineering Electives

A total of 14 semester hours must be chosen with at least one course (3 semester hours) from the biomedical engineering design electives and one 51-prefix course (3 semester hours) from the biomedical engineering science electives. The lists are as follows.

BIOMEDICAL ENGINEERING DESIGN ELECTIVES
- 55:32 Introduction to Digital Design (or equivalent) 3 s.h.
- 55:38 Principles of Electrical Engineering Design 3 s.h.
- 57:22 Principles of Design II (or equivalent) 3 s.h.

BIOMEDICAL ENGINEERING SCIENCE ELECTIVES
- 51:140 Biological Systems Analysis II 3 s.h.
- 51:145 Biomedical Computer Systems 3 s.h.
- 51:150 Biomechanics 3 s.h.
- 51:154 Biomechanics of Aging 3 s.h.
- 51:155 Cardiovascular Biomechanics 3 s.h.
- 51:160 Biotransport Processes 3 s.h.
- 51:165 Cardiovascular Systems and Aging 3 s.h.
- 51:171 Intermediate Biomaterials 3 s.h.
- 51:173 Metals as Biomaterials 3 s.h.
- 51:174 Ceramics and Glasses as Biomaterials 3 s.h.
- 51:177 Composite Materials 3 s.h.
- 51:180 Biomedical Measurements II 3 s.h.
- 51:185 Physics and Analysis of Biomedical Images I 3 s.h.
- 51:186 Physics and Analysis of Biomedical Images II 3 s.h.

OTHER ACCEPTABLE BIOMEDICAL ENGINEERING ELECTIVES
- 51:151 Intermediate Mechanics of Deformable Bodies 3 s.h.
- 53:133 Finite Element Techniques in Engineering I 3 s.h.
- 55:32 Introduction to Digital Design 3 s.h.
- 55:33 Introduction to Software Design 3 s.h.
- 55:41 Electronic Circuits 4 s.h.
- 55:42 Signals and Systems 3 s.h.
- 55:50 Communication Systems 3 s.h.
- 55:148 Digital Image Processing 3 s.h.
- 55:164 Computer-Based Control Systems 3 s.h.
Biomedical Engineering Subtracks

Biomedical engineering majors are encouraged to pursue one of the following three subtrack curricula.

**BIOCHEMISTRY/BIOFLUIDS**

**Fifth Semester**

- 57:19 Mechanics of Deformable Bodies 3 s.h.
- or 57:20 Mechanics of Fluids and Transfer Processes 4 s.h.

**Seventh Semester**

- 57:22 Principles of Design II (or equivalent) 3 s.h.
- 51:150 Biomechanics 3 s.h.
- 51:151 Intermediate Mechanics of Deformable Bodies 3 s.h.
- or 58:160 Intermediate Mechanics of Fluids 3 s.h.

**Eighth Semester**

- Two of these:
  - 51:155 Cardiovascular Biomechanics 3 s.h.
  - 51:160 Biotransport Processes 3 s.h.
  - 51:177 Composite Materials 3 s.h.
  - 53:133 Finite Element Techniques in Engineering 3 s.h.

**BOMATERIALS**

**Fifth Semester**

- 57:19 Mechanics of Deformable Bodies 3 s.h.

**Seventh Semester**

- 57:22 Principles of Design II (or equivalent) 3 s.h.
- 51:150 Biomechanics 3 s.h.

**Eighth Semester**

- Two of these:
  - 51:155 Cardiovascular Biomechanics 3 s.h.
  - 51:160 Biotransport Processes 3 s.h.
  - 51:177 Composite Materials 3 s.h.
  - 53:133 Finite Element Techniques in Engineering 3 s.h.

**BIOELECTRICAL AND BOSYSTEMS**

**Fifth Semester**

- 57:12 Linear Systems Analysis 3 s.h.

**Seventh Semester**

- 55:32 Introduction to Digital Design 3 s.h.
- 55:42 Signals and Systems 3 s.h.
- 51:145 Biomedical Computer Systems 3 s.h.

**Doctor of Philosophy**

The doctoral program, including acceptable transfer credits, requires a minimum of 72 semester hours of graduate work. Of those 72 hours, at least 60 semester hours must be in formal course work taken after the B.S. is awarded, and at least 12 semester hours must be in research work beyond the master's degree. Students must maintain a minimum grade point average of 3.0 during the final 36 semester hours of formal graduate work. The dissertation must be approved by the doctoral committee before it is submitted to the University for publication. The approval of the dissertation by the doctoral committee is the final academic requirement for the doctoral degree.
be in research and thesis credits. For students entering with an M.S., at least 36 semester hours of formal course work must be completed past the M.S., and at least 12 semester hours must be research and thesis credits. Based on research progress, examination results, or other measures, the student’s graduate committee may require additional formal course work in order to strengthen areas of perceived weakness.

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 3.25 minimum grade-point average on all graduate work done at The University of Iowa. Upon completion of the course work specified in the plan of study, with the grade-point average stipulated above, and upon the adviser’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. are generally completed in about three years beyond the master’s degree.

Admissions and Financial Assistance

Students who have earned a baccalaureate or postbaccalaureate degree in an engineering curriculum or a curriculum in the mathematical or physical sciences, with a 3.00 minimum grade-point average and an acceptable score on the Graduate Record Examination (CRE) General Test (combined verbal and quantitative score of 1250) are eligible to be considered for admission to Master of Science study in biomedical engineering. Students may, under exceptional circumstances, be considered for conditional admission with a lower grade-point average.

Required Course Laboratories

There are two laboratories associated with two required undergraduate courses: Biomechanics I and Biomedical Measurements I.

The Biomechanics Laboratory is equipped to test mechanical and thermal properties of biomaterials and thin sectioning of hard tissues and prostheses for histology. The laboratory also is used for 51:173 Metals as Biomaterials and 51:174 Ceramics and Glasses as Biomaterials.

The Biomedical Measurements Laboratory is equipped for measuring biomedical variables of clinical and physiological interest and for designing electronic instrumentation in biomedical engineering. This laboratory also is used for 51:180 Biomedical Measurements I.

Research Facilities and Laboratories

**APPLIED MECHANICS LABORATORY**

The Applied Mechanics Laboratory is equipped to study the biomechanics of small bone specimens under complex dynamic loading conditions.

**BIOMATERIALS LABORATORY**

The Biomaterials Laboratory is equipped to test mechanical thermal properties of biomaterials and thin sectioning of hard tissues and prostheses for histology.

**BIOFLUIDS MECHANICS LABORATORY**

This lab is centered around flow models of the coronary circulation. Fluid dynamic signals are obtained with ultrasonic flowmeters, fluid-filled and Millar pressure transducers, and appropriate amplifiers. Analog tunable lowpass filters are available for signal conditioning, and data can be sampled into two 386 25 MHz computers through Labmaster MD boards. The computers also are used for data analysis and control of stepper motors through an interface to a bivelent driver and feedback control.

Other major equipment includes several models of diseased arteries as well as an electronic balance, Astro-Med 8-channel strip chart recorder, and a capillary viscometer. A terminal is available with direct connection to the BME-ECE Vaxcluster network through the department’s Micro Vax. The PCs are networked to the University’s Ethernet. The biofluid laboratory generally is not used for instruction, but some demonstrations and experiments for Biomeasurements, BME Labs, and Cardiovascular Biomechanics can be performed for instructional purposes on both the undergraduate and graduate level.

**BIOMECHANICS LABORATORIES I AND II**

The biomechanics laboratories are equipped to study the biomechanics of head and neck trauma, lumbar spine kinetics, and the effect of vibration on the spine.

**BIOMEDICAL IMAGE PROCESSING AND COMPUTING LABORATORY**

This laboratory has an image-processing system used to digitize and analyze anatomical slides, photographs, X-rays, and CAT scan images.

**BIOSYSTEMS laboratory**

The Biosystems Laboratory is equipped to conduct physiological experiments on the cardiovascular and respiratory systems.

**HOLOGRAPHY LABORATORY**

The Holography Laboratory is a branch of the Iowa Laser Facility and is housed in the Engineering Building. The lab contains the following equipment: laser, helium neon, 15 milliwatt, wavelength = 633 nm; laser, helium cadmium, 15 milliwatt, wavelength = 442 nm; Newport research series vibration isolation table (4x 8 foot) with four pneumatic legs; Newport instant holographic camera; optical components-lenses, beamsplitters, prisms, spatial filters, gratings, shutter, shutter controller; plate holder, lens mounts, translation table, tilt table, and rotation stage. Other lasers may be available on a short-term basis from the Iowa Laser Facility.

The laboratory’s capabilities include holographic interferometry using the static zero order fringe method, the dynamic fringe counting method, and/or the Haidinger fringe method for interpretation; dynamic real-time holographic interferometry; production of holographic gratings; and production of white light viewable images.

**IMAGE PROCESSING LABORATORY**

This laboratory is equipped to perform the sophisticated image processing procedures. It’s equipment centers around a Vax cluster of 5 VAX workstations, a Macintosh Iici, and one Micro Vax II, to which is connected a Gould/DeAnza IP8400 vector image processor, a video graphics copy device, a table digitizer, a video camera that is used as a densitometer and various other peripherals. In addition, one of the Vax stations is connected to a video frame grabber for image digitization. The cluster is connected to the University-wide broadband communications system through which data can be transferred from ICAEN, all Weeg 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. Currently being developed is a series of courses on medical imaging that will use this equipment.
Courses

51:000 Cooperative Education Training
Assignments: Biomedical Engineering
Prerequisite: 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. Admission to Cooperative Education Program and consent of faculty advisor required.

51:40 Biomedical Systems Analysis 1
Application of principles of control theory to analysis of biological systems, development of computer simulation techniques to study dynamic response of physiological systems. Offered fall semesters. Prerequisites: 226:41 and 72:154.

51:70 Biometrics 1

51:80 Biomedical Measurements 1
Concepts of analog and digital design, with emphasis on circuits for biomedical applications using operational amplifiers, active filter, data acquisition, conversion and interface to microcomputers, patient safety; clinical circuits; laboratory project. Offered spring semesters. Prerequisites: 51:40 and 57:18. Corequisites: 72:154.

51:85 Biomedical Engineering Systems Design 3 s.h.
Design of system elements; prostheses; materials; case study of biomechanical system examples; computer-aided design methods, design of subassemblies, product reliability. Offered fall semesters. Pre or corequisites: 57:21. Corequisites: 72:150 and 57:10.

51:96 Biomedical Engineering Design project 2 s.h.
Creative design projects, usually revolving actual current problems in biomedical engineering; projects are interdisciplinary, including both engineering and health science faculty cooperation. Offered spring semesters. Prerequisites: 51:95 and spring term.

51:90 BME Freshman/Sophomore Forum 0 s.h.
Presentations by faculty, graduate students, collaborators from the Colleges of Medicine, Dentistry, Law. May include visits to laboratories and industries.

51:91 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. May be repeated. Junior standing required.

51:98 Individual Investigations: Biomedical Engineering 1-3 s.h.
Individual projects for biomedical engineering undergraduates; such as laboratory study, engineering design projects, analysis and simulation of an engineering system, computer software development, research. Consent of instructor required.

51:130 Biomedical Engineering Labs 3 s.h.
Introduction to the research labs associated with individual faculty members of the Department of Biomedical Engineering; laboratory experience in cardiovascular and respiratory control, hemodynamics, biometrics, holography, biomechanics, vibration. Graduate standing required.

51:148 Holographic Methods 3 s.h.
Concepts of diffraction and wavefront reconstruction; in-line and off-axis holograms; recording and reproducing white light viewable holograms, including Benton, open-aperture, and Demouy holograms; applications of holography in experimental deformation analysis of solids, fluid flow visualization, display and image processing. Prerequisite: 29:18 or 29:117 or 29:130 or equivalent.

Biometrics

51:171 Intermediate Biometrics 3 s.h.
Property structure relationship of biological and implant materials; their interactions in vivo condition. Prerequisite: 51:70 or equivalent.

51:173 Metals as Biometric Materials 3 s.h.
Property structure relationship of metals used to fabricate implant materials; their interactions in vivo condition. Prerequisite: 51:70 or equivalent.

51:174 Ceramics and Glasses as Biometric Materials 3 s.h.
Property structure relationship of ceramics and glasses used to fabricate implant materials; their interactions in vivo condition. Prerequisite: 51:70 or equivalent.

51:177 Composite Materials 3 s.h.

Biomechanics/Biofluids

51:150 Biomechanics 3 s.h.

51:151 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: 57:19. Same as 53:140, 58:150.

51:154 Biomechanics of Aging 3 s.h.

51:160 Biofluids: Process systems 3 s.h.
Application of mechanics of heat, and mass transfer principle to biological systems, with emphasis on human beings; fluid mechanics of the cardiovascular and respiratory systems; heat exchange between biological systems and their environment; mass transfer in membranes. Prerequisites: 57:20 and 72:154.

51:165 Cardiovascular Systems of Aging 3 s.h.
Physiology and quantitative analysis of the cardiovascular system, effect of aging on its physiology, morphology, functional, experimental, and systems, and final element analyses of the effects of aging applied to myocardial and vascular material properties, vascular mechanics and reactivities, pulmonary and arterial systems dynamics.

51:250 Advanced Biomechanics 3 s.h.
Anatomy of the human musculoskeletal system, biomechanical basis of joint degeneration; and its evaluation techniques, mechanical properties of hard and soft tissues, kinematics, kinetics of joint dynamics, including those for locomotion; experimental determination of joint forces, spinal biomechanics, design, analysis of artificial joints. Prerequisite: 51:150.

51:252 Advanced Cardiac Mechanics 3 s.h.
Anatomy and physiology of the human heart; cardiac muscle mechanics; imaging techniques for cardiac structures; 3D reconstruction of the human left ventricle; modeling of the heart as a chamber; finite element analysis of the left ventricle; experimental techniques in cardiology. Prerequisite: 51:155.

51:253 Clinical Biomechanics of Spine 3 s.h.
Anatomy of the spine (human, musculoskeletal system); biomechanical basis of joint degeneration and its evaluation techniques; mechanical properties of joint soft and hard tissues, kinematics, kinetics of human joints, including those for locomotion; experimental determination of joint forces, spinal biomechanics, analysis of artificial joints. Prerequisite: 51:150.

51:257 Theory of Viscoelasticity 3 s.h.
Linear theory of viscoelasticity; non-aging materials; Boltzman superposition principle, linear functionals; thermodynamic foundations; time temperature superposition principle; boundary and initial value problem. Prerequisite: 51:155. Same as 53:247, 58:257.

Biomedical Engineering

51:140 Biological Systems Analysis II 3 s.h.
Application of modern control and systems analysis to study of biological systems; identification and simulation techniques utilizing linear and nonlinear, deterministic and stochastic models; selected aspects of the cardioregulatory system used as examples and problems. Prerequisite: 51:40 or 51:141.

51:141 Graduate Biological Systems Analysis 3 s.h.
Application of principles of system control theory to analysis of biological systems; development of computer simulation techniques to study dynamic response of physiological systems. Graduate standing required. Corequisite: 72:154.

51:145 Biomedical Computer Systems 3 s.h.
Data acquisition and experimental control in assembly language and a high-level language (FORTRAN, Pascal, or C) on microcomputers; digital signal processing techniques for analysis of EKG, electroencephalograms, and other waveform data. Prerequisites: 51:40 and 57:17. Corequisite: 51:80 or consent of instructor.

51:180 Biomedical Measurements I 3 s.h.
Signals and noise; types of measurements, measurement errors; applications of biomedical transducers to measure temperature, flow, force, strain; image processing; computer applications. Prerequisites: 51:80 or 51:181.

51:181 Graduate Biomedical Measurements I 3 s.h.
Design, development, utilization of contemporary electronic instrumentation for measuring biomedical variables of clinical and research interest. Prerequisites: graduate standing and a basic electronics course. Corequisite: 72:154.

51:185 Physics and Analysis of Biomedical Images I 3 s.h.
Interaction of radiation with matter, physical principles of medical imaging modalities (X-ray, CT, nuclear medicine, PET, MRI, ultrasound); medical image reconstruction (back projection), analysis (digital processing), clinical interpretation. Prerequisites: 51:40 or 51:141 or equivalent; 226:42 or 58:113 or equivalent; 57:17 or equivalent.

51:186 Physics and Analysis of Biomedical Images 2 3 s.h.
Physics and analysis of biomedical images; ultrasound, MRI, X-ray, tomography, PET etc.; temporal and spatial arrays, image segmentation, shape analysis, pattern recognition, parametric representation, texture analysis, limits of information content. Prerequisite: 51:185.

51:240 Advanced Biological Systems Analysis 3 s.h.
Analysis techniques from biocontrol (identification, estimation), signal processing (time series analysis, matched filters/daptive estimation), information theory applied to the cardiovascular and ocular systems. Prerequisite: 51:140 or consent of instructor.

51:245 Digital Processing of Biomedical Signals 3 s.h.
Techniques and analysis of systems and signals, with examples of biomedical problems; system representation, special analysis, model-based spectral analysis, random signals techniques, numerical method, FIR and IIR digital filters; systems with noise. Prerequisites: 51:141 and 51:145, or consent of instructor.

Graduate Seminars, Advanced Topics, Special Topics

51:190 Readings in Biomedical Engineering 1-3 s.h.
For graduate students with nonengineering majors who want credit in undergraduate biomedical engineering courses. May be repeated. Graduate standing in a discipline other than engineering required.

51:191 Seminar in Biomedical Engineering 0 s.h.
Presentation of recent advances in biomedical engineering. Graduate standing required.

51:195 Contemporary Topics in Biomedical Engineering 1-3 s.h.
New topics in biomedical engineering not covered in other courses; topics, frequency, and coverage determined by student/faculty interest. Senior or graduate standing required.

51:198 Individual Investigations: Biomedical Engineering 1-3 s.h.
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. Graduate standing and consent of advisor required.

51:199 Research: Biomedical Engineering, M.S. of Thesis 1-6 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of the requirements for the M.S. with thesis in biomedical engineering. Graduate standing and consent of advisor required.

51:246 Advanced Biomedical Engineering Project I 1-6 s.h.
Industrial or developmental biomedical engineering projects carried out by M.S. students in groups. Offered fall semesters. Graduate standing and consent of instructor required.
Chair: Gregory R. Carmichael
Professors: J. Keith Beddow, Gregory R. Carmichael, Ravindra Datta, Jonathan S. Dordick
Professors emeriti: Karl Kammermeyer, James O. Osburn, Arthur F. Vetter
Associate professors: David G. Rethwisch, John M. Wieneck
Assistant professors: David W. Murhammer, Victor G.J. Rodgers
Adjunct assistant professor: Audrey Butler
Undergraduate degree: B.S.E. in Chemical Engineering
Graduate degrees: MS., Ph.D. in Chemical and Biochemical Engineering

Chemical and biochemical engineering is the art and science of engineering applied to industrial processes in which raw materials are changed or separated into useful products. Chemical and biochemical engineers develop, design, and engineer the complete process as well as the equipment used in it. They choose the proper raw materials and operate the manufacturing facilities efficiently, safely, and economically.

Chemical engineers are involved in addressing today’s energy crisis, finding renewable raw materials to replace the dwindling natural resources, and working for pollution control. They are employed by basic industries such as chemicals, petroleum, specialty chemicals, coal, and solvents, as well as consumer-oriented industries such as plastics, food, fertilizers, pharmaceuticals, cosmetics, paints, and synthetic fibers.

Increasing numbers of chemical engineers are employed by new-materials manufacturing companies, biochemical industries, and environmental firms. They engage in research, process and product development, process and plant design, actual production operation, and sales. Many experienced chemical engineers become managers or administrators.

Undergraduate Program
The Bachelor of Science in Engineering is designed to meet modern technological requirements. Unlike most other fields of engineering, which are based primarily on physics and mathematics, chemical engineering principles are based on physics, chemistry, mathematics, and biological sciences. Courses in these disciplines, together with the common engineering core courses, provide a strong foundation.

During the junior and senior years, the emphasis is on chemical engineering courses such as heat and mass transfer, chemical reaction kinetics, process safety, unit operations laboratory, process dynamics and control, and process design. Experience in instrumentation, analysis, and design is obtained through an integrated laboratory program in the chemical engineering department. Routine use is made of computer-based data analysis, simulation, and design. A computer cluster is available for student use in the undergraduate lounge. Also included in the curriculum are elective courses in the humanities and social sciences.

Chemical engineering at Iowa gives students a chance to obtain a broad education that is at the leading edge of technology. It emphasizes fundamental concepts, problem solving, laboratory techniques, and the communication skills needed to keep pace in today’s and tomorrow’s technical world. Students are encouraged to gain research experience by working in individual laboratories.

Curriculum
*The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

**At least 4 of the 6 semester hours of technical electives must be in the “engineering science” category.

FRESHMAN YEAR
First Semester
4:33 Principles of Chemistry I 3 s.h.
22M:35 Engineering Calculus I 4 s.h.
52:90 Freshman Seminar: Chemical and Biochemical Engineering 0 s.h.
57:5 Engineering I 3 s.h.
Rhetoric (10:1, 2, or 3) 4 s.h.
*Social science elective 3 s.h.

Second Semester
4:14 Principles of Chemistry II 3 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
22M:36 Engineering Calculus II 4 s.h.
52:17 Introductory Physics I 4 s.h.
52:90 Freshman Seminar: Chemical and Biochemical Engineering 0 s.h.
57:6 Engineering II 3 s.h.

SOPHOMORE YEAR
First Semester
4:121 Organic Chemistry I 3 s.h.
22M:41 Differential Equations for Engineers 3 s.h.
29:18 Introductory Physics II 4 s.h.
52:41 Process Calculations 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
57:7 Statics 2 s.h.

Second Semester
4:322 Organic Chemistry II (or advanced chemistry elective from approved list) 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.
52:42 Momentum Transport 3 s.h.
52:43 Chemical Engineering Thermodynamics 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
Humans elective 3 s.h.

JUNIOR YEAR
First Semester
4:331 Physical Chemistry I 3 s.h.
22M:72 Elementary Numerical Analysis 3 s.h.
52:44 Mass Transfer Operations 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
57:8 Electrical Circuits 3 s.h.
57:15 Materials Science 3 s.h.

Second Semester
4:132 Physical Chemistry II (or advanced chemistry elective from approved list) 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
52:45 Chemical Reaction Kinetics 3 s.h.
52:87 Chemical Process Safety 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
57:21 Principles of Design I 3 s.h.

SENIOR YEAR
First Semester
52:85 Process Dynamics and Control in Design 3 s.h.
52:47 Unit Operations Laboratory I 2 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
52:108 Introduction to Biochemical Engineering 3 s.h.
*Social science elective (100 level) 3 s.h.
**Technical elective 3 s.h.

Second Semester
52:48 Unit Operations Laboratory II 2 s.h.
52:86 Chemical Engineering Process Design 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
*Humanities elective 3 s.h.
*Humanities or social science elective (100 level) 4 s.h.
**Technical elective 3 s.h.

Graduate Programs
The Department of Chemical and Biochemical Engineering offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Through course work and research, students gain an understanding of the principles of engineering science and then apply those principles to contemporary problems such as energy, environment, biotechnology, and materials. Research is emphasized since most opportunities for graduates are in research and development. A thesis is required for each degree.

All candidates in advanced degree programs are required to assist faculty members in teaching and research as part of the graduate training.

Research
Current research strengths of the Department of Chemical and Biochemical Engineering are in the areas of catalyst and reactor design, global and regional environmental research, separation
Biochemical Engineering and Applied Biocatalysis

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 developing novel techniques in biocatalytic processing, including enzymes in organic solvents, enzyme-based biosensors, and biologically based membrane separators.

The department also 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.

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.

The department also is active in the Center for Biocatalysis and Bioprocessing. The center’s laboratories provide state-of-the-art equipment in enzyme isolation, characterization, and applications, including several HPLC’s, all equipped with RI and photodiode array detection, and including a preparative-scale HPLC; CC’S (capillary and packed capabilities); an FPLC; several spectrophotometers; a spectrofluorometer; a liquid scintillation counter; numerous temperature controlled shakers; preparative liquid chromatography systems; biopolymer characterization equipment (including DSC, TGA, and DMA); a freeze dryer; and standard organic synthesis equipment.

Particulate Material Processing Sciences

Theoretical and experimental studies in morphological analysis of particulate materials are being conducted. Morphological analysis is concerned with the measurement of particle shape, size, texture, chemical properties, and physical properties. These methods are applied to particle formation processes and studies of particle and bulk behavior. Examples include wear debris analysis, crystallization and precipitation (formation processes), and dust explosions and contamination of particles (particle behavior).

Master of Science

A thesis and a minimum of 30 semester hours of graduate credit are required, including at least 24 semester hours completed in residence at The University of Iowa. Work completed in the Saturday and Evening Class Program as well as courses taken through the Distance Education Program will count toward the degree requirements.

Doctor of Philosophy

The Ph.D. is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. However, candidates usually are expected to have completed three academic years of 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 theory of statistics, a course in experimental methodology, and a course in reaction kinetics. All candidates must complete a core course requirement, which consists of a course in theoretical and experimental studies in chemical reaction engineering, and a thermodynamics course or a related course (e.g., 52-180 Biological Engineering), as well as seven additional courses. All candidates must earn at least 72 semester hours of graduate credit.

Doctor of Philosophy in Chemical Engineering

The minimum course work requirement is 24 semester hours (about eight courses), and the remainder of the 30 semester hours is devoted to research. To be eligible for the Ph.D., students are expected to maintain a 3.00 minimum grade-point average. M.S. candidates must defend their thesis at the final oral examination. Although it is possible to obtain an M.S. in one year, many students complete the requirements in three or four semesters.
the graduate courses with minimum difficulty. Since these undergraduate courses are taken as major courses, most do not carry credit toward a graduate degree.

Financial Aid
A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

MATERIALS SCIENCE LABORATORY
This laboratory is equipped with optical microscopes and facilities for metallographic preparation, including a darkroom, Mechanical tensile testing instruments and hardness testing machines also are available. Heat treatment and sintering furnaces are available in a nearby laboratory. Teaching aids include metallography specimen kits, dislocation in LiF kits, and crystallography packages.

Required Course Laboratories

UNIT OPERATIONS LABORATORY
This is primarily an instructional laboratory for senior undergraduate students, which involves 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, packed column for gas absorption, and agitated extractor. Other equipment includes stirred-tank reactors, packed-bed reactor, gas chromatography, and a variety of instrumentation for measuring flow, pressure, temperature, and weight. Equipment in emerging areas of chemical engineering has recently been added, including a fully instrumented microbial fermenter, membrane separator, and polymer extruder. A small shop also is available to students for use under a technician’s supervision.

PROCESS CONTROL LABORATORY
The process control laboratory is a modern, computer-based instructional laboratory for seniors. It 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 is set up to provide an ensemble of learning experiences with the same equipment, so that analogies and better insight into the control process can be obtained. 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 multicapacitance processes; approximations of multicapacitance 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 give students an appreciation for system characteristics inherent in industrial processes (e.g., large time lags, error in parameter estimation).

Graduate Facilities and Laboratories
To support and develop research activities, the department offers a wide variety of facilities. A summary of the major research equipment within and available to the department is listed below.

COMPUTER FACILITIES
The departmental computer facilities contain a variety of graphics workstations, printers, and microcomputers. The terminals connect to the University’s Weeg Computing Center, which makes available these computers: IBM 3090 and 3033, and a Vax 11/780. They also provide access to the college’s Computer-Aided Engineering Laboratory. The department is networked to the University’s Central Research Facility and the GIS laboratory of the Center for Global and Regional Environmental Research. The department also is connected to the Iowa Microelectronics Laboratory, housed in the electrical and computer engineering department, provides capabilities in small-scale microelectronic chip and substrate manufacturing, including vacuum deposition, a Cooke sputtering machine, photolithography apparatus, a belt furnace, air abraded, and a variety of electronic testing instruments.

PROCESS CONTROL LABORATORY
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Experimental arrangements in the laboratory are simple enough in design to be easily understood, yet complicated enough to give students an appreciation for system characteristics inherent in industrial processes (e.g., large time lags, error in parameter estimation).

MATERIALS CHARACTERIZATION FACILITIES
Facilities include a laboratory for the characterization of powders and particulate. The laboratory contains a variety of size and morphology instruments including a Quantachrome BET Surface Area Analyzer; a Stereo-Pycnometer for measuring powder density; an Autoscan Mercury Porosimeter; a Micromeritics Sedigraph; TSI, El-Zone, and Coulter Particle counters andizers; and a Shape Analysis for particle image analysis for morphological and texture determination.

Other facilities include sampling devices, devices for characterizing bulk properties; various mixers, grinders, and sizing equipment; optical microscopes; sintering furnaces; an abrasion tester; mounting and polishing equipment; a lab scale fluidized bed; and an extruder for the production of particles of specific size and shape. The laboratory also contains a fully controlled two-liter explosion chamber for the determination of dust explosibility and a Bruel and Kjaer fast fourier acoustic analyzer. In addition, there is access to the University’s Electron Probe Microanalysis and Electron Microscopy facilities.

There also are facilities available to study microelectronic materials. These include techniques and clean facilities to characterize crystal growth, wafer preparation, and etching techniques. In addition, the Hybrid Microelectronics Laboratory, housed in the electrical and computer engineering department, provides capabilities in small-scale microelectronic chip and substrate manufacturing, including vacuum deposition, a Cooke sputtering machine, photolithography apparatus, a belt furnace, air abraded, and a variety of electronic testing instruments.

Separation AND BIOSEPARATION PROCESSES
Equipment available for the study of separation processes includes 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 chromatography, a Perkin-Elmer UV-Vis scanning spectrophotometer, a computerized data acquisition system, and other analytical equipment. The department also has pilot plant equipment for the study of filtration, distillation, extraction, and other equilibrium stage processes.

BIOCHEMICAL ENGINEERING AND APPLIED BIOTECHNOLOGY
Facilities in the Biochemical Engineering Laboratory include a three-liter agitated bioreactor and a 15-liter airtight 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, Hybridoma/Tissue Culture, Flow Cytometry and Cell Sorting, Mass Spectrometry, Recombinant DNA Research, Protein Structure, and Large-Scale Fermentation.

LABORATORY OF APPLIED BIOCATALYSIS

The Laboratory of Applied Biocatalysis is designed for the study of enzymes, immobilized whole cells, and biopolymer and bioseparation technology. The laboratory occupies 1,800 square feet in the Chemistry Building and contains two analytical HPLC’s (equipped with a photodiode array and refractive index detection), a preparative HPLC, two gas chromatography (with FID and ECD detection), a scintillation counter for radioactivity measurements, an optical polarimeter, two rotary evaporators, a low-pressure Pharmacia liquid chromatography device with fraction collector, two UV-Vis scanning spectrophotometers, a spectrofluorophotometer, four temperature-controlled orbital shakers, several large-scale enzyme reactors, a Karl-Fisher water titrator, an ultrafiltration system for protein separations, a water purification system, two analytical digital balances, a top-loading digital balance, a cold box, a refrigerator, a freezer, a Sorvall centrifuge, two microscopes, and a freeze dryer.

Courses

General Topics

52:000 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 on the program on the student’s permanent record. Admission to Cooperative Education Program and consent of co-op faculty adviser required.

52:41 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 application. Prerequisite: 22M:36.

52:43 Chemical Engineering Thermodynamics 3 s.h.
Applications of thermodynamic principles to chemical and physical processes; prediction of material properties; phase equilibrium and chemical equilibrium applied to mixtures and reacting systems. Prerequisite: 52:41.

52:47 Unit Operations Laboratory I 2 s.h.
Laboratory investigations of transport phenomena and chemical engineering unit operations; design of experiments, operating procedures, data collection techniques, report writing, computer usage, laboratory safety. Prerequisites: 52:42, 52:43, 52:44, and 52:46.

52:48 Unit Operations Laboratory II 2 s.h.
Open-ended laboratory studies of transport phenomena, chemical engineering unit operations, process control, and reaction kinetics; emphasis on project design, construction, development, evaluation. Prerequisites: 52:45 and 52:47.

52:87 Chemical Process Safety 3 s.h.
Applications 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. Prerequisites: 52:43 and 52:44. Corequisites: 52:45.

52:90 Freshman Seminar: Chemical and Biochemical Engineering 0 s.h.
Introduction to the profession. Presentations, visits to laboratories, industries.

52:91 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. May be repeated. Sophomore standing required.

52:98 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. Consent of faculty adviser required.

52:117 Advanced “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: 52:43 or graduate standing.

52:18 Advanced Mathematical Methods for Chemical Engineers 3 s.h.
Analytical solutions to ordinary and partial differential equations, asymptotic approximations to partial differential equations, perturbation theory, asymptotic expansion of integrals, boundary layer theory, summation of series as applied to chemical engineering problems. Prerequisites: 52:43 or graduate standing.

52:147 Modeling Analysis 3 s.h.
Numerical analysis applied to transport phenomena, chemical kinetics, reaction design, emphasis on model foundation and numerical solution; ordinary and partial differential equations. Consent of instructor required. Same as 55: 160.

Biochemical Engineering

52:108 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: 4: 16, 4: 32, and 22M:36.

52:180 Biochemical Engineering 3 s.h.
Biochemical engineering design of bioreactor/fermenters, sterilization procedures, process scale-up, modern development, enzyme kinetics, transport phenomena, and mathematical modeling. Prerequisite: 52: 108.

52:247 Applied Enzymology 3 s.h.
Application of enzymes in biotechnology; enzymes as commercial biocatalysts; immobilized enzyme technology; isolation, purification, stabilization of enzymes; enzyme reactions; mechanisms of commercially important enzymes; enzymatic catalysis in unusual environments, catalytic antibodies and ribonucleases. Prerequisite: 52:180.

52:275 Perspectives in Biocatalysis 1 s.h.

52:280 Engineering Aspects of Animal Cell Culture 3 s.h.
Applications of animal cell culture (insect and mammal) 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: 52: 180 or consent of instructor.

M1ASS Transfer

52:240 Differential Mass Transfer 3 s.h.
Fundamentals of binary and multimodal diffusion mass transfer processes; mass transfer in laminar and turbulent flows. Prerequisite: 52:144.

Environmental Engineering

52:152 Environmental Chemistry 3 s.h.
Principles of general, physical, organic, and inorganic chemistry applied in water and air systems; emphasis on qualitative and quantitative understanding of chemical and physical processes; acid-base reactions, complex formation, precipitation, dissolution, oxidation-reduction reactions, organic nomenclature. Prerequisite: 4: 13. Same as 53:152.

52:159 Air Pollution Control Technology 3 s.h.
Sources, environmental and health impacts, regulations and modeling of air pollution; processes and strategies for control, global climate considerations. Prerequisite: 53: 150 or consent of instructor. Same as 53:159.

52:163 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. Consent of instructor required. Same as 53:161.

Reactor Engineering

52:45 Chemical Reaction Kinetics 3 s.h.
Application of chemical reaction kinetics to design of chemical reactors: batch reactors, mixed flow reactors, plug flow reactors; irreversible and irreversible single reactions; parallel, series, and mixture reactions; pressure effects on reaction design; heterogeneous catalysis; transport in porous catalysts. Prerequisites: 52:43 and 52:44.

52:148 Catalysis 3 s.h.
Heterogeneous catalysis, with emphasis on applications of collision theory, transition state theory, acid base concepts to catalysis and use of surface analysis techniques. Prerequisite: 4:131.

52:245 Advanced Chemical Reactor Design 3 s.h.
Advanced design of reactors for heterogeneous solid-catalyzed reactions; heterogeneous catalysis and characterization, kinetics of catalytic reactions, transport and reaction in porous catalysts, catalytic reactor design, selectivity and stability in catalyst pellets, fixed-bed catalytic reactor, reactor optimization. Prerequisite: 52:45.

Transport Phenomena

52:42 Momentum Transport 3 s.h.
Transport phenomena, differential and integral momentum balances, fluid rheology, applications of equations in motion; topics include boundary layer flow, laminar and turbulent flow in ducts, packed beds, fluidized beds, flow over cylinders, pumps, agitators, filtration; design considerations, dimensional analysis. Prerequisite: 52:41.

52:44 Mass Transfer Operations 3 s.h.
Mechanics of conductive, convective, radiative heat transfer and principles of diffusional processes; applications including design of heat exchange, evaporation, distillation, extraction, absorption, heating, humidification, adsorption, drying, ion exchange processes. Prerequisites: 4: 131, 52:42, and 52:43.

52:46 Heat Transport 2 s.h.

52:144 Transport Phenomena I 3 s.h.
Unified treatment of momentum, mass, and energy transport in chemical engineering problems; use of vector and tensor notations in expressing equations of conservation, motion, energy. Prerequisites: 52:42 and 52:44, or consent of instructor.

52:244 Topics in Transport Phenomena 3 s.h.
May be repeated. Prerequisite: 52:144.

52:246 Transport and Reaction in Porous Media 3 s.h.
Advanced and unified models of gaseous and liquid transport in porous media and membranes, with emphasis on modeling of chemical reactions in porous catalysts; dusty-gas and dusty-fluid flows, including experimental characterization of flux; Fent and Stewart models; irreversible thermodynamics. Prerequisite: 52:144 or equivalent.

Materials Science

52:149 Polymer Science and Technology 3 s.h.
Uses, properties of industrially important polymeric materials; polymer chemistry, polymer structure, characterization, polymer processing. Prerequisite: 4: 13. Same as 53:159.

52:156 Scanning Electron Microscopy and X-Ray Microanalysis 3 s.h.
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 2: 156, 12: 156, 60:156.

52:157 Transmission Electron Microscopy and X-Ray Microanalysis 3 s.h.
Theory, operation, application of TEM, STEM, thin film X-ray microanalysis techniques for materials science majors; practice in a variety of specimen preparation techniques, including metals, glasses, ceramics, minerals. Consent of instructor required. Same as 12:165.
52:170 Nanotechnology 3 s.h.
Molecular technology, assemblers, change, molecular machines, intelligence, applications, constraints, evaluation. Prerequisite: 57:15.

52:257 Seminar in X-Ray Microanalysis in Materials Science 3 s.h.

52:272 Advanced Scanning Electron Microscopy 3 s.h.
Theoretical and practical aspects of high-resolution scanning electron microscopy, advanced electron beam specimen interaction, image analysis and signal processing techniques in a wide variety of applications using state-of-the-art equipment. Consent of instructor required. Prerequisite: 52:156. Same as 12:272. Foundations and applications of morphological analysis.

Process Dynamics, Design, Analysis

52:85 Process Dynamics and Control in Design 3 s.h.
Theory and applications 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; emphasis on computer methods, including simulation and use of commercial software; laboratory emphasizes process analysis and design. Prerequisites: 52:43 and 52:44.

52:86 Chemical Engineering Process Design 3 s.h.
Design of chemical process plants, including application of process calculations, thermodynamics, kinetics, process synthesis, energy efficiency in operations, heat-exchanger network synthesis, physical property estimation, safety, computer-aided design, unit operations theory, process control, economics, economic optimization. Prerequisites: 52:45, 52:47, 52:83, and 52:21.

Graduate Seminars, Advanced Topics, Research

52:190 Readings in Chemical and Biochemical Engineering arr.
For graduate nonmajors who want to count credit in undergraduate chemical engineering courses. May be repeated. Graduate standing in a discipline other than engineering and consent of instructor required.

52:191 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. Graduate standing required.

52:198 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. Graduate standing and consent of supervising faculty adviser required.

52:199 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. in chemical and biochemical engineering. Graduate standing and consent of faculty adviser required.

52:299 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. Consent of adviser required.

CIVIL AND ENVIRONMENTAL ENGINEERING

Chair: Gene F. Parkin

Associate professors: M. Asghar Bhatti, Cheryl Contant, Witold F. Krajewski, Burton C. Kears, Wilfrid A. Nixon, James W. Stoner, Richard L. Valentine, Frank H. Weirich

Adjunct associate professor: Constantine P. Georgakakos, Satoshi Nakato
Assistant professors: Pedro J. Alvarez, A. Allen Bradley, Anmarie Eldering, Colby C. Swan

Adjunct assistant professors: M. P. Cherian, J. Kent Johnson, Louis L. Licht, Fred L. Ogden, Martin A. St. Clair, Larry J. Weber

Undergraduate degree: B.S.E. in Civil Engineering
Graduate degrees: M.S., Ph.D. in Civil and Environmental Engineering

Civil engineering is one of the three largest fields of engineering. It traditionally has been concerned with facilities that are both large-scale and integral 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 rehabilitation, construction management, computer-aided design, hazardous waste management, and engineered environmental systems.

There is a critical and growing need for civil and environmental engineers. Shortages are projected for civil engineering professionals and educators in the 1990s and beyond. 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 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. Also there is significant entrepreneurial potential for civil and environmental engineers as they start their own companies.

Undergraduate Program

Civil engineering courses build on the College of Engineering core curriculum and are designed to give all students the broad educational background essential to modern civil engineering practice. Students may choose from one of four subtracks—general, environmental, hydraulic, and water resources, and structures—which can provide breadth (the general subtrack) or concentration in a desired area of specialization (environmental, hydraulics and water resources, or structural subtracks).

Curriculum

Requirements for the first three semesters are the same for all four subtracks. Beginning with second semester sophomore year, requirements for the environmental subtrack are unique. Requirements for the general, hydraulics and water resources, and structures subtracks remain the same through first semester junior year and diverge after that. Thus, students who choose the environmental subtrack must make their choice earlier than those who choose one of the other subtracks. Subtrack requirements are as follows.

*The humanities and social science electives must be selected to satisfy the humanities and social sciences requirements of the College of Engineering.

**The CEE Field Trip requirement can be met in either the junior or senior year.

FRESHMAN YEAR

First Semester
4:13 Principles of Chemistry I 3 s.h.
10:3 Accelerated Rhetoric 4 s.h.
22M.35 Engineering Calculus I 4 s.h.
53:10 CEE Freshman Seminar 0 s.h.
57:5 Engineering I 3 s.h.

*Humanities or social science elective 3 s.h.

Second Semester
4:16 Principles of Chemistry Lab I 2 s.h.
22M.36 Engineering Calculus II 4 s.h.
22M.40 Matrix Algebra for Engineers 2 s.h.
29:17 Introductory Physics I 4 s.h.
53:10 CEE Freshman Seminar 0 s.h.
57:6 Engineering II 3 s.h.

SOPHOMORE YEAR

First Semester
22M.42 Vector Calculus for Engineers 3 s.h.
29: 18 Introductory Physics II 4 s.h.
53:29 CEE Sophomore Seminar 0 s.h.
57:7 statics 2 s.h.
57:9 Thermodynamics I 3 s.h.

*Humanities or social science elective 4 s.h.

Environmental Subtrack

SOPHOMORE YEAR

Second Semester
4:14 Principles of Chemistry II 3 s.h.
22M.41 Differential Equations for Engineers 3 s.h.
53:20 CEE Sophomore Seminar 0 s.h.
53:81 Computers in Civil Engineering 3 s.h.
57:10 Dynamics 3 s.h.
57:19 Mechanics of Deformable Bodies 3 s.h.

JUNIOR YEAR

First Semester
22S:39 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
53:30 Soil Mechanics 3 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
53:130 Environmental Engineering: Natural Systems 3 s.h.
53:152 Environmental Chemistry I 3 s.h.
57:20 Mechanics of Fluids and Transfer Processes 4 s.h.
Civil and Environmental Engineering ● Engineering 353

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>53:71</td>
<td>Principles of Hydraulics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:78</td>
<td>Principles of Hydrology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>53:91</td>
<td>Professional Seminar: Civil Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td><strong>53:92</strong></td>
<td>Field Trip in Civil and Environmental Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>53:155</td>
<td>Environmental Engineering: Engineered Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>57:8</td>
<td>Electrical Circuits</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>57:21</td>
<td>Principles of Design I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td><em>Humanities or social science elective</em> (100 level)</td>
<td>3 s.h.</td>
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</table>

** SENIOR YEAR **

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>53:63</td>
<td>Transportation Engineering</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:79</td>
<td>Hydraulic Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:91</td>
<td>Professional Seminar: Civil Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>53:136</td>
<td>Structural Design II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:150</td>
<td>Environmental Engineering: Natural Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td><em>Humanities or social science elective</em> (100 level)</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**Technical elective**

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>53:84</td>
<td>Project Design and Management in Civil Engineering</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:85</td>
<td>Experiments in Civil and Environmental Engineering</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>53:91</td>
<td>Professional Seminar: Civil Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td><strong>53:92</strong></td>
<td>Field Trip in Civil and Environmental Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td><em>Humanities or social science elective</em> (100 level)</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**Technical electives**

**Subtrack**

**Sophomore Subtrack**

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:41</td>
<td>Differential Equations for Engineers</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>57:10</td>
<td>Dynamics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>57:15</td>
<td>Materials Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>57:19</td>
<td>Mechanics of Deformable Bodies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:20</td>
<td>CEE Sophomore Seminar</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>53:81</td>
<td>Computers in Civil Engineering</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Junior Year**

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22S:39</td>
<td>Probability and Statistics for Engineering and Physical Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:30</td>
<td>Soil Mechanics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:33</td>
<td>Structural Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:91</td>
<td>Professional Seminar: Civil Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>57:20</td>
<td>Mechanics of Fluids and Transfer Processes</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>57:21</td>
<td>Principles of Design I</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>53:34</td>
<td>Structural Design I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:71</td>
<td>Principles of Hydraulics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:78</td>
<td>Principles of Hydrology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>53:91</td>
<td>Professional Seminar: Civil Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td><strong>53:92</strong></td>
<td>Field Trip in Civil and Environmental Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>57:8</td>
<td>Electrical Circuits</td>
<td>3 s.h.</td>
</tr>
<tr>
<td><em>Humanities or social science elective</em> (100 level)</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**Two technical electives**

**Graduate Programs**

The graduate program in civil and environmental engineering at both the M.S. and Ph.D. levels prepares students for professional careers and further study. The principal areas of concentration are environmental engineering and science; hydraulics; hydrology and water resources; structures, mechanics, and materials; and transportation.
Research

Environmental Engineering and Salem

This 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 is conducted with programs including the Iowa Institute of Hydraulic Research, 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, Geology, Microbiology, Preventive Medicine 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 curricula are associated with the Iowa Institute of Hydraulic Research, a research organization that is world renowned. Senior staff members of the institute are professors in the program; they devote about half of their time to teaching.

The institute 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 the acquisition and processing of data. The Computational Laboratory for Hydrometeorology and Water Resources, with its high-speed computer facilities and advanced graphics and communication software, complements the hydrology and water resources curricula.

Structures, Mechanics, and Materials

The structures, mechanics, and materials curricula are directed primarily toward computer-aided structural design, optimization, and mechanics of materials. Special strengths exist in the areas of structural optimization, computational methods, concrete and prestressed concrete structures, soil behavior, ice engineering, and constitutive equations for metals and geotechnical materials. Course work and research in structural design and optimization, dynamics of structures, finite element techniques, soil mechanics and foundations, concrete structures, and continuum mechanics and plasticity are available.

Transportation

The transportation curriculum includes work in planning, design, construction, and operation of transportation systems and facilities. Cooperative relationships exist with the graduate programs in urban and regional planning and transportation studies. Cooperative research is conducted with the Public Policy Center, the Center for Simulation and Design Optimization, the DOT Midwest Transportation Center, the Iowa Driving Simulator, and the National Advanced Driving Simulator. (See “Urban and Regional Planning” and “Transportation Studies” in the College of Liberal Arts section of the Catalog.)

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.

In general, the plan of study, with or without thesis, must include a minimum of 30 semester hours, with no more than 6 semester hours allowed for the thesis. An additional 3 semester hours are required in the nonthesis environmental engineering and science curriculum.

Students, with the approval of their adviser, develop a plan of study that satisfies special requirements of their chosen curriculum. All degree candidates are expected to have a 3.00 minimum grade-point average. They must pass an oral examination and, in some program options, a written examination.

Doctor of Philosophy

The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements for semester hours of course work vary among the specialty areas. Candidates usually need at least three years of full-time work beyond the baccalaureate degree, one year of which is devoted to the preparation of a dissertation that contributes to knowledge in the field. In some specialty areas, a qualifying examination is required for students who have not earned an M.S. in an approved curriculum. The Ph.D. program requires 72 semester hours beyond the baccalaureate degree. Some program options have higher requirements.

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 when virtually all of the student’s course work has been completed.

The program culminates in a final examination, in which candidates must successfully defend their dissertation.

Doctoral candidates are expected to maintain a 3.20 minimum grade-point average of throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the program in applied mathematical sciences (see “Division of Mathematical Sciences” in the College of Liberal Arts section of the Catalog).

Admission

Each curriculum of the program is quite flexible; students may be admitted from all disciplines of engineering as well as from the mathematical and basic sciences.

Applicants for the master’s degree program are expected to have a cumulative 2.75 minimum undergraduate grade-point average; 3.00 is preferred. For admission to candidacy for the doctorate, the minimum grade-point average is 3.20 based upon previous graduate work. Applicants whose grade-point averages are slightly lower are invited to correspond regarding admission possibility. A Graduate Record Examination (GRE) General Test score of at least 1100 (verbal and quantitative) is recommended. Lower GRE General Test scores are considered with other evidence of academic promise (recommendation letters, grade-point average). CRE General Test scores are used in admission and financial aid decisions.

All applicants must meet the general admission requirements of the Graduate College (see the Graduate College section of the Catalog).

Financial Aid

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 Instruction

Engineering Core

The freshman engineering course 57:5 Engineering 1 includes an introduction to the Iowa Computer-Aided Engineering Network (ICAEN), which is described under “College Facilities” in this section of the Catalog. Students in the course learn word processing on Macintosh microcomputers and elementary graphics using Hewlett-Packard workstations. Junior students in the course Principles of Design I make extensive use of the computer hardware and software available through ICAEN.

For information about laboratories affiliated with core courses coordinated by other engineering
Required and Elective Course

**53:30** Soil Mechanics (3 s.h.): equipped for determining the classification, seepage characteristics, stress-strain properties, and strength of soils.

**53:71** Principles of Hydraulics (3 s.h.): hydraulics of pressure conduits and open channels, dimensional analysis, flow measurements, hydraulic machinery, with laboratory.

**53:85** Experiments in Civil and Environmental Engineering (2 s.h.): consists of experimentation in the environmental and structural areas; offered at the Environmental Engineering Laboratory and the undergraduate Structures/Mechanics/Materials Laboratory as a survey course with hands-on experimentation.

**53:153** 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 at the Environmental Engineering Laboratory.

**53:154** Environmental Microbiology (3 s.h.): typical microorganisms isolated and their physiology and metabolic characteristics studied in the Environmental Engineering Laboratory.

**53:155** Environmental Engineering: Engineered Systems (3 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 engineering and microbiology.

**53:156** and **53:151** Physical/Chemical and Biological Treatment Processes course laboratory: 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 Facilities and Laboratories

**ENVIRONMENTAL ENGINEERING AND SCIENCE LABORATORIES**

Research in environmental engineering is conducted in the department’s Philip F. Morgan Sanitary Engineering Research Laboratory at the Iowa City North Municipal Wastewater Treatment Plant, at the Environmental Engineering Laboratory of the University Water Treatment Plant, and in the Hazardous Substances Research Laboratory at the Engineering Research Facility.

The Morgan laboratory is devoted to research activities in the wastewater treatment area. It includes a walk-in incubator for temperature-controlled treatment studies, a modern wet chemistry laboratory, a 10,000-gallon aeration tank, and space for bench and pilot studies of wastewater treatment.

The Environmental Engineering Laboratory is equipped for both routine and advanced chemical and biological analyses of water and provides space for both bench and pilot scale studies. The entire 9 million gallons-per-day University Water Treatment Plant is especially designed to enable the study of treatment operations and processes.

The Hazardous Substances Research Laboratory is a 2,100-square-foot facility designed specifically for research into the properties and reactivity of chemical compounds of environmental concern. The laboratory consists of a suite of eight rooms connected by a central hallway, which is entered through an air lock. The laboratories are maintained at a positive pressure relative to the hallway to reduce the influx of dust. Ventilation in the laboratories is “once through,” which means that air is not recirculated, thus eliminating the possibility of cross-contamination. Air in the laboratories is constantly passed through High Efficiency Particulate Air (HEPA) filters, which make low-level and trace analyses possible.

Analytical instrumentation in the laboratory includes HP5890 Series II gas chromatography with flame ionization and nitrogen-phosphorus detectors and with thermal conductivity and electron capture detectors; HP5890 Series I gas chromatography with flame ionization and electron capture detectors; Tekmar purge and trap (connected to FID); Gilson gradient and isocratic analytical HPLC; Perkin Elmer atomic absorption spectrophotometer with graphite furnace, autosampler, and mercury/hydride system; Beckman LS6001C liquid scintillation counter; Dionex 5000i ion chromatography; and a Milton Roy Spectronic 601 UV/visible spectrophotometer.

Three of the rooms in the laboratory are environmental chambers capable of maintaining temperatures from 0 to 60 degrees celsius to provide control for chemical and biochemical reactions. The laboratory has a 50-cubic-foot plant-growth chamber with light, temperature, and humidity control. An additional 400 square feet of laboratory space is available for projects that do not require “clean” conditions. The center also includes a Hewlett-Packard workstation for modeling studies as well as a number of personal computers for data acquisition and analysis.

The laboratory is affiliated with the U.S. EPA Region 7 and 8 Hazardous Substances Research Center, the Center for Health Effects of Environmental Contamination, a cooperative unit of the Colleges of Engineering and Medicine, and the NIEHS Environmental Research Core Center.

A 1000-square-foot air pollution laboratory in the Center for Global and Regional Environmental Research (CGER) is designed for chemical and aerosol particle analysis, stack gas sampling, and ambient air quality monitoring. Air quality modeling and spatial analysis of data are performed in the center’s 1000-square-foot Geographical Information Systems Laboratory, located in the Iowa Advanced Technology Laboratory. The latest software (ARCINFO, CRASS) is used, and six Hewlett-Packard workstations are networked using the UNIX-based operating system.

**HYDRAULICS, HYDROLOGY, AND WATER RESOURCES LABORATORIES**

The teaching and research functions of the department are closely connected to the research and contractual activities of the Iowa Institute of Hydraulic Research, which also includes a 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 flumes, a refrigerated wind tunnel, a computer-controlled digital data acquisition 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 utilizes a Hewlett-Packard DN10000 superminicomputer, 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 MATERIALS LABORATORIES**

Laboratories for optimal design, plasticity, soils, structural testing, and ice engineering are available for teaching and research. The optimal design laboratory has a state-of-the-art network of Hewlett-Packard workstations and other peripherals. It is used to conduct research on modern computational methods for design optimization of complex structural systems. The structures, soils, and plasticity labs are equipped for the determination of physical and mechanical properties of metals, concrete, soils, and plastics. Equipment includes a computer-controlled MTS axial-torsional test system, universal testing machine, and a creep machine.

The ice engineering research lab has a uniaxial MTS test system with a state-of-the-art data acquisition system. There also is a Tintins 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**

53:000 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. Admission to the Cooperative Education Program and consent of faculty adviser required.

53:10 CEE Freshman Seminar 0 s.h.

Introduction to civil and environmental engineering curriculum and profession; presentations by senior undergraduate students, graduate students, faculty; laboratory visits. Open only to freshmen.
53:20 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. Open only to sophomores.

53:81 Computers in Civil Engineering 3 s.h.
Mini and microcomputer applications in civil engineering: spreadsheets, database management, expert systems, computer graphics, network development in software and hardware; individual and team projects selected from structures, hydraulics, transportation, environmental engineering. Prerequisites: 53:80.

53:83 Surveying and Remote Sensing 3 s.h.
Surveying measurements, methods, computations. Prerequisite: 57:5.

53:84 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. Senior standing required. Prerequisite: 57:21.

53:85 Experiments in Civil and Environmental Engineering 2 s.h.
Basic laboratory procedures in civil and environmental engineering, with emphasis on environmental studies, materials testing. Prerequisites: 53:80, 57:19.

53:91 Professional Seminar: Civil Engineering 0 s.h.
Professional aspects of civil engineering presented through lectures and discussions by guest speakers, field trips, films, panel meetings. May be repeated. Junior standing required.

53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
Observation of projects, facilities relating to environmental, hydraulics and water resources, structures and materials, transportation. Corequisite: 53:91.

53:99 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. Consent of faculty advisor required.

53:111 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:41. Same as 58:111.

53:113 Mathematical Methods in Engineering 3 s.h.

53:115 Computer-Aided Engineering 3 s.h.
Fundamentals of computer graphics, visualization of engineering design and analysis data, developing a window-based user interface development; applications of these techniques to engineering problems. Prerequisite: working knowledge of FORTRAN or Pascal. Same as 58:110.

53:212 Analytical Methods in Thermo-Field Mechanics 3 s.h.
Theory and solution techniques for first and second-order partial differential equations; wave equation; Laplace equation; heat equation; Navier-Stokes and Energy equations; calculus of variations—Euler, Lagrange equation, Sturm-Liouville problems, Rayleigh-Ritz method; variational methods in fluids/fields; integral equations—Green’s functions, Volterra and Abel equations, Fredholm equations. prerequisite: 53:113. Same as 58:212.

53:214 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: 53:113. Same as 58:214.

53:220 Intermediate Mechanics of Deformable Bodies 3 s.h.
Application of equilibrium equations, strain-displacement relations and constitutive relationships to practical structural systems and elementary plane elasticity problems. Prerequisite: 57:19. Same as 51:151, 58:150.

53:221 Advanced Structural Dynamics 3 s.h.
Micro- and macro-continuum 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; fatigue, stress, fatigue, damage tolerant design; constant, variable amplitude life predictions; notch, residual stress, corrosion, temperature, multiaxial, weldments. Prerequisites: 53:33 or 53:35 or 58:150 or 58:151 or equivalent. Same as 58:158.

53:49 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, fatigue, fatigue tolerant design, corrosion, creep-fatigue design. Prerequisites: 53:33 or 58:55 or 51:85 or 58:150 or equivalent. Same as 58:159.

53:222 Advanced Structural Dynamics 3 s.h.
Modeling for dynamic analysis methods, large-scale eigenvalue solvers; earthquake and wind loading; random vibrations; offshore structures; recent developments; practical applications using commercially available software. Prerequisites: 53:132 and 53:133.

53:223 Finite Element Techniques Engineering II 3 s.h.
Computer implementation; plate and shell elements; mixed and hybrid formulations, non-linear behavior; introduction to boundary element method. Prerequisite: 53:133. Same as 58:215.

53:235 Applied Optimal Design 3 s.h.
Optimal design problem formulation; necessary and sufficient conditions of optimality; unconstrained optimization algorithms; linear, quadratic, nonlinear programming; modern computer-aided optimal design algorithms; emphasis on design applications.

53:236 Optimization of Structural Systems 3 s.h.
Advanced topics in structural optimization; finite element structures, substructuring, fail-safe design; finite dimensional dynamic response optimization; sensitivity analysis; worst-case design; distributed parameter systems, calculus of variations; computer applications. Prerequisite: 53:235.

53:241 Continuum Mechanics and Elasticity 3 s.h.
Cauchy tensors and geometrical concepts; concept of stress, strain, motion; fundamental physical laws; constitutive equations and finite elasticity; equations of linear elasticity, elastic extension, torsion and bending of bars. Prerequisites: 53:13 and 53:140. Same as 58:251.

53:242 Topics in solid Mechanics 3 s.h.
Current topics such as plate theory of elasticity, stress around crack tip, flow theory of plasticity, computational plasticity, damage mechanics, micro-mechanics. Prerequisite: 53:140 or equivalent. Same as 58:255.

53:244 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: 53:113 and 53:140. Same as 58:254.

53:246 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: 53:241 or equivalent. Same as 58:258.

53:247 Theory of Viscoplasticity 3 s.h.
Linear theory of viscoplasticity; nonaging materials; Boltzman superposition principle, linear functionals; thermodynamics; foundations; time-temperature superposition principle; boundary and initial value problems. Prerequisites: 53:140 or 53:241. Same as 51:257, 58:257.

53:103 Hydrogeology and Groundwater Quality 3 s.h.
Quantity and quality aspects of groundwater flow; wells, pumping tests, flow nets, water chemistry, aquifer contamination, mathematical solutions, includes lab and field experiments. Senior or graduate standing in engineering or geology required. Same as 12:166.
53:104 Groundwater Modeling 3 s.h. Principles and equations of groundwater flow and contaminant transport in aquifers; advective and dispersive processes, numerical methods, stochastic approaches, applications of groundwater modeling software. Prerequisites: 22M:26 or 22M:36, and 12:166 or 53:103. Same as 12:184.

53:150 Environmental Engineering: Natural Systems 3 s.h. Environmental chemistry and biology of air, water, and soil quality, air and water pollution, linnology, global atmospheric change, fate and transport of pollutants, hazardous substances; risk analysis, standard setting. Prerequisite: 4:13.


53:152 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 formations, precipitation, dissolution, and oxidation reduction reactions; organic nomenclature. Prerequisite: 4:14. Same as 52:152.

53:153 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: 4:16 or equivalent. Corequisite: 53:152.

53:154 Environmental Microbiology 3 s.h. Fundamentals of microbiology and microbial ecology with application in water quality and biodegradation of priority pollutants in bioremediation and compost. Corequisite: 53:152.

53:155 Environmental Engineering: Engineered Systems 3 s.h. Water supply and treatment processes; wastewater treatment processes; processes for air pollution control, groundwater remediation, solid waste management. Prerequisites: 53:71 and 53:150, or consent of instructor.

53:156 Physical-Chemical Treatment Processes 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: 53:150 and 53:152. Corequisite: 53:155.

53:157 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: 53:71, 53:150, and 53:151.

53:158 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: 53:150. Same as 12:159.

53:159 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: 53:150 or consent of instructor. Same as 52:159.

53:160 Modeling Analysis 3 s.h. Application of numerical analysis to transport phenomena, chemical kinetics and reactor design; emphasis on model formulation and numerical solutions; ordinary and partial differential equations. Consent of instructor required. Same as 52:147.

53:161 Atmospheric Chemistry and Physics 3 s.h. Basic principles of physical and chemical processes occurring in the atmosphere, including radiation, transport, turbulence, and turbulence modeling. Prerequisite: 53:169.


53:179 Hydroclimatology 3 s.h. Fundamentals of electromagnetic waves, atmospheric radiative transfer, passive remote sensing, weather radar, hydrologic application of remote sensing. Prerequisite: 53:116 or consent of instructor.

53:180 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: 53:20. Same as 58:117.

53:196 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: 53:169. Same as 58:262.

53:197 Inviscid Fluid 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: 53:169. Same as 58:262.
53:280 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: 53:116 and 53:178.

Graduate Seminars, Advanced Topics, Research

53:190 Readings in Civil and Environmental Engineering
arr.
For graduate nonmajors who want to earn credit in undergraduate civil and environmental engineering courses. May be repeated. Graduate standing in a discipline other than engineering and consent of instructor required.

53:191 Graduate Seminar: Structures, Mechanisms, Materials 0 s.h.
Presentation and discussions of recent advances and research in structures, mechanics, and materials engineering by guest lecturers, faculty, students. Senior or graduate standing required.

53:192 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. Senior or graduate standing required.

53:193 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. Senior or graduate standing required.

53:194 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. Senior standing required.

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. Graduate standing and consent of faculty adviser required.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for the M.S. degree with thesis in civil and environmental engineering. Graduate standing and consent of faculty adviser required.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for the Ph.D. degree in civil and environmental engineering. Consent of faculty adviser required.

Electrical engineers make vital contributions to nearly all facets of modern society through their work in areas such as medical imaging, robotics, satellite communications, and fiber optics. From automated teller machines and high-definition television to remotely-piloted vehicles and satellite-originated weather maps, electrical engineers’ contributions to computer hardware and software and to telecommunications are changing everyday life profoundly.

Many benefits that have sprung from electrical engineering technology now are taken for granted - noninvasive imaging of the brain, astonishing views of the solar system’s outer planets, and international telecommunications and broadcasting. Electrical engineers also play crucial roles in major emerging technologies, such as computer networking; wireless, optical, and satellite communication; automated manufacturing; lasers; and medical imaging.

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 and efficiency and new technologies.

Graduates of the program are employed in semiconductor, aerospace, telecommunication, radio, television, computer, and power industries. The electrical engineer works in research, design, development, manufacturing, sales, market analysis, consulting, field service, and management.

Undergraduate Program

The undergraduate program provides a strong background in basic electrical and computer engineering subjects, physics, and mathematics and allows for concentration in several areas through six technical elective courses usually taken in the senior year. Students can concentrate in one or more areas chosen from computers, control, communication, electronics, and applied physics.

Curriculum

*The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering. **

FRESHMAN YEAR
First Semester
412 Principles of Chemistry I 3 s.h.
103 Accelerated Rhetoric 4 s.h.
22M:35 Engineering Calculus I 4 s.h.
57:5 Engineering I 3 s.h.
**Humanities or social science elective 3 s.h.

Second Semester
416 Principles of Chemistry Lab I 2 s.h.
22M:36 Engineering Calculus II 4 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
29:17 Introductory Physics I 4 s.h.
57:6 Engineering II 3 s.h.

Sophomore Year
First Semester
22M:41 Differential Equations for Engineers 3 s.h.
29: 18 Introductory Physics II 4 s.h.
57:7 States 2 s.h.
57:8 Electrical Circuits 3 s.h.
57:9 Thermodynamics I 3 s.h.

Second Semester
22M:42 Vector Calculus for Engineers 3 s.h.
57:12 Linear Systems Analysis 3 s.h.
57:17 Computers in Engineering 3 s.h.
57:18 Principles of Electronic Instrumentation 4 s.h.
*Humanities or social science elective 3 s.h.

Junior Year
First Semester
22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
55:32 Introduction to Digital Design 3 s.h.
55:41 Electronic Circuits 4 s.h.
55:42 Signals and Systems 3 s.h.
55:91 Professional Seminar: Electrical Engineering 0 s.h.
*Humanities or social science elective 3 s.h.

Second Semester
55:33 Introduction to Software Design 3 s.h.
55:50 Communication Systems 3 s.h.
55:60 Control Systems 3 s.h.
55:70 Electromagnetic Theory 3 s.h.
29:83 Modern Physics 3 s.h.

Senior Year
First Semester
55:72 Electrical Engineering Materials and Devices 3 s.h.
55:88 Principles of Electrical Engineering Design 3 s.h.
55:91 Professional Seminar: Electrical Engineering 0 s.h.
Technical electives (see “Technical Electives” below) 9 s.h.
*Humanities or social science elective 3 s.h.

Second Semester
55:89 Senior Electrical Engineering Design 3 s.h.
Technical electives (see “Technical Electives” below) 9 s.h.
*Humanities or social science elective 4 s.h.

Technical Electives

Students must choose at least two courses from the following list. Technical electives must have an engineering orientation and cannot be drawn from the social sciences, the humanities, or skills courses. Students should consult The Undergraduate Manual for details.

55:35 Computer Architecture and Organization 3 s.h.
55:68 Power Systems Analysis 3 s.h.
55: 130 Switching Theory 3 s.h.
55:131 Introduction to VLSI Design 3 s.h.
55:138 Testing Digital Logic Circuits 3 s.h.
55:141 Power Electronics 3 s.h.
55:143 Linear Integrated Electronics 3 s.h.
55:144 Digital Integrated Electronics 3 s.h.
55:146 Digital Signal Processing 3 s.h.
55:148 Digital Image Processing 3 s.h.
55:152 Communication Theory 3 s.h.
55:152 Introduction to Information and Coding Theories 3 s.h.
55:160 Control Theory 3 s.h.
55:164 Computer-Based Control Systems 3 s.h.
55:172 Solid State Physical Electronics 3 s.h.
55:178 Optical Signal Processing 3 s.h.
57:21 Principles of Design I 3 s.h.
57:22 Principles of Design II 3 s.h.

Graduate Programs

Electrical and computer engineering offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Thesis and nonthesis M.S. programs are available; either may precede Ph.D. studies. A special M.S. subtrack in software engineering is also available. Excellence in scholarship and research is supplemented by close contact with the faculty throughout the period of graduate study and through programs tailored to fit individual needs.

Students select an adviser and, with the adviser, plan an individual program bounded only by a few broad guidelines imposed by the Graduate College and by the program. Close interdisciplinary ties with other departments exist both within and outside the college, especially with the Departments of Internal Medicine, Radiology, Physics, Computer Science, Mechanical Engineering, and Biomedical Engineering. The principal areas of concentration are waves and materials, computer systems, signal and image processing, and control systems and robotics. Each is briefly described here.

Research

Waves and Materials

Plasma physics, electro-optics, nonlinear optics, optical signal processing, acousto-optics, and heterojunction materials and device investigations utilize specialized laboratories in the Engineering Building, Van Allen Hall, and Iowa Advanced Technology Laboratories. Collaborative research with the physics department is directed toward topics in nonlinear plasma physics of a theoretical as well as experimental nature. These topics include plasma confinement and stability and nonlinear wave phenomena, such as solitons and shocks. Research activities in the ultrafast photonic facility include nonlinear optics, and high-speed characterization of optical and electronic properties of semiconductors. Together, the systems used in this research provide optical pulses with temporal durations ranging from 30 femtoseconds to 30 nanoseconds, wavelengths ranging from the ultraviolet to the infrared, repetition rates from pulses delivered upon demand up to 100 MHz, and peak powers exceeding 1 GW.

In the electro-optics laboratory, research focuses on acousto-optics, in which sound-carried signals are processed by light. An additional area of interest is unconventional microscopy, in particular, near-field optical microscopy, which aims to make visible details smaller than the wavelength of light.

Research in the area of silicon-based heterojunction materials and devices also is being conducted. Novel electronic and opto-electronic devices are grown by low-temperature chemical vapor deposition and tested using a variety of electronic and optical techniques. Specific materials of interest include silicon carbide and silicon-germanium grown on silicon substrates.

Computer Systems and Software Engineering

Research emphasis in computer systems is directed toward high performance computer architecture design, parallel programming paradigms, parallel debugging environments, highly reliable computer systems, design and testing of VLSI circuits, parallel algorithms for VLSI Computer-Aided Design (CAD) tools, and distributed computing. Areas of interest include fault-tolerant computing, testing of digital logic circuits, parallel architectures, coding, and VLSI circuit design. Research in software engineering focuses on software reliability analysis and tools for software development and debugging.

This work is supported by departmental facilities, including a network of SUN and HP workstations as well as a network connection to collegiate, University, and national facilities. These include the ICAEN (the college’s computer facility), the University’s Weeg Computing Center, national supercomputer centers, federal laboratories, and facilities at other universities.

Current projects include design of easily testable, VLSI circuits; test pattern generation for VLSI circuits, parallel algorithms for routing and logic simulation; applications of distributed/parallel processing for real-time dynamic simulation; performance evaluation of parallel computers; programming environments for portable MIMD computing; debugging techniques and software tools for high-performance parallel software development.

Signal and Image Processing

Image processing and basic and applied signal processing are areas of emphasis. A digital signal processing laboratory and an image analysis laboratory are available to support this research. The Cardiovascular Imaging Processing Laboratory, located in the Cardiovascular Center at The University of Iowa Health Center, also is available. Collaborative research with faculty in the Departments of Radiology, 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, band-limited extrapolation for limited angle tomography, algorithm development for tomographic imaging of ionospheric distributions, and the design of resolution analysis techniques for imaging systems.

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 using fractals.

There also is work directed toward developing image halftoning schemes that incorporate models of the human visual system.

Control Systems and Robotics

Current research emphasizes optimal, adaptive, digital, robust and stochastic control; multi-arm robot manipulators; and the control of discrete event dynamical systems. Recent work has concerned the estimation, identification, and robust control of linear and nonlinear dynamical systems; the coordination of cooperating robot arms; the control applications of neural networks; and the use of control theory to analyze distributed computing, communications, and manufacturing systems.

Master of Science

There are two M.S. options: with and without thesis. The thesis option requires 30 semester hours of course work, including at least 12 semester hours from an approved list of courses in electrical and computer engineering. The nonthesis option requires 36 semester hours of course credit, with a minimum of 18 semester hours from an approved list of courses in electrical and computer engineering. The M.S. semester-hour requirements do not include courses required for electrical engineering undergraduates. Six semester hours of credit must be earned in 55:199 Research in Electrical and Computer Engineering, M.S. Thesis directed toward the master’s degree in electrical and computer engineering also 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 candidates must consist of an oral defense of the thesis. At the time of graduation, candidates for the master’s degree must have acquired a 3.0 minimum cumulative grade-point average.

M.S. Subtrack in Software Engineering

The department offers an M.S. subtrack in software engineering, in both thesis and nonthesis options. Successful completion of the subtrack results in the designation “with specialization in software engineering” on the student’s transcript.

The nonthesis subtrack requires completion of a minimum of 36 semester hours; the thesis
option requires 30 semester hours. Both require completion of the following four software engineering core courses.

55:180 Fundamentals of Software Engineering 3 s.h.
55:182 Software Engineering Project I 3 s.h.
55:183 Software Engineering Project II 3 s.h.

In addition, both options require completion of at least three courses chosen from the following.

55:131 Introduction to VLSI Design
55:132 High Performance Computer Architecture
55:133 Graph Algorithms and Combinatorial Optimization
55:134 Computer Communications
55:232 Parallel Computing and Advanced Architecture
55:234 Distributed Computing

An additional 6 semester hours of course work from the approved list of electrical and computer engineering courses is required for the nonthesis option and 3 semester hours for the thesis option. All rules for additional credit and the M.S. final examination are the same as for the general M.S. program.

Doctor of Philosophy

The requirements are:

- at least 72 semester hours of credit in a coherent program acceptable to the adviser and approved by the graduate committee, with at least 45 semester hours of credit earned in formal courses (not thesis or other independent study), including 30 semester hours from an approved list of courses in electrical and computer engineering;
- successful completion of the Ph.D. qualifying examination;
- successful completion of the Ph.D. comprehensive examination;
- successful completion of a research program that includes a minimum of 18 semester hours of Ph.D. research; and
- successful completion of a final oral defense of the thesis and a 3.25 cumulative grade-point average in graduate course work.

Admission to the Ph.D. program requires successful completion of the Ph.D. qualifying examination. This all-day written examination is given once a year, late in the spring semester. The examination covers four areas chosen by the student from a list of six. Students nominally are expected to take the qualifying exam within the first 30 semester hours of graduate studies. A 3.25 minimum cumulative grade-point average is required to be admitted to the exam. In the event of failure, the exam may be retaken only once, and this must be at the next available offering of the exam.

Following successful completion of the Ph.D. qualifying exam and invitation into the Ph.D. program, a student must complete a three-part Ph.D. comprehensive examination consisting of a “take-home” examination set by the student’s adviser and Ph.D. committee, preparation of a written thesis proposal, and an oral examination that includes a presentation and defense of the proposal. A minimum of six months must separate completion of the first and last portions of the exam. 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 3 years after completion of the comprehensive exam.

Admission

The minimum requirement for admission to the graduate program is a 2.75 grade-point average for M.S. students and a 3.25 for Ph.D. students on all courses in electrical and computer engineering, mathematics, and physics. M.S. students with grade-point averages less than 2.75 but better than 2.50 in courses in electrical and computer engineering, mathematics, and physics 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 a conditional basis. In such cases, students may need to complete additional course work without earning graduate credit before being granted regular admission status.

Each application is reviewed on an individual basis. Extenuating circumstances may permit deviations from the usual standards.

Financial Aid

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 Instruction

Electrical and computer engineering provides core instruction for the college in systems, electrical circuits, and electronics. A key part of this core teaching responsibility lies in providing the students of the college with their first experience with engineering laboratory instrumentation.

Undergraduate Laboratories

The undergraduate laboratories consist of the traditional electronics laboratories plus special laboratories for microcomputer, CAD for VLSI circuits, control systems, communication systems, signals and systems, optics, and image processing.

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, and cardiovascular image processing. A network of SUN, IBM, and HP workstations and server nodes provides departmental computing support. This network is tied to the College of Engineering ICAEN 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

55:000 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. Admission to Cooperative Education Program and consent of cooperative faculty adviser required.

55:85 Principles of Electrical Engineering Design II 2 s.h.
55:86 Principles of Electrical Engineering Design III 2 s.h.
55:88 Principles of Electrical Engineering Design 3 s.h.

55:89 Senior Electrical Engineering Design 3 s.h.
Individual or team project; demonstration of completed project and formal engineering report. Senior standing required. Prerequisites: 55:33, 55:50, and 55:60. Corequisite: 55:88

55:91 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. May be repeated. Junior standing required.


Digital Systems, Computers, software Engineering

55:32 Introduction to Digital Design 3 s.h.
Modem design and analysis of digital switching circuits; combinational logic; sequential circuits and system controllers; interfacing and busifying techniques; design methodologies using medium- and large-scale integrated circuits; lab arranged. Prerequisites: 57:18 and 57:17 or 22C:18.

55:33 Introduction to Software Design 3 s.h.
Design of software for the exam. The final requirement for exam preparation; cress-development environment; algorithm design and structured programming; data structures; interfacing of high-level and low-level languages; device drivers; example applications to engineering problems; lab arranged. Prerequisite: 57:17.
55:35 Computer Architecture and Organization 3 s.h.
Basic concepts; computer evolution, register transfer level design, simulation techniques, instruction sets (CISC and RISC), 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; student designs and simulation software used. Offered spring semesters.
Prerequisites: 55:32 and 55:34.

55:130 Switching Theory 3 s.h.
Switching algorithms; lattices; functional decomposition; symmetric functions; threshold logic; multiple-valued logic; combinational circuit design, minimization, multiple-output networks; sequential circuits—critical races, essential hazards, fundamental-mode, pulse mode, state reduction; fault-testing-path sensitivity, boolean difference, multiple faults. Prerequisite: 55:32.

55:131 Introduction to VLSI Design 3 s.h.
MOS devices and circuits; introduction to CAD tools; 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; MOS subsystem design; system case studies; introduction to high speed digital circuits, design projects; lab. Prerequisites: 55:32 and 55:41.

55:132 High Performance Computer Architecture 3 s.h.
Problems involved in designing and analyzing current machine architectures; hierarchy, memory design, pipeline processing, vector machines, numerical applications, multiprocessor architectures and parallel algorithm design techniques; evaluation methodologies; dynamic relationship between computer design and design goals. Prerequisite: 55:35 or 22:31.

55:133 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: 55:33.

55:134 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; internetworking; user services. Prerequisites: senior standing in electrical and computer engineering or computer science; and 22:539 or 22:638. Same as 22:178.

55:135 Computer Graphics Systems 3 s.h.
Design of vector and raster graphics hardware; three-dimensional transformations for viewing, clipping, geometry; projective transformations; scan conversion, shading, bump and texture mapping; hidden surface and shadow algorithms; applications to engineering problems; lab. Prerequisite: 55:33.

55:136 Advanced VLSI Design 3 s.h.
First and higher-order models of transistors, models of interconnects, evaluation of circuit performance, circuit optimization, GaAs and ECL digital integrated circuits, ASIC design, practical problems of CMOS VLSI, small geometry MOS transistors and interconnects, VLSI models, algorithm design for VLSI; lab. Prerequisite: 55:131.

55:138 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. Prerequisites: 55:32 and 55:41.

55:180 Fundamentals of Software Engineering 3 s.h.
Principles of software specification, design, implementation, testing/maintenance, integration, project management of human factors; management and technical communication; design methodologies; software validation and verification, group project. Open only to seniors in electrical and computer engineering or computer science. Senior standing in electrical and computer engineering or computer science required. Same as 22:180.

Formal models and methods and their application in all phases of software engineering process: operational, algebraic, model-based and property-based specification methods; verification of consistency and completeness of specifications; verification of precise semantics of software; specification construction and verification using method-based tools. Same as 22:181.

55:182 Software Engineering Project I 3 s.h.
Estimation, risk analysis, scheduling, tracking and control, software metrics; CASE tools and project management techniques; team project; first of two semesters. Prerequisite: 55:181. Same as 22:182.

55:183 Software Engineering Project II 3 s.h.
Continuation of 55:182, which is prerequisite. Same as 22:183.

55:220 Advanced Logic Synthesis 3 s.h.
Synthesis of multiple output circuit; finite state machines; algebraic factoring: testability preserving transformations; design verification; high-level synthesis. Prerequisites: 55:130 and 55:131, or consent of instructor.

55:223 Parallel Computing and Advanced Architecture 3 s.h.
Design and use of state-of-the-art parallel computer systems; relationship to applications computer models, algorithms, languages, compilation, operating systems, interconnection networks; SIMD, MIMD, data-flow, shared/messened memory, hybrid and nonconventional architectures. Prerequisite: 55:132.

55:234 Distributed Computing 3 s.h.
Fundamental problems in design, implementation, use of distributed computing systems; hardware topology issues, interprocess communication, concurrency control, synchronization; distributed algorithms; fault tolerance, reliability. Prerequisites: 55:130 and 55:132.

55:41 Electronic Circuits 4 s.h.
Design, analysis of FET and BJT amplifiers; low, midrange, high-frequency analysis; difference amplifiers; feedback amplifiers; SPICE simulation; power amplifiers; digital logic families. Prerequisites: 55:32 and 57:18.

55:141 Power Electronics 3 s.h.
Conversion, regulation, control of electric power by means of electronic switching devices; emphasis on switching techniques as they relate to efficiency; semiconductor switching devices; pulse-width modulation; analytical techniques and practical considerations. Prerequisites: 55:41 and 55:40.

55:142 Signals and Systems 3 s.h.
Representation, analysis of continuous and discrete-time systems; analysis in both time and frequency domains; Fourier analysis, sampling theory, z-transforms. Prerequisites: 55:12 and 22:41.

55:150 Communication Theory 3 s.h.
Spectral analysis, random signals, noise; baseband data transmission; noise; coding, coding for error detection and correction. Prerequisite: 55:50.

55:151 Statistical Communication Theory 3 s.h.
Representation of signals, random processes; elementary detection and estimation theory; detection of known, unknown signals in noise; estimation of continuous waveforms; applications to speech processing, communications, radar. Prerequisite: 55:150.

55:152 Introduction to Information and Coding Theories 3 s.h.
Quantitative measure of information; discrete and continuous sources; source encoding; error detecting codes; discrete and continuous channels; block and convolutional codes. Prerequisite: 55:50.

 Controls

55:60 Control Systems 3 s.h.
Linear feedback control systems; transfer functions; time and frequency domain analysis of system characteristics and stability; lab arranged. Prerequisite: 55:42.

55:66 Electromechanical Systems 3 s.h.
Electromechanical energy conversion principles; basic rotating machines; direct-current machines-theory, applications; alternating-current machines-theory, applications: Prerequisites: 57:12 and 57:70.

55:68 Power Systems Analysis 3 s.h.
AC fundamentals; transmission lines; power system representation, load-flow, stability studies; economic operation; faults; symmetrical components. Prerequisite: 57:12.

55:160 Control Theory 3 s.h.
State space approach; controllability, observability, canonical forms; Luenberger observers; feedback control via pole placement; stability, minimal realization; advanced topics. Prerequisites: 55:60 or 58:131. Same as 58:133.

55:161 Control System Design 3 s.h.
Design techniques for linear control systems; classical compensation methods, state feedback; optimal control; regulation and backstepping; dynamic programming. Prerequisite: 58:131 or equivalent. Same as 58:132.

55:163 Random processes in Control and Communications 3 s.h.
Basic concepts of probability and random variables; sequences of random variables; multivariate Gaussian distribution; random processes; special analysis; analysis of random processes in linear systems; Markov, Gaussian, Poisson processes, applications to system analysis. Prerequisites: 55:50 and 55:60.

55:164 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; computer design by state variable and input/output methods; advanced topics in digital controls; lab. Prerequisite: 55:60 or 58:131. Same as 58:134.

55:165 Introduction to Robotics 3 s.h.
Control and analysis of robots; inverse kinematics; manipulator dynamics; trajectory planning; manipulator control; force and compliance control; robot programming languages; laboratory projects. Prerequisite: 55:60.

55:262 Stochastic Control Systems 3 s.h.
Modeling of controlled stochastic systems; complete and partial information dynamic programming; separation of estimation, control; Kalman filtering; infinite horizon dynamic programming; system identification; stochastic adaptive control. Prerequisites: 55:160 or 55:164, and 55:165.

55:264 Nonlinear Stability 3 s.h.
Concepts of different types of stability; LaSalle's theorem; Lyapunov's methods; periodic systems; stability time varying systems; linearization principle; Popov's criterion; Circle Criterion; Discrete Time Systems; Control of Nonlinear Systems. Prerequisites: 55:160 and 55:164.

55:266 Advanced Control Theory 3 s.h.
Optimal control, tracking control, state reconfiguration, nonlinear systems, linearization, describing function, optimal filtering. Prerequisite: 55:160. Same as 58:231.

 Waves and Materials

55:70 Electromagnetics 3 s.h.
Electric and magnetic vectors, Maxwell's equations, wave propagation; applications, including radiation, transmission lines, circuit theory. Prerequisites: 22:42 and 29:18.

55:72 Electrical Engineering Materials and Devices 3 s.h.
55:170 Advanced Electromagnetic Theory 3 s.h.
Time varying fields; plane wave propagation, reflection, refraction; transmission lines, Smith chart, scattering matrix, coupled modes; metallic and dielectric wave guides; microwave resonators; antennas, antenna arrays. Prerequisite: 55:70.

55:171 Linear and Non-linear Waves 3 s.h.
Wave phenomena, basic properties of waves; sound, surface, mechanical, water, electromagnetic waves; nonlinear shocks, solitons. Senior standing required.

55:172 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: 55:72 and 29:83.

55:173 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 29:193.

55:177 Electromagnetic Foundations of Optics 3 s.h.
Microwave origins of macroscopic optical properties of matter; dipole radiation; normal modes of matter; optical activity; anisotropic crystal optics; electro optical, magneto-optical, acousto-optical phenomena; spontaneous Brillouin, Raman, Rayleigh scattering. Prerequisite: 55:70 or equivalent. Same as 29:180.

55:178 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; convolutions, convolvers, matched filters; synthetic aperture radar; optical computing. Prerequisite: 55:42 or 55:70. Same as 29:184.

55:179 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: 55:70. Same as 29:182.

55:22 Quantum Electrodynamics 3 s.h.

55:274 Laser Principles 3 s.h.
Laser theory, stimulated emission, dispersion theory, broadcasting mechanisms, rate equations, gain saturation, optical resonators, mode-locking, Q-switching techniques, survey of laser types, modes of operation. Prerequisite: 55:170 or equivalent. Same as 29:224.

55:276 Nonlinear Optics 3 s.h.
Primarily classical treatment of second, third-order nonlinearities; phase matching, harmonic generation, three and four wave mixing, self-focusing self phase modulation, stimulated scattering of light, applications. Same as 29:222.

55:278 Advanced Optical Signal Processing 3 s.h.
Review of two dimensional systems, optical Fourier transformation, holography, optical spatial filtering, correlation, convolution; matched filtering and optical pattern recognition; acousto-optic cells and signal processing; mechnotron optical processing; spatial light modulators and hybrid signal processing systems; associative processors based hybrid stabilizing vector multipliers; optical neural processors; bionate optical gates, all optical computing. Prerequisite: 55:178.

Graduate Seminars, Advanced Topics, Research
55:191 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. Graduate standing required.

55:195 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. Senior standing required.

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. Graduate standing and consent of faculty advisor required.

Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for M.S. degree in thesis in electrical and computer engineering. Graduate standing and consent of faculty advisor required.

Discussion of current research. Consent of instructor required. Same as 29:261.

55:205 Advanced Topics in Electrical and Computer Engineering arr.
Discussion of current literature in electrical and computer engineering. Consent of instructor required.

Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for Ph.D. in electrical and computer engineering. Consent of faculty advisor required.

INDUSTRIAL ENGINEERING
Chair: Andrew Kusiak
Professors: James R. Buck, Andrew Kusiak, John M. Liittschwager, J. Richard Simon
Associate professors: Dennis L. Bricker, Thomas A. Dingus, Gary W. Fischer
Associate professor emeritus: Edward M. Mielnik
Undergraduate degree: B.S.E. in Industrial Engineering
Graduate degrees: M. S., Ph.D. in 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. Undergraduate programs are planned to provide courses on these topics and to provide some opportunity to specialize in specific areas based on individual student interests.

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 advisers 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.

Undergraduate Program
The undergraduate curriculum in industrial engineering requires a strong foundation of courses in engineering science, mathematics, design, manufacturing, social sciences, and humanities. Advanced courses include specialty courses in manufacturing operations and robotics, human factors (ergonomics), management, economics and information systems, concurrent engineering, production, quality control, and operations research.

Curriculum
FRESHMAN YEAR
First Semester
4:13 Principles of Chemistry I 3 s.h.
Accelerated rhetoric (10:3) 4 s.h.
22M:35 Engineering Calculus I 3 s.h.
57:5 Engineering I 3 s.h.
Humanities elective (see below) 3 s.h.
Second Semester
4:16 Principles of Chemistry Laboratory I 2 s.h.
22M:36 Engineering Calculus II 4 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
29:17 Introductory Physics I 2 s.h.
57:6 Engineering II 3 s.h.

SOPHOMORE YEAR
First Semester
22M:41 Differential Equations for Engineers 3 s.h.
29:18 Introductory Physics II 4 s.h.
57:7 Statics 2 s.h.
57:9 Thermodynamics I 3 s.h.
57:14 Engineering Economy 3 s.h.
Second Semester
22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
31:3 General Psychology (social science elective) 4 s.h.
57:8 Electrical Circuits 3 s.h.
57:15 Materials Science 3 s.h.
Economics elective (see below) 3 s.h.

JUNIOR YEAR
First Semester
56:31 Manufacturing Processes 3 s.h.
56:142 Human Factors Engineering 3 s.h.
57:17 Computers in Engineering 3 s.h.
57:21 Principles of Design I 3 s.h.
Mathematics-statistics elective (see below) 3 s.h.
Engineering science elective (see below) 3 s.h.
Second Semester
56:91 Professional Seminar: Industrial Engineering 0 s.h.
56:131 Manufacturing Systems 3 s.h.
56:140 Ergonomic Design 3 s.h.
57:22 Principles of Design II 3 s.h.
Humanities elective (100 level) 3 s.h.
Technical elective (see below) 3 s.h.

362 Engineering ● Electrical and Computer Engineering
SENIOR YEAR

First Semester
31: 156 Psychology in Management (society science elective) 3 s.h.
56: 91 Professional Seminar: Industrial Engineering 1 s.h.
56: 134 Concurrent Engineering 3 s.h.
56: 171 Operations Research 3 s.h.
56: 178 Digital Systems Simulation 3 s.h.
Technical elective (see below) 3 s.h.

Second Semester
56: 91 Professional Seminar: Industrial Engineering 0 s.h.
56: 160 Operational Systems Design 4 s.h.
56: 162 Quality Control 3 s.h.
56: 166 Production Systems 3 s.h.
Technical elective (see below) 6 s.h.

Economics Electives
Students may select from the following list.
6E: 100 Economics for Business Decision Making 3 s.h.
6E: 119 Economics of the Government Sector 3 s.h.
6E: 125 International Economics 3 s.h.
6E: 129 Economic Growth and Development 3 s.h.
6E: 133 Environmental and Natural Resource Economics 3 s.h.
6E: 135 Regional and Urban Economics 3 s.h.
6E: 141 Economics of American Industries 3 s.h.

Humanities and Social Science Electives
These must be selected to satisfy the College of Engineering requirements. Noted social science electives are highly recommended. An advising guide for humanities sequences may be obtained from the office of the dean.

Mathematics and Statistics Electives
Students may select from the following list.
22M: 42 Vector Calculus for Engineers 3 s.h.
22M: 72 Elementary Numerical Analysis 3 s.h.
Advanced statistics course (with adviser’s approval) 3 s.h.

Engineering Science Electives
Students may select one of the following courses.
57: 10 Dynamics 3 s.h.
57: 12 Linear Systems Analysis 3 s.h.
57: 18 Principles of Electronic Instrumentation 4 s.h.
57: 19 Mechanics of Deformable Bodies 3 s.h.
57: 20 Mechanics of Fluids and Transfer Processes 4 s.h.
Technical Electives
Students may select 9 semester hours from the list below, plus 3 semester hours with consent of adviser; or 6 semester hours from the list below, plus 3 semester hours from the engineering science electives and 3 semester hours with consent of adviser.
56: 98 Individual Investigations: Industrial Engineering 3 s.h.
56: 132 Introduction to Industrial Robotics 3 s.h.
56: 138 Artificial Intelligence in Design and Manufacturing I 3 s.h.
56: 143 Advanced Ergonomics/Human Factors 3 s.h.
56: 146 Advanced Managerial Psychology 3 s.h.
56: 150 Information Systems Design 3 s.h.
56: 151 Microcomputer Applications 3 s.h.
56: 153 Engineering Administration I 3 s.h.
56: 155 Quantitative Investment Analysis 3 s.h.
56: 156 Engineering Economic Decisions 3 s.h.
56: 163 Quality Engineering I 3 s.h.
56: 164 Reliability Theory and Practice 3 s.h.
56: 176 Regression and Design 3 s.h.
56: 195 Contemporary Topics in Industrial Engineering 3 s.h.

Specialization in Quality Engineering
Quality engineering is the specialization in the engineering profession that is concerned with the design, manufacture, delivery, maintenance, and use of products and services over their life cycles. Since quality is the fitness of these products or services to meet customer needs, engineers must identify and improve quality throughout all phases of product or service creation and use. Quality has an economic dimension in costs that occur during the design, development, manufacture, and use of products and services.

The background requirements of quality engineering are similar to those of industrial engineering. Consequently, a specialization in quality engineering can be obtained through the judicious selection of elective courses in the industrial engineering program. For the quality engineering specialization, 12 semester hours are required from the following list.
56: 153 Engineering Administration I 3 s.h.
56: 163 Quality Engineering I 3 s.h.
56: 164 Reliability Theory and Practice 3 s.h.
56: 176 Regression and Design 3 s.h.
22S: 158 Experimental Design and Analysis 3 s.h.

These courses replace the 12-semester-hour technical elective requirement of the industrial engineering program. Students who meet the requirements of the quality engineering specialization receive certificates noting this emphasis in conjunction with their B.S.E. degree in industrial engineering.

Graduate Programs
Graduate programs in industrial engineering are tailored to meet the needs of the individual.
Each student’s program of study is based on his or her background, career objectives, and sound academic practice. The curriculum is highly flexible; the goal is academic excellence.
There are five principal areas of academic focus in the graduate program in industrial engineering: manufacturing, human factors engineering/ergonomics, engineering management, quality and production control, and operations research and applied statistics.

The requirements of the courses include material in statistics, manufacturing, computer science, and decision theory. These courses are designed to be taken concurrently with the courses in the student’s area of specialization.

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 in computer-aided process planning, computer-aided design, computer-controlled manufacturing, concurrent engineering, and applications of artificial intelligence in manufacturing are covered.

Ergonomics, or human factors studies, concentrate on applying the psychological, physiological, and sociological sciences and arts to problems in manufacturing and service systems. These problems concern fitting jobs and organizations to the people who perform those jobs within the organization as well as managing and motivating those people. Courses in the 40 series cover these topics.

Engineering management studies concentrate on engineering administration, engineering economics, and information systems. This area is covered by courses in the 50 series.

The quality and production control area consists of facilities design, quality assurance, reliability, and production control. This area of concentration is covered by courses in the 60 series.

Studies in operations research and applied statistics concentrate on mathematical, 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. Courses in the 70 series cover these topics.

Students in the graduate program participate in research in the areas of their academic concentration. Ongoing manufacturing research consists of flexible manufacturing systems, design, optimum control of processes, adaptive manufacturing control of turning and welding, parametric robotic control, and automatic pattern recognition of parts.

Current research in human factors/ergonomics consists of investigating the effects of visual and auditory displays on human information processing, predicting human performance time statistics with cognitive tasks, and the effects of aging on human performance. Industrial engineering faculty and students use the Iowa Driving Simulator, which is one of the most advanced simulation facilities in the world. Other research in this area includes computer-aided problem solving, machine-person compatibility, ground vehicle control, intelligent highway vehicle systems, and techniques of ergonomic data collection and analysis.

Some current research in engineering management consists of entrepreneurship, parametric cash flow analysis, strategic management, and economic risk analysis. Quality and production control research currently focuses on measures for corporate quality, computer-aided layout and scheduling,
just-in-time production, inspection, and on-line expert systems in process control.

Ongoing research in operations research and applied statistics is centered on optimization, expert systems in scheduling and dispatching, simulation and random number generation, and the development of programming techniques for classification problems. Other research is directed toward extending the capabilities of computer graphics.

Master of Science

Two M.S. programs are available: thesis and nonthesis. Students considering eventual admission to a Ph.D. program should select the thesis option, which requires a minimum of 30 semester hours of 100- or 200-level courses, including a maximum of 8 semester hours of advanced work. Students who elect the nonthesis option must complete a minimum of 36 semester hours of course work at the 100 or 200 level, including at least 9 semester hours at either the 200 level or at the 100 level with the designation “advanced” or “contemporary topics” in the course title.

Each student develops a tentative plan of study through consultation with his or her adviser; the final plan of study is reviewed by the student’s examining committee and approved by the industrial engineering program chair and the Graduate College dean. Entering students in all programs need a background in computer programming, probability, statistics, and mathematics equivalent to that required in accredited undergraduate engineering programs. Both verbal and written skills in the English language are essential. Engineering management and human factors students will find psychology and engineering economics to be useful preparation. Compensatory course work may be required for students with nonengineering backgrounds.

Students are required to maintain a 3.00 minimum grade-point average on all graduate course work (both 100- and 200-level courses) at The University of Iowa in order to be eligible for the M.S. The nature of the final examination is specified by the examining committee. It may consist of both written and oral exams. Student course preparation and thesis defense or an appropriate individual investigation normally are included.

Doctor of Philosophy

Typically, Ph.D. programs in industrial engineering require at least 72 semester hours of study, including research for the dissertation. Actual study requirements above this minimum are specified by the student’s advisory committee. There is no foreign language requirement or special requirement for research techniques. Admission to degree candidacy requires a 3.25 minimum grade-point average on all graduate work taken at The University of Iowa and the demonstration of a capacity for individual achievement.

Upon completing the course work specified by the adviser and advisory committee, the student is admitted to the comprehensive examination, which includes both written and oral parts. Part of this examination usually includes the presentation of a 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 this examination, 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.

Admission

Students with an M.S. objective may be admitted from an ABET-accredited baccalaureate curriculum in any engineering discipline or in the mathematical or physical sciences with a 2.75 minimum grade-point average and/or an acceptable score on the Graduate Record Examination (GRE) General Test (typically at least 400 verbal, 650 quantitative). Applicants from non-U.S. institutions must meet equivalent conditions for regular admission. Students may be considered for conditional admission with a lower grade-point average and lesser GRE General Test scores.

Students from business or social science programs who have adequate mathematical preparation also may be considered for regular or conditional admission. Students on conditional status must achieve regular status within two sessions of registration by attaining a 3.00 minimum grade-point average and gaining regular acceptance by the industrial engineering program faculty; otherwise, they are dismissed. Admissions may be limited by the number of faculty and other available resources.

Students with a Ph.D. objective may be admitted from an ABET-accredited baccalaureate or a postbaccalaureate curriculum in any engineering discipline or in the mathematical and physical sciences with a 3.00 minimum grade-point average and/or an acceptable GRE General Test score (typically at least 500 verbal, 750 quantitative). Applicants from outside the United States must meet equivalent requirements for regular admission as determined by The University of Iowa. Students also may be admitted from business or social science programs as determined individually. Students who wish to earn a Ph.D. and who have a B.S. degree or an M.S. degree without thesis usually are first admitted to the M.S. program. All admissions to the Ph.D. program are approved by the departmental graduate studies committee.

Financial Aid

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 higher stipend instructor positions. Students should write to the chair of the industrial engineering department for further information.

Special Facilities and Laboratories

Engineering Core

Information about laboratories affiliated with core courses coordinated by other departments can be found in the Catalog sections for each of the other engineering departments.

Required and Elective Course Laboratories

Industrial engineering occupies the north wing of the fourth floor in the Engineering Building. Most departmental classes and seminars meet there, and faculty and graduate student offices are located there. Departmental laboratories are located in the Engineering Building. The Iowa Driving Simulator is located in the Engineering Research Facility.

INTEGRATED MANUFACTURING SYSTEMS LABORATORY

This facility has equipment that supports instructional and research needs in manufacturing operations and systems. Included are a variety of small-scale robots; automatic vision and sensing devices; microcomputers of various types; Hewlett-Packard workstations, a digital camera for computer pattern recognition; a television camera, recorder, and player; precision controller devices; programmable controllers; actuation devices; and reconfigurable construction units for modeling physical material handling systems. Software is available for part geometry, generating computer numerical control (CNC) programs, computer process planning, expert systems, and for other general purposes.

HUMAN FACTORS/ERGONOMICS LABORATORY

This laboratory facilitates human factors/ergonomics research and education. It contains microcomputers and minicomputers with numerous peripherals for the real-time collection and analysis of human performance data as well as alternative forms of information displays and human response recorders.

IOWA DRIVING SIMULATOR (IDS) LABORATORY

Many students and faculty in ergonomics/human factors are associated with the ground vehicle simulator located in the Engineering Research Facility. The facility contains a state-of-the-art computer vision system for generating high-definition visual scenes, which include other moving vehicles that operate in intelligent ways. There is a Ford Taurus body in the laboratory with realistic auditory and vibratory cues. The IDS is controlled by computers with power approximating a Cray. The laboratory will continue to serve as the primary driving simulator on campus until the new National Advanced Driving Simulator (NADS) is completed on the University’s Oakdale campus.

COMPUTER-AIDED MANUFACTURING (CAM) LABORATORY

This laboratory is used to teach CAD (computer-aided design) and CAM programming and to set up projects to demonstrate various
computer-integrated manufacturing technologies. Hardware and software are available to design parts and plan processing, including generation of CNC program files.

Typical activities conducted in the laboratory include geometric modeling; transfer of geometric files and other design data to conduct process-planning experiments; assignment of part codes and identification of the most cost-effective machine assignments for the part processing; definition of the operation sequences and calculation of optimal process settings; generation of CNC part programs and support data; and download of appropriate machining instructions and data to preset CNC machines (small-scale or full-scale) to make the parts. Laboratory equipment includes IBM, Macintosh, and Apple IIe microcomputers; HP workstation; small-scale machine tools (milling and turning); and different types of industrial controls.

**COMPUTER NUMERICAL CONTROL (CNC) MACHINING LABORATORY**

Students gain hands-on experience in programming and operating a CNC lathe and an automated storage and retrieval system in this laboratory. CNC programs can be developed through the machine control keyboard or downloaded via RS232C data link from a programming station in the CAM Laboratory. Research studies in the machinability of various metals for different cutting tool and machining parameters are being conducted. An automated storage and retrieval system and robot for assembly of electronic components are used for instruction and research projects.

Future additions to the laboratory include the purchase of a full-size CNC milling machine, a coordinate measurement machine, machine loading robot, and additional test, measurement, and recording equipment to interface with the machine tools.

**MANUFACTURING PROCESSES LABORATORY**

This laboratory provides improved facilities and 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 during high-speed welding. A full-size welding robot fabrication cell is planned for the laboratory to facilitate further investigation of the weld process variable control problem and analytically based, off-line programming techniques.

**INTELLIGENT SYSTEMS LABORATORY**

Hewlett-Packard workstations, IBM personal computers, and Macintosh IIci microcomputers with extended disc and operating memory are housed in this laboratory. Software for design and building intelligent systems is available, including expert system shells (VP Expert, NExpert), logic programming languages (LISP, PROLOG), intelligent CAD design software (Ashlar-Vellum), simulation software (SIMAN, SLAM, TESS), a voice recognition system, specialized programs for design of products and systems, and software for analysis of design and manufacturing processes.

**Courses**

**Special**

56:000 Cooperative Education Training 0 s.h.

**Assignment: Industrial Engineering**

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. Admission to Cooperative Education Program and consent of faculty adviser required.

56:91 Professional Seminar: Industrial Engineering 0-1 s.h.

Professional aspects of industrial engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. May be repeated. Junior standing required.

56:98 Individual Investigations: Industrial Engineering 0 s.h.

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. Consent of course adviser required.

**Manufacturing**

56:31 Manufacturing Processes 3 s.h.

Fundamentals of processing typical industrial materials including casting, heat treating, welding, machining, numerical control, forming, finishing, automation, economics, design considerations; planning of manufacturing operations; performance and quality measurement; laboratory exercises and projects. Offered fall semesters. Prerequisite: 57:15.

56:31 Manufacturing Systems 3 s.h.

Manufacturing as systems consisting of computer and microprocessor-based control systems; part design and manufacture using CAD/CAM; technical and economic make-offs regarding the design, selection, 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: 56:31 and 57:21, or consent of instructor.

56:132 Introduction to Industrial Robotics 3 s.h.

Operation and control of robot systems; robotic sensors and data acquisition subsystems; machine vision; software for robotic control; design of robotic workcells; laboratory projects. Prerequisites: 56:31 and 57:21.

56:134 Concurrent Engineering 3 s.h.

Devising engineering specifications based on customer needs; design methodologies of products; re-engineering of design and manufacturing processes; tools for concurrent engineering; group projects. Offered fall semesters. Prerequisites: 56:31, 56:140, and 57:22.

56:138 Artificial Intelligence in Design and Manufacturing 3 s.h.


56:231 Computer-Integrated Manufacturing 3 s.h.

Design and operational issues related to the integration of computers in manufacturing systems; theoretical and applied topics. Offered fall semesters. Graduate standing or consent of instructor required.

56:238 Artificial Intelligence in Design and Manufacturing 3 s.h.

Neural networks, knowledge acquisition and verification techniques, concept learning: applications of artificial intelligence in concurrent engineering. Consent of instructor required.

56:140 Ergonomic Design 3 s.h.

Human-centered design of manufacturing systems, commercial products; time-methods-motion study, information sampling, workplace and handbook design, human factors of product quality, community systems design, design for occupational safety and health, cognitive engineering in ergonomic design, design of selection and training systems; laboratories and design projects. Offered spring semesters. Prerequisites: 22S:39 or 22S:120 and 56:142.

56:342 Human Factors Engineering 3 s.h.

Design of operator machine systems and development of optimum work environment through principles of behavioral science; emphasis on sensory and perceptual processes, motor skills, experimental methodology. Offered fall semesters. Prerequisite: 31:1 or 31:3. Same as 31:155.

56:143 Advanced Ergonomics/Human Factors 3 s.h.

Theory of signal detectability and inspection, information theory, behavioral decision theory, perception and reaction time experiments, cognitive tasks of information-seeking, human reliability, process control, problem solving. Offered spring semesters. Prerequisite: 56:142. Conquire: 56:140.

56:145 Psychology in Management 3 s.h.

Application of psychological principles to human relations and supervision; motivation, leadership, communication, group pressures. Offered fall semesters. Same as 31:156.

56:146 Advanced Managerial Psychology 3 s.h.

Selected recent literature on managerial psychology. Offered spring semesters. Prerequisite: 56:145.

56:240 Advanced Topics in Human Factors Design 3 s.h.

Design, evaluation techniques for complex human/system interfaces; application of design and evaluation principles and techniques to real-world problems; design, critique of several consumer products. Prerequisite: 56:143 or consent of instructor.

56:241 Research Methods in Human Factors Engineering 3 s.h.

Logic and methods of research in the discipline; usability testing, system evaluation, empirical research design, execution, analysis, reporting of human factors research. Prerequisite: 56:143 or intermediate level statistics course or consent of instructor.

**Engineering Management**

56:150 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. Prerequisite: 56:140.

56:151 Microcomputer Applications 3 s.h.

Programming and interfacing microcomputers for industrial applications; essentials of microprocessor-based applications; hardware, software, peripherals; control algorithms, interface circuits, software for applications such as process control, machine control, robot systems, product testing, material handling, decision support; laboratory projects; primarily for senior and graduate industrial engineering students. Offered spring semesters. Prerequisite: 57:17 or consent of instructor.

56:153 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. Corequisite: 31:156.

56:155 Quantitative Investment Analysis 3 s.h.

Investment criteria; benefits/cashflow analysis; risk analysis; applications in production and quality planning; facilities-equipment acquisition and replacement; research, development, design; capital budgeting. Offered fall semesters of odd-year. Prerequisites: 22S:39 or 22S:120 and 57:14; or consent of instructor.

56:156 Economic Decision Making 3 s.h.

Risky decisions in design and management applications, decision rules, utility theory, Bayesian analysis and information, conjugate distributions, decision strategies, multicriteria objectives. Offered fall semesters of even years. Prerequisites: 22S:39 or 22S:120, and 57:14; or consent of instructor.

56:250 Software Systems for Engineering Applications 3 s.h.

Design and implementation of computer-based systems relating to management and engineering problems; principles, practices in the development of computer-based software systems, application and use of data structures in software design, current topics in the field; design project required. Offered spring semesters of even years. Prerequisite: 56:160 or consent of instructor.

56:255 Engineering Administration II 3 s.h.

Continuation of 56:153; readings that emphasize practices in superior and high technology organizations. Offered spring semesters. Prerequisite: 56:153 or consent of instructor.
Quality and Production Control
56:160 Operational Systems Design 4 s.h.
Project 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: 56:154 and 57:14.

56:162 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:39. Same as 22S:133.

56:163 Quality Engineering I 3 s.h.
Engineering techniques for designing quality into manufactured products; processes; designs; analysis of multifactor experiments, economics of reducing variation, critique of Taguchi methods. Offered spring semesters. Corequisite: 56:162 or consent of instructor.

56:164 Reliability Theory and Practice 3 s.h.
Theory and models relating to the life of components and repairable systems: common distributions, hazard functions; analysis of repairable systems; renewal; repair theory; related parameter estimation. Offered fall semesters. Prerequisite: 56:162.

56:166 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, knowledge-based systems. Offered spring semesters. Prerequisite: 56:171.

56:263 Quality Engineering II 3 s.h.

Graduate Seminars, Advanced topics, Research
56:191 Graduate Seminar Industrial Engineering O s.h.
Recent advances and research in industrial engineering presented by guest lecturers, faculty, students. Graduate standing required.

56:195 Contemporary Topics in Industrial Engineering 3 s.h.
New topics or areas of study not offered in other industrial engineering courses; topics based on faculty/student interest. Senior standing required.

56:198 Individual Investigation: Industrial Engineering 3 s.h.
Individual projects for industrial engineering graduate students: laboratory study, engineering design, analysis and simulation of an engineering system, computer software development research. Graduate standing and consent of adviser required.

56:199 Research: Industrial Engineering, M.S. Thesis 3 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in industrial engineering. Graduate standing and consent of adviser required.

56:295 Advanced Topics in Industrial Engineering 3 s.h.
Discussion of current literature in industrial engineering. Consent of instructor required.

56:299 Research: Industrial Engineering, Ph.D. Dissertation 3 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. in industrial engineering. Consent of adviser required.

Operations Research and Applied Statistics
56:171 Operations Research 3 s.h.
operations research models and applications emphasizing both deterministic and stochastic models: linear programming, duality, parametric analysis, dynamic programming, queuing theory, games, decision theory. Offered fall semesters. Prerequisites: 22S:39 and 57:21.

56:176 Regression and Design 3 s.h.
Analysis of the multiple linear regression model, matrix approach, residual analysis, variable selection, dummy variables, regression diagnostics, use of statistical computer packages. Prerequisite: 22S:120 or equivalent. Same as 22S:132.

56:178 Digital Systems Simulation 3 s.h.
Digital simulation modeling and analysis; emphasis on construction of models and interpretation of model outputs; discrete time modeling, continuous time modeling, network modeling, combined discrete-continuous-network modeling construction of model related databases, applications. Offered fall semesters. Prerequisite: 57:22 or graduate standing.

56:270 Linear Programming 3 s.h.
Mathematical models, theory, algorithms for linear optimization, including variants of the simplex algorithm, duality theory, post-optimality analysis, decomposition of large-scale problems, piece-wise linear programming. Offered spring semesters. Prerequisite: 56:171 or equivalent.

56:271 Nonlinear programming 3 s.h.
Mathematical models, theory, algorithms for constrained and unconstrained optimization; nonlinear, geometric, quadratic, dynamic programming; optimality conditions; aspects of duality theory. Offered spring semesters. Prerequisite: 56:171 or equivalent.

56:272 Integer programming and Network Flows 3 s.h.
Theory, applications, algorithms for combinational 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 and location of facilities in networks. Offered fall semesters. Prerequisite: 56:171 or equivalent.

56:273 Stochastic Systems 3 s.h.
Stochastic models of decision problems; sequential decision problems; queuing models. Prerequisites: 56:171 and introductory course in probability models.

Mechanical Engineering
Chair: Lea-Den Chen
Associate professors: Christoph Beckermann, M. Asghar Bhat, Barry Butler, Jeffrey S. Marshall, Witoil F. Krajewski, Fred Stem
Assistant professors: Jeffrey S. Freeman, K. Harold Yee
Undergraduate degree: B.S.E. in Mechanical Engineering
Graduate degrees: M.S., Ph.D. in 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. A description of the field includes thermal-fluids engineering and mechanical systems engineering.

THERMAL-FLUIDS ENGINEERING
Thermal-fluid phenomena occur in many engineering systems and devices, such as aircraft; gas turbines; heat exchangers; material processing; heating ventilating, air-conditioning, and refrigerating units; and biomedical systems. Work on these systems requires an interdisciplinary team in which the mechanical engineer is an important member.

MECHANICAL SYSTEMS
Mechanical systems and machines are the foundations of human technology. Examples of such systems and devices are manufacturing equipment, automobiles, tractors, ships, home appliances, packaging machinery, and aircraft.

Mechanical engineers find employment opportunities in a wide variety of jobs, including those in industry, government, and education. Mechanical engineers form an integral part of most industries, including aerospace firms, energy-generation utilities, automobile manufacturers, food- and metal-processing industries, petroleum refineries, electronic and computer manufacturers, heavy- construction vehicle manufacturers, thermal comfort firms, and farm implement firms.

Undergraduate Program
The objective of the mechanical engineering program is to provide the student with a sound preparation for a career in the field. In addition to the specified courses in the curriculum, students choose social science, humanities, and technical elective courses in accordance with program guidelines. Upper-level students are required to work on group projects in a senior-level capstone design course, 58:86 Mechanical Engineering Project. Participation in established research projects may be arranged.

The undergraduate education of a mechanical engineer at The University of Iowa is based on four curriculum stems: mathematics and basic sciences; engineering sciences; engineering design; and humanities and social sciences. Mathematics, physics, and chemistry are considered to be basic disciplines on which a future mechanical engineer must build. Parallel to the mathematics and basic sciences are the engineering sciences: statics, dynamics, thermodynamics, mechanics of deformable bodies, mechanics of fluids and transfer processes, materials science, and electrical sciences. An understanding of these sciences enables a mechanical engineer to design parts of systems, to understand the total mechanical system, to plan the production and utilization of energy, to plan and operate industrial manufacturing facilities, and to design automatic control systems for machines and other mechanical systems.

In addition to the purely mechanical engineering considerations, there are many complex issues in our modern society that involve environmental, economic, managerial, and political decision making. Therefore, mechanical engineers must possess appreciation of social and humanistic issues relating to government, business, religion, history, language, and international relations.

Curriculum
To earn a Bachelor of Science in mechanical engineering, students must complete a minimum of 128 semester hours of credit. The curriculum is arranged so that courses in the
four stems are introduced in an effective sequence and with a balanced emphasis.

*The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

**FRESHMAN YEAR**

First Semester

- 413 Principles of Chemistry I 3 s.h.
- 103 Accelerated Rhetoric 4 s.h.
- 22M:35 Engineering Calculus I 4 s.h.
- 57:5 Engineering I 3 s.h.
- *Social science elective* 3 s.h.

Second Semester

- 416 Principles of Chemistry Lab I 2 s.h.
- 22M:36 Engineering Calculus II 4 s.h.
- 22M:40 Matrix Algebra for Engineers 2 s.h.
- 29:17 Introductory Physics I 4 s.h.
- 57:6 Engineering II 3 s.h.

**SOPHOMORE YEAR**

First Semester

- 22M:42 Vector Calculus for Engineers 3 s.h.
- 29:18 Introductory Physics II 4 s.h.
- 57:7 Statics 2 s.h.
- 57:9 Thermodynamics I 3 s.h.
- 57:15 Materials Science 3 s.h.

Second Semester

- 22M:41 Differential Equations for Engineers 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:10 Dynamics 3 s.h.
- 57:19 Mechanics of Deformable Bodies 3 s.h.
- *Humanities or social science elective* 4 s.h.

**JUNIOR YEAR**

First Semester

- 22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
- 57:12 Linear Systems Analysis 3 s.h.
- 57:20 Mechanics of Fluids and Transfer Processes 4 s.h.
- 57:21 Principles of Design I 3 s.h.
- 57:18 Principles of Electronic Instrumentation 4 s.h.
- 58:91 Professional Seminar: Mechanical Engineering 0 s.h.

Second Semester

- 29:83 Modern Physics 3 s.h.
- 58:40 Thermodynamics II 3 s.h.
- 58:45 Heat Transfer 3 s.h.
- 58:52 Mechanical Systems 3 s.h.
- 58:91 Professional Seminar: Mechanical Engineering 0 s.h.
- *Humanities elective* 3 s.h.

**SENIOR YEAR**

First Semester

- 58:48 Thermal-Fluid Systems Design 4 s.h.
- 58:55 Mechanical Systems Design 4 s.h.
- 58:91 Professional Seminar: Mechanical Engineering 0 s.h.
- Technical electives 6 s.h.
- *Social science elective (100 level)* 3 s.h.

Second Semester

- 58:80 Experimental Engineering 4 s.h.
- 58:86 Mechanical Engineering Project 3 s.h.
- Technical elective (100 level) 3 s.h.

**Technical Electives**

These permit students to develop a broader background and a deeper understanding in selected fields of mechanical engineering. Because most of these courses build on earlier courses in the curriculum, students' choices may result from an interest developed in the basic courses. Students should consult with and obtain approval from their academic advisor before selecting elective courses.

Guidelines for selecting technical electives are:

- a minimum of two electives from mechanical engineering courses must be taken;
- engineering courses at the 100 level, as well as mathematics, physics, or chemistry courses at a more advanced level than those required in the curriculum, may be taken as technical electives;
- one elective course may be chosen from engineering courses that are required in another engineering curriculum;
- one course from the College of Business Administration may be elected, with the exception of accounting or economics courses numbered below 100; economics courses may be taken as social science electives; and
- a maximum of 3 semester hours of individual investigation may be used as elective credit; individual investigations are not routinely undertaken, but they may be allowed in special circumstances.

Students are encouraged to take courses in several areas to gain a broad background in mechanical engineering. The following are some technical elective courses.

**Control Systems Engineering**

- 58:131 Feedback Control Systems 3 s.h.
- 58:132 Control System Design 3 s.h.
- 58:133 Control Theory 3 s.h.
- 58:134 Computer-Based Control Systems 3 s.h.

**Mechanical Systems Engineering**

- 58:130 Computer-Aided Engineering 3 s.h.
- 58:150 Intermediate Mechanics of Deformable Bodies 3 s.h.
- 58:151 Planar Kinematics and Dynamics of Machines 3 s.h.
- 58:153 Fundamentals of Vibrations 3 s.h.
- 58:155 Intermediate Dynamics 3 s.h.
- 58:158 Fatigue/Durability in Design 3 s.h.
- 58:159 Fracture Mechanics 3 s.h.
- 58:170 Composite Materials 3 s.h.

**Thermal Systems Engineering**

- 58:140 Intermediate Thermodynamics 3 s.h.
- 58:145 Intermediate Heat Transfer 3 s.h.
- 58:148 Combustion and Propulsion Engineering 3 s.h.

**Thermal-Fluid Engineering**

- 58:160 Intermediate Mechanics of Fluids 3 s.h.
- 58:162 Experimental Methods in Fluid Mechanics and Heat Transfer 3 s.h.
- 58:165 Elements of Gas Flows 3 s.h.
- 58:167 Aerodynamics 3 s.h.

**General**

- 58:90 Individual Investigations: Mechanical Engineering 3 s.h.
- 58:111 Numerical Calculations 3 s.h.
- 58:113 Mathematical Methods in Engineering 3 s.h.
- 58:115 Finite Element Techniques in Engineering 1 3 s.h.
- 58:149 Engineering Optics 3 s.h.
- 58:185 Contemporary Topics in Mechanical Engineering arr.

For more information on the undergraduate program in mechanical engineering, see the Undergraduate Student Handbook available in the department office.

**Graduate Programs**

The goal of the graduate program in the Department of Mechanical Engineering at both the M.S. and Ph.D. levels is to educate students in the disciplines of mechanical engineering in more depth and breadth than is possible at the B.S. level. This preparation allows 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, as well as on sound academic practice. Departmental faculty members 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. M.S. students desiring a more general program may combine emphases, while those wishing a degree of specialization in energy conversion, materials engineering, automatic control, or chemical processes may combine departmental courses and appropriate electives from other departments of the College of Engineering and the University. Ph.D. programs may center in any one of these areas through choice of appropriate course work and research topic.

Information on the graduate programs in mechanical engineering is published in the Graduate Student Handbook available in the department office.

**Research**

**Fluid Mechanics**

The graduate program in fluid mechanics provides the student with 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. Elucidation of
fundamental principles and techniques of solving problems in the various fields of application are emphasized, with focus on the use of computers, both in the mathematical modeling of flow phenomena and in the acquisition and processing of experimental data. Although most of the relevant courses are offered by the Department of Mechanical Engineering, students are strongly encouraged to take applied mathematics and classical mechanics courses offered by the mathematics and physics departments in the College of Liberal Arts and by other departments in the College of Engineering. Current research projects include computational modeling of viscous and turbulent flows; vortex dynamics; unsteady flows; flow separation and control; biofluid dynamics; automobile aerodynamics; ship hydrodynamics; viscous flow around ships; propulsion flow and propulsion-body interactions; free-surface effects; nonlinear wave theory; two-body hydrodynamic interactions; underwater acoustics; low Reynolds-number flows; quantitative flow visualization and image processing; and laser Doppler and thermal anemometry for flow analysis.

**Thermal Sciences**

The graduate program in thermal sciences and systems provides students with a rigorous and broad foundation in the theoretical and experimental aspects of the subject, thus preparing them for careers in industry, teaching, and government. The program emphasizes fundamentals of thermodynamics, heat transfer, and combustion, and associated analytical, numerical, and experimental methods used in energy conversion systems. Areas of concentration include fluid mechanics, thermodynamics, heat transfer, phase-change, and combustion. Although most of the relevant courses are offered by the department, students are encouraged to supplement them with courses from other departments in the College of Liberal Arts and other departments in the College of Engineering, in order to balance their programs. Current research projects include analytical, numerical, and experimental investigations of convective and radiative heat transfer with real gas and surface effects; laminar and turbulent heat transfer; shock ignition of particle-laden gases; hot spot ignition of condensed-phase energetic materials; transition to detonation in granular materials; natural convection; turbulent jet as well as turbulent flow; diffusion flames; spray atomization and combustion, liquid-metal combustion; transport phenomena in materials processing, melting and solidification, porous media; double-diffusive convection; optimal control of thermal systems; electronic thermal control; and flow visualization of complex convection processes.

**Mechanical Systems**

The graduate program in mechanical systems provides students with a strong background in theoretical, computational, experimental, and applied aspects of the subject and prepares them for careers in high-level applied research, advanced system analysis, design, and teaching. The program emphasizes fundamental principles, techniques, and experimentation used to analyze and design mechanical systems. Areas of concentration include vehicle dynamics and simulation, machine dynamics, optimal design, structural optimization, control systems, and fatigue and fracture mechanics. Although most of the relevant courses are offered by the Department of Mechanical Engineering, students are encouraged to take appropriate courses offered by the mathematics, statistics, and physics departments in the College of Liberal Arts and those offered by other departments in the College of Engineering. Current research projects include state space theory of structural optimization; design sensitivity analysis of rigid and flexible mechanical systems; computer-aided design; computer-aided engineering visualization and communication; geometric modeling; mechanical system modeling; integrated computer-aided engineering design; real-time dynamic simulation; vehicle system dynamics; dynamic systems with intermittent motion; design sensitivity analysis of structural systems; shape optimal design; optimization of built-up structures; optimal structural design under dynamic loads; computer-aided analysis; design and optimization of large-scale mechanical systems; control system modeling and simulation; design of controls for nonlinear systems based on interfacing of mechanical system and control system simulation programs; simulation of hydraulic control actuation; damage-tolerant design using fracture mechanics; and fatigue behavior and life prediction under constant and variable amplitude loading.

**Master of Science**

The M.S. program requires a minimum of 30 semester hours of course work and research. Students may choose a thesis or nonthesis program. Usually, 6 and no more than 9 semester hours of credit for thesis research and writing may be counted toward the 30-semester-hour requirement. Each student determines a plan of study in consultation with an adviser and submits the plan to the department chair for approval. To earn the M.S., the student must maintain a 3.00 minimum grade-point average on all previous college-level work and minimum Graduate Record Examination (GRE) General Test scores of 500 verbal and 750 quantitative. For students whose native language is not English, a minimum Test of English as a Foreign Language (TOEFL) score of 550 may be substituted for the GRE verbal requirement. Students may, under exceptional circumstances, be considered for conditional admission with a lower grade-point average and/or GRE or TOEFL test scores. The student with conditional status must achieve regular status within one semester (excluding summer sessions) after admission. To satisfy this requirement, the conditionally admitted student must attain a 3.00 minimum grade-point average on an initial registration of 9 semester hours at The University of Iowa. Students who have not submitted their GRE and/or TOEFL scores by the end of the first regular semester after admission will have their registration for the subsequent semester canceled by the Graduate College.

**Financial Aid**

Financial support is available to M.S. and Ph.D. students, primarily through teaching and research assistantships from the Department of Mechanical Engineering, the Center for Computer-Aided Design, and the Iowa Institute of Hydraulic Research. 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. Advanced doctoral students also may qualify for higher stipend instructor positions. 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 semester hours during fall and spring semesters until they have completed 30 semester hours 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 semester hours during fall and spring semesters until they have completed 90 semester hours of course and research work beyond the baccalaureate degree. Once they meet these minimums, graduate students must register for a minimum of 3 semester hours each semester. Students with appointments must register during summer sessions. 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. One semester of final M.S. or post-Ph.D. comprehensive registration is permitted for students who have completed their requirements but have not yet received their degrees.

**Special Facilities and Laboratories**

**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 engineering departments, see the subsection for each department.

**Required and Elective Course Laboratories**

The mechanical engineering laboratory for experimental engineering provides undergraduate students with exposure to contemporary sensors, signal conditioners, instrumentation, and computer-aided data acquisition systems.

The laboratory for mechanical engineering projects provides for either group 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 on-line on computer. Experiments in heat transfer measurements are made in this laboratory.

**Graduate Facilities and Laboratories**

**FLUID MECHANICS**

The program in fluid mechanics is conducted in close collaboration with the Iowa Institute of Hydraulic Research, which houses some of the most modern research facilities in the world. The equipment available to graduate students includes several wind tunnels and hydraulic flumes, an environmental flow facility, a 300-foot towing tank, two special low-temperature flow facilities for investigation of ice phenomena, pulsatile-flow apparatus, unsteady flow water tunnel, hot-wire and laser anemometer systems, and computer-based data-acquisition systems.

In the department, the facilities available are a flow visualization and imaging system with CCD (Charge-Coupled Devices) camera, a low-speed wind tunnel, a water table, and a water flume. Institute and engineering college workshops provide the necessary support.

**THERMAL SCIENCES**

Facilities for research in the thermal sciences and systems consist of a spectral bidirectional reflectometer for radiant property measurements, a low-pressure combustion chamber, a diffusion flame test rig, a 20-liter explosion vessel, an air atomization spray apparatus, test stands for melting and solidification studies, and various optical measurement systems. Laser-based diagnostics (e.g., laser-induced fluorescence, planar imaging, and laser Doppler anemometry) are available for turbulent flow, heat transfer, and combustion studies. Flow visualization and imaging by CCD camera is available for the study of complex fluid motion, heat convection, and combustion flows.

Several laboratories are served by computer-based data-acquisition systems. Workstations connected to ICAEN and the Weeg Computing Center are available for data reduction and analysis.

**FATIGUE AND FRACTURE**

Experimental facilities for the fatigue and fracture mechanics segment of the department include access to a scanning electron microscope, a field computer data-acquisition system, modern servo-hydraulic closed-loop fatigue test equipment, and equipment for characterization of material properties. Normal strength of materials test equipment also is available.

**MECHANICAL SYSTEMS**

Simulation activities in the mechanical systems area are usually carried out in the Center for Computer-Aided Design. The center’s computing facilities consist of an Alliant FX/2800 supercomputer, an Alliant FX/8 mini-supercomputer, a large heterogeneous network of workstations ranging from desktop systems to high-performance 3-D graphics workstations, and other related computer equipment. Center researchers also have access to the Iowa Driving Simulator (IDS), the most advanced facility of its kind in the United States. The IDS is composed of an Evans and Sutherland CT6 Image Generator and Gould front-end computer, Harris NightHawk 4404 and 1202 real-time computers, and the center’s Alliant FX/2800.

**Courses**

**Special Topics**

58:900 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. Admission to the Cooperative Education Program and consent of the cooperative education faculty advisor required.

58:80 Experimental Engineering

58:86 Mechanical Engineering project
Application of mechanical, thermal, fluid systems design; student or group design projects initiated at various levels in the design process and carried through to higher levels; emphasis on synthesis, written and oral communication. Corequisite: 58:68 or 58:55.

58:91 Professional Seminar: Mechanical Engineering
Prerequisite: 57:25 or 57:35. Students with one-quarter-time or more appointments must register for a minimum of 9 semester hours during fall and spring semesters.

58:98 Individual Investigations: Mechanical Engineering
Individual projects for mechanical engineering graduate students; student/faculty interaction, professional society involvement, panel discussions, plant trip, job opportunities. Required.

58:110 Computer-Aided Engineering
3 s.h.
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 53:115.

58:111 Numerical Calculations
3 s.h.
Development of algorithms for numerical integration, numerical differentiation and integration; solution of algebraic and differential equations, with emphasis on digital computations; initial and boundary value problems. Prerequisite: 22M:121. Same as 53:111.

58:113 Mathematical Methods in Engineering
3 s.h.

58:115 Finite Element Techniques in Engineering
3 s.h.
Finite-element method; basic concepts; one and two-dimensional boundary value problems; applications to heat transfer and fluid flow; stress analysis, axial deformation, bending, torsion problems, two-dimensional elasticity problems, plate bending, shells; practical applications using commercially available software. Prerequisite: 57:19. Same as 53:133.

58:149 Engineering Optics
3 s.h.
Principles of geometrical and physical optics; imaging, fiber optics, matrix methods; optical systems and devices; Fresnel equations; interference; polarization; diffraction; scattering; absorption; lasers. Prerequisites: 22M:41 and 29:18.
Analytical Methods in Thermo-Fluid Mechanics 3 s.h.
Theory and solution techniques for ordinary and partial differential equations; definition and integral equations of interest in thermal sciences; fluid dynamics; Sturm-Liouville problems; nonlinear differential systems; stability, bifurcations, chaos; regular and singular perturbation theory; matched asymptotic expansions, multiple time-scale methods; classification of partial differential equations; method of characteristics, separation of variables; Green’s functions; calculus of variations; Hamiltonian systems; Galerkin method; integral equations; ill-posed and ill-conditioned problems. Prerequisite: 58.113. Same as 53.212.

Analytical Methods in Mechanical Systems 3 s.h.
Functional analysis applied in mechanics and dynamics; calculus of variations; variational methods; such as use of Ritz and Galerkin methods; ordinary differential equations; boundary and initial value problems; stability theorem; perturbation of linear systems. Prerequisite: 58.113. Same as 53.214.

Finite Element Techniques in Engineering 3 s.h.
Advanced topics in the finite element method; convergence considerations; higher order elements; solids of revolution; plate bending; nonlinear analysis; programming aspects; recent developments. Prerequisite: 58. 115. Same as 53.233.

Thermal and Fluids 3 s.h.
Power and refrigeration cycles; mixtures of gases, psychometric mixtures; availability; thermodynamics of combustion and chemical equilibrium. Prerequisites: 22M.36 and 57.9.

Heat Transfer 3 s.h.
Principles of heat transfer by convection, conduction, radiation; analytical solution of the governing equations; applications to engineering problems. Prerequisite: 57.26.

Thermal-Fluid systems Design 4 s.h.
Design of thermal-fluid systems; economics, life-cycle costs, modeling of thermal-fluid systems; simulation, optimization, design by computer. Prerequisites: 58.140 and 58.45.

Intermediate Thermodynamics 3 s.h.
Thermodynamics of irreversible processes, kinetic theory, thermodynamic relations, real gas behavior, local equilibrium, multiphase systems, numerical applications to selected topics. Prerequisite: 58.40.

Intermediate Heat Transfer 3 s.h.
Steady and unsteady conduction; forced and natural convection; surface and porous radiation; condensation and evaporation; analytical and numerical methods and applications. Prerequisite: 58.45.

Combustion anti Propulsion Engineering 3 s.h.
Chemical reaction of gas; chemical equilibrium, transport equations; thermodynamics of fluid flows; laminar flames; basic gas turbine cycles; propulsion systems-open gas turbine cycles; turboprop, turbojet, turbofan, ramjet; stress-life, fail-safe, damage-tolerant design; standards, product liability, ethics in design, data-acquisition/life-prediction experiments. Prerequisite: 58.55 or equivalent. Same as 55.161.

Mechanical Systems 3 s.h.
Topics: 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 and computer software. Prerequisite: 57. 19. Corequisites: 22S.39 and 57.21.

Mechanical Design Systems 4 s.h.
Design considerations for mechanical engineering systems; strength, deformation, durability of mechanical elements; fail-safe, damage-tolerant design; standards, product liability, ethics in design, data-acquisition/life-prediction experiments. Prerequisite: 58.52.

Feedback Control Systems 3 s.h.
Analysis of linear feedback control systems; classical formulation; stability analysis; time and frequency domain analysis and design; proportional-integral-derivative and lead-lag compensation design; computer simulation. Prerequisites: 22M.41 and 57.12.

Control System Design 3 s.h.
Design techniques for linear control systems; review of classical compensation methods and state feedback; optimal control; regulator and tracking control; dynamic programming. Prerequisite: 58.131 or equivalent. Same as 55.161.

Theory and Formulations 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: 57.19. Same as 53.140, 51:151.

Planar Kinematics and Dynamics of Machines 3 s.h.
Modeling techniques in kinematic and dynamic analysis of constrained planar mechanical systems; numerical methods in solving equations of kinematics and dynamics; emphasis on mechanical systems of large-scale systems. Prerequisites: 57.10 and 58.52.

Fundamentals of Vibrations 3 s.h.
Vibration of linear discrete and continuous mechanical and structural systems; harmonic, periodic, and arbitrary excitation; numerical analysis. Prerequisites: 57.59 Same as 53.132.

Intermediate Dynamics 3 s.h.
Theoretical and applied Newtonian, Eulerian, Lagrangian, and variational analyses of particles and rigid bodies in equilibrium and accelerated motion. Prerequisite: 57.10.

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; notch, residual stress, corrosion, temperature, multiaxial, weldments. Prerequisite: 58. 158 or 58.55 or 58.159, or equivalent. Same as 53.148.

Fracture Mechanics 3 s.h.
3-d stress states, definition and criteria for failure, nominal and local yield phenomena, linear elastic and linear elastic plastic fracture mechanics, plane stress and plane strain fracture toughness, J-Integral, crack opening displacement, environmental assisted cracking, fatigue crack growth, full scale, and damage tolerant design. Prerequisite: 51.85 or 53.35 or 58.55 or 58.159, or equivalent. Same as 53.149.

Composite Materials 3 s.h.
Mechanics of solid phase systems, with applications in lightweight structures, ultralight materials, materials for the protection of the body and replacement of human tissues; composites with fibrous, lamellar, particulate, cellular structures; composites of biological origin. Prerequisite: 58.150. Same as 51.177, 53.137.

Advanced Control Theory 3 s.h.
Optimal control, tracking control, system reconstruction, nonlinear systems, linearization, describing function, optimal filtering. Prerequisite: 55.160. Same as 56.226.
58:250 Advanced Computer-Aided Engineering 3 s.h.

58:251 Continuum Mechanics and Elasticity 3 s.h.
Cartesian tensors, geometric foundations; concept of stress, strain, motion; fundamental physical laws; constitutive equations and finite elasticity; equations of linear elasticity; elastic extension, torsion, bending of bars. Prerequisites: 53:113 and 53:140. Same as 53:241.

58:252 Mechanical Design in Dynamics 3 s.h.
Mechanical system dynamic analysis, synthesis, design optimization. Prerequisites: 58:151, 58:155, and 58:253.

58:253 Computational Methods in Dynamics 3 s.h.
Computational methods in formulation and computer solution of equations of motion of large scale mechanisms, machines, planar and three-dimensional systems. Prerequisites: 58:113, 58:151, and 58:155.

58:254 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: 58:113 and 58:150. Same as 53:244.

58:255 Topics in Solid Mechanics 3 s.h.
Plane theory of elasticity; stress around a crack tip; flow theory of plasticity and application; crack tip plastic zone; simple mechanical models of viscoelastic behavior. Prerequisite: 58:251 or equivalent. Same as 53:242.

58:256 Theory of Viscoelasticsity 3 s.h.
Linear theory of viscoelasticity; non aging materials; Boltzmann superposition principle; linear functional; thermodynamic foundations; time-temperature superposition principle; boundary and initial value problems. Prerequisite: 58:150 or 58:251. Same as 51:257, 53:247.

58:257 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. Prerequisite: 53:241 or equivalent. Same as 53:246.

58:258 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: 58:113, 58:115, and 58:150.

58:259 Research: Mechanical Engineering, M.S. 3 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in mechanical engineering. Consent of adviser required.

58:299 Research: Mechanical Engineering Ph.D. Dissertation 3 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. in mechanical engineering. Consent of adviser required.
Graduate College

Dean: Leslie Sims
Associate deans: James F. Jakobsen,
Charles M. Mason
Assistant dean: William C. Welburn
Graduate examiner: Caren Cox
The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, more than one-fifth of its enrollment is in the Graduate College. This unusually 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 faculty members at the ranks of assistant professor, associate professor, and professor. A 12-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.

**Degree Programs**

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Fine Arts (M.F.A.), Master of Physical Therapy (M.P.T.), Educational Specialist (Ed.S.), Master of Social Work (M.S.W.), Master of Physician Assistant Studies (M.P.A.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees.

The college currently confers degrees in the following major fields:

- Accounting – M.A.*
- Afro-American Studies – M.A.*
- American Studies – M.A.*, Ph.D.
- Anatomy - M.S., Ph.D.
- Anthropology - M.A.*, Ph.D.
- Applied Mathematics 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.
- Botany – 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.*
- Classics – M.A.*, Ph.D.
- Communication Studies– M.A.*, Ph.D.
- Comparative Literature – M.A.*, M.F.A., Ph.D.
- Computer Science – M.S.*, Ph.D.
- Criminal Justice and Corrections – M.A.***
- Dance – M.F.A.
- Dental Hygiene – M.S.***
- Dental Public Health-M.S.
- Economics-M.A.*, Ph.D.
- Electrical and Computer Engineering– M.S.*, Ph.D.
- Endodontics – M.S.
- English - M.A. *, M.F.A., Ph.D.
- Exercise Science – M.S.*, Ph.D.
- Film and Video Production – M.F.A.
- French – M.A.*, Ph.D.
- Genetics – Ph.D.
- Geography - M.A.*, Ph.D.
- Geology - M.S.*, Ph.D.
- German – M.A.*, Ph.D.
- Greek – M.A.**
- History - M.A.*, Ph.D.
- Hospital and Health Administration– M.A.*, Ph.D.
- Human Nutrition - 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 Biology - Ph.D.
- Museum Methods - M.A.***
- Neuroscience – Ph.D.
- Nursing-M.A.*, Ph.D.
- Operative Dentistry - M.S.
- Oral and Maxillofacial Surgery - M.S.
- Oral Science – M.S., Ph.D.
- Orthodontics - M.S.
- Pathology – M.S.
- Pediatric Dentistry - M.S.
- Periodontology – M.S.
- Pharmacology – M.S., Ph.D.
- Pharmacy – M.S.*, Ph.D.
- Philosophy – M.A.*, Ph.D.
- Physical Education – M.A.*, Ph.D.
- Physical Therapy – M.A., M.P.T.**
- Physician Assistant Studies – M.P.A.**
- 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.
- Prosthodontics- M.S.
- Psychology - M.A.*, Ph.D.
- Quality Management and Productivity - M.S.*
- Radiation Biology - M.S., Ph.D.
- Religion-M.A. *, Ph.D.
- Russian – M.A.*
- Science Education-M.S.*, Ph.D.
- Social Studies – M.A.*
- Social Work-M.S.W.*
- Sociology - M.A.*, Ph.D.
- Spanish-M.A.*, Ph.D.
- Speech Pathology and Audiology – M.A. *, Ph.D.
- Statistics- M.S.*, Ph.D.
- Stomatology-M.S.
- Theatre Arts - M.F.A.
- Third World Development Support– M.A.
- Urban and Regional Planning–M.A.*, M.S.***
- *Degree offered with or without thesis
- **Nonthesis degree
- ***Student entry suspended

**Ad Hoc Interdisciplinary Ph.D. Programs**

In addition to the degree programs listed above, the graduate faculty has authorized the awarding of ad hoc interdisciplinary Ph.D. degrees. There are no provisions for ad hoc interdisciplinary programs at the master’s level. Students seeking approval for ad hoc interdisciplinary Ph.D. programs must have been admitted to and enrolled in a departmental program in the Graduate College. For details, see Section XII.E. in “Rules and Regulations of the Graduate College” in this section of the *Catalog*.

**Aging Studies Program**

The Aging Studies Program is a multidisciplinary, nondegree program administrated by the College of Liberal Arts in cooperation with other colleges of The University of Iowa. The program is designed to complement graduate degree programs for students with academic, professional, research, or service career interests in aging. An entry is made on a student’s transcript certifying completion of an approved curriculum in aging studies. For further details, see “Aging Studies Program” in the College of Liberal Arts section of the *Catalog*.

**Applied Mathematical Sciences**

The Applied Mathematical Sciences Program is a broad-based interdisciplinary program leading to the Ph.D. Students combine study of theoretical and applied aspects of a mathematical science (mathematics, statistics, or computer science) with study in a science [behavioral, biological, engineering, medical, physical, or social]. See “Applied Mathematical Sciences” under “Division of Mathematical Sciences” in the College of Liberal Arts section of the *Catalog* for a list of faculty and a further description of the program.

**Genetics**

The Ph.D. program in genetics is an interdepartmental program involving members of the Departments of Biochemistry, Biological Sciences, and Microbiology as well as a number of faculty members in clinical departments. See “Genetics” in the College of Liberal Arts section of the *Catalog* for a list of participating faculty, degree requirements, and courses offered.

**Human Nutrition**

The Human Nutrition Program provides interdisciplinary training for doctoral candidates who desire careers in research or teaching in a medical setting. See “Human Nutrition” in the College of Medicine section of the *Catalog*.

**Interuniversity Center for Film and Critical Studies in Paris**

The University of Iowa is one of a consortium of 21 colleges and universities associated with
the Council on International Educational Exchange (CIEE), that sponsors a Film Studies Program and a Contemporary Criticism and Culture Program. These are two unique academic opportunities offered at the Centre Universitaire American du Cinema et de la Critique a 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, psychoanalysis, and cultural theory. It draws on recent conceptual theorems 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.

A recent addition to the program is a 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 HI- Censier and are eligible to take selected courses within the University of Paris as well as those directly sponsored 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 Communication Studies.

Joint Programs within the Graduate College

Various joint programs have been developed whereby students simultaneously work toward two graduate degrees. Consult the appropriate sections of this Catalog for further information. Established joint programs include Business Administration/Library and Information Science; Economics/Urban and Regional Planning; Hospital and Health Administration/Business Administration; Hospital and Health Administration/Urban and Regional Planning; Social Work/Urban and Regional Planning; Preventive Medicine and Environmental Health/Urban and Regional Planning; and Business Administration/Nursing.

Medical Scientist Training Program

The Medical Scientist Training Program (MSTP) is an interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College. See “Medical Scientist Training Program” in the College of Medicine section of the Catalog.

Molecular Biology

The Ph.D. program in molecular biology is interdisciplinary in nature, involving members of the Departments of Biological Sciences, Biochemistry, Medicine, Microbiology, Pathology, and Physiology and Biophysics. See “Molecular Biology” in the College of Medicine section of the Catalog.

Neuroscience Program

The Neuroscience Program is designed to provide an interdisciplinary and interdepartmental approach to graduate education and research training aimed at understanding the structure, function, and development of the nervous system and its role in behavior. See “Neuroscience Program” in the College of Medicine section of the Catalog.

Quality Management and Productivity

The interdisciplinary Program in Quality Management and Productivity leads to the M.S. Cosponsored by the Departments of Statistics and Actuarial Science, Industrial Engineering, and Management Sciences, the program seeks to train students who are interested in the total quality management of products and services, an area of increasing importance in business and industry. Details are provided in the College of Liberal Arts section of the Catalog.

Transportation Studies

The Program in Transportation Studies is an interdisciplinary, nondegree-granting program that coordinates course work leading to student certification in the areas of planning, analysis, and operation of transportation systems. Students participate in the program to complement work toward a graduate degree in civil and environmental engineering, geography, or urban and regional planning. When the graduate degree is awarded, an entry is made on the student’s transcript certifying completion of the Program in Transportation Studies. For further details, see “Transportation Studies” in the College of Liberal Arts section of the Catalog.

Urban and Regional Planning

The graduate program in urban and regional planning is a professional master’s program that prepares students for positions in government and the private sector. The program has a strong policy orientation that enables its graduates to understand the factors affecting a particular urban or regional problem and to develop workable solutions. Students may choose to specialize in transportation and infrastructure planning, environmental and energy planning, housing and community development, and economic development. A number of joint degrees are offered. For further details, see “Urban and Regional Planning” in the College of Liberal Arts section of the Catalog.

Research Resources

The many and diverse research activities of the University are centrally administered by the Office of the Vice President for Research, which has a cooperative relationship with the Graduate College. For further information, see “Research Activities” in the Special Resources at Iowa section of the Catalog.

Financial Assistance

Approximately half of the University’s graduate students receive some form of University-administered financial assistance. Eligibility requirements and application procedures are set forth in “Section VII, Graduate Appointments” in “Rules and Regulations of the Graduate College” in this section of the Catalog. The following are the primary sources of assistance.

TEACHING AND RESEARCH ASSISTANTSHIPS

Available in most departments; stipends typically range between $9,600 and $11,500 for half-time assistants; assistants also are eligible for tuition scholarships. Assistants (one-quarter time or more) are classified as residents for fee purposes.

IOWA ARTS FELLOWSHIPS

For first-year University of Iowa graduate students entering M.F.A. programs, typical stipends are $10,000 for the academic year, with all tuition paid, for as many as two years (the second year being contingent on demonstrated exceptional progress toward completion of the M.F.A.); no departmental service obligations.
The following text is from the *Manual of Rules and Regulations of the Graduate College*.

**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 a formal admission statement from the director of admissions. Applicants may obtain the proper forms from the Office of Admissions.

In addition to these forms, official transcripts from each undergraduate and graduate institution attended must be submitted to the director of admissions 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 several times a year 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 FOREIGN STUDENTS

Prior to consideration for admission, foreign 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.

Foreign students transferring from unfinished degree programs of other universities in the United States who have not taken this examination, or who have received a grade lower than the minimum established by the Graduate College dean, must take the TOEFL examination and receive a passing grade prior to consideration for admission.

The Graduate College will advise the departments of those students barely passing the TOEFL test. Individual departments may require such students to take and pass a course at The University of Iowa in English usage designed especially for foreign students.

D. EARLY ADMISSION

A student who is within six semester hours 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,” “Section XI. Two-Year 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 “special students.” (See definition of “special status” in next paragraph.) 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.

6. STATUS UPON ADMISSION

All students upon admission fall into one of the following categories:

1. **Regular-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 professional (or personal) improvement.

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. (See minimum grade-point requirements, “Section I.H.”) The student on conditional status must achieve regular status within two sessions of registration in the Graduate College by attaining a grade point average of at least 2.50 (3.00 for doctoral students) and acceptance by the major department, or be dismissed.

3. **Special-Students** with a valid bachelor’s degree and at least a 2.30 grade-point average...
who are not planning to become candidates for a graduate degree or certificate. Registration as a special student is allowed for only one semester or summer session. Before registration for any subsequent session, including another summer session, a special student must file an application and be admitted by a department or program to regular or conditional status. A student registering as a special student can take no more than two courses during a semester or eight semester hours during the eight-week summer session.

H. MINTIMUM REQUIREMENTS FOR ADMISSION

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. For nondoctoral students, a minimum grade-point average of 2.30 is required for admission to conditional status. A minimum of 2.50 is required for admission to regular status. The grade-point average is computed only on graduate work if the student has completed at least 12 graduate hours. If the student has not completed 12 graduate semester hours, the grade-point average is computed upon the undergraduate and graduate work completed. In cases in which a student applying for admission has a grade-point average below the minimum required, but has a Graduate Record Examination score above a point to be designated by the Graduate College dean, his or her papers shall be forwarded to the department concerned for examination and decision.

Students applying for admission to a doctoral program with 12 or more semester hours of graduate work must meet a minimum grade-point average of 3.00 on the graduate work. For students with less than 12 semester hours of graduate work, a minimum of 2.70 is required on the entire record of collegiate work.

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.

For State Board of Regents’ formal admission requirements, see the Iowa Administrative Code: Board of Regents section of the Catalog.

I. 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 special 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 Council.

J. 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 reaplication.

Section II. Registration

A. STANDARD SCHEDULE

Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses. In a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit may be substituted for one hour of graduate credit, with registration limited to a total of 18 semester hours. 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 eight semester hours, or nine semester hours if two or more semester hours of undergraduate work are included. 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. Nine semester hours in the regular semester constitute full-time registration. (Fellows are required to carry at least nine semester hours 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 semester hours per semester and eight semester hours during the eight-week summer session.

B. COURSES NOT INCLUDED IN TOTAL REGISTRATION

In addition to a full schedule, a graduate student may register for courses printed in the Schedule of Courses as carrying zero semester hours of credit.

C. CHANGES IN ANNOUNCED CREDIT

Graduate students may not register for more credit in any course than that printed in the Schedule of Courses, but may register for less credit, or no credit, by permission of the instructor. The number of courses a graduate student may register for no credit is subject to the consent of the adviser 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 semester hours during a semester or six semester hours during the eight-week summer session.

2. Five-eighths-time appointees may register for not more than seven semester hours during a semester or five semester hours during the eight-week summer session.

3. Two-thirds- and three-quarter-time appointees may register for not more than nine semester hours during a semester or five semester hours during the eight-week summer session.

4. Seven-eighths-time appointees may register for not more than seven semester hours during a semester or four semester hours during the eight-week summer session.

5. Full-time appointees, including full-time instructors, may register for not more than six semester hours during a semester or three semester hours 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 one semester hour 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 semester hours permitted for a semester and the eight semester hours permitted for the eight-week summer session. Registration after the last day of the third 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.

6. 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 nine semester hours 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. Correspondence courses.

H. EXTRAMURAL FEES AND PRIVILEGES

Extramural course work may be counted as residence credit only if the student has been admitted to a departmental program in the Graduate College (see “Section I.G”) and pays established fees. (See “Section XII.K” for special fees applicable to postcomprehensive registration, which should not be confused with extramural registration for residence credit.)
L. CORRESPONDENCE COURSES
Correspondence study credits do not count as residence credits. Not more than nine semester hours of graduate correspondence work can be applied toward an advanced degree. Such credit must be acceptable for the student’s plan of study and must be earned after the student has enrolled in the Graduate College. In some instances, graduate-level correspondence study credit earned after a student has received a bachelor’s degree but before enrolling in the Graduate College may later be counted toward an advanced degree with approval of the Graduate College dean upon recommendation of the major department. A graduate student may not register for correspondence courses without the approval of the executive of his or her major department and of the Graduate College dean.

J. SYSTEM OF COURSE NUMBERS
Courses primarily for graduate students are numbered 200 or above in each department. Courses primarily for graduate students are numbered from 100 to 199. Courses below 100 are not accepted for graduate credit. 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.

K. AUDITING OF COURSES
Upon the recommendation of the instructor and the adviser, the dean of the Graduate College may grant permission to graduate students to audit courses for zero credit. Auditing is permitted only for a student who is currently registered.

L. 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 14 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 adviser, 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 adviser and the faculty member at the host institution, graduate deans at both institutions will be fully informed by the adviser 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. NONCOTERIAL STUDENTS
A student, except one on conditional status, shall be placed on probation if, after completing eight semester hours of graduate work, his or her cumulative grade-point average on graduate work done at The University of Iowa falls below 2.50. If, after completing eight more semester hours of graduate work at this university, his or her grade-point average remains below 2.50, he or she shall be denied permission to reregister; otherwise, the student shall be restored to good standing.

B. DOCTORAL STUDENTS
A doctoral student on regular status shall be placed on probation if, after completing eight semester hours 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 eight more semester hours of graduate work at this university, his or her cumulative grade-point average remains below 2.50, he or she shall be denied permission to reregister; otherwise, the student shall be restored to good standing.

C. REIHOOTION ON STUDENTS ON PROBATION
A student who will not be permitted to reregister for failure to meet standards shall be notified 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. If a student fails to meet conditions of admission, 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. 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 request a review by the Graduate College. This review may be conducted by the Graduate College dean alone, or the dean may appoint a
Section V. Credits

A. Transfer of Graduate Credit

Graduate work at other institutions will be entered on the student’s permanent record by the registrar 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.

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.)

C. Reduction in Credit

For courses or seminars in independent study, thesis, and research, an instructor may report less credit than the number of semester hours for which a student is registered.

D. 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.

E. 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 theses and seminars. (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 No Graduate Credit

These are A+, A, A–, B+, B, B–, C+, C, C–, and S—satisfactory.

B. Marks Carrying 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.”) Students who receive the mark of I must remove that mark within the first session of registration after the closing date of the session for which it is given, or else the grade becomes F, except that students with I’s from the spring semester are exempt from completing the course during the succeeding summer session.

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 incomplete; removal of an I is accomplished only through completion of the specific work for which the mark is given.


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. In general, these requests may be granted for no more than one session and must be reviewed by the Graduate Council before being granted for longer periods. 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 adviser 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 third 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.

6. 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 grade-point average, 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 grade-point average 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 I.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. Faculty research assistants appointed by the Graduate College pay their own fees. Graduate appointments beginning in August are usually made by the Graduate College dean upon recommendation of the various departments in March of each year, although applications may be considered at any time. Application should be made on the form provided by the Graduate College and should be accompanied by recommendations and/or a letter summarizing the student’s qualifications.

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. DISMISSAL OF ASSISTANTS
A uniform policy defining procedures to be followed in the dismissal of assistants has been approved by the Board of Regents. Copies of this policy are available in the office of the Graduate College dean.

G. CREDIT
No academic credit is allowed for the teaching or research service for which the student receives payment as a graduate or a faculty research assistant.

H. LOANS
Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid. See “Financial Aid” in the Learning at Iowa section of the Catalog.

I. OTHER FORMS OF SUPPORT
Many departments offer financial assistance in the form of traineehips, part-time employment on research programs, or part-time teaching. Inquiries should be addressed directly to the major department.

J. RESEARCH ASSOCIATESHIPS AND POSTDOCTORAL FELLOWSHIPS
These provide for independent research. Appointment is made through the Office of the Vice President for Academic Affairs.

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 not later than ten weeks after the start of the semester or one week after the start of the summer session in which the degree will be conferred. The student must have the application signed by his or her adviser. Failure to file the application by the deadline 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. The student who must register for the session in which the degree is to be conferred but are away from the University campus during that session may meet this requirement by registering for independent study, research, or thesis according to the practice in the various departments. Doctoral candidates who have completed all work except the final examination may register for the postcomprehensive registration described in “Section XII.K” if such registration is appropriate. Master’s candidates who have completed all work except the final examination may register for 000:1 Master’s Final Registration at a fee equivalent to the “postcomprehensive registration” if such registration is appropriate. Registration in a correspondence course will not satisfy this requirement.

Students completing all requirements (including the final examination and thesis deposit) for a graduate degree while enrolled in the Independent Study Session may receive their degrees in the following semester without additional registration.

Section X. Master’s Degrees

A. KINDS OF DEGREES
Master’s programs requiring a minimum of 30 semester hours lead to the Master of Arts degree, Master of Science degree, Master of Arts in Teaching degree, Master of Physical Therapy degree, Master of Physician Assistant Studies degree, and such other master’s degrees as are approved by the graduate faculty.

B. PLAN OF STUDY
The applicant for a master’s degree must file a plan of study approved by the adviser and the departmental executive with the Graduate College within the session in which the degree is to be granted and by a date to be established by the Graduate College dean. 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. RESIDENCE REQUIREMENT
Of the minimum of 30 semester hours required for the degree, at least 24 semester hours must be completed under the auspices of The University of Iowa, after admission to a departmental program in the Graduate College. Various forms of extramural registration may qualify toward fulfillment of this 24-hour residence requirement (see “Section II.G. Extramural Registration”) in addition to regular on-campus registration. However, at least eight semester hours on campus are required, except for those departmental programs which ensure sufficient interaction between the students and the graduate faculty and have received approval from the Graduate Council and the dean of the Graduate College for reduction of this on-campus requirement.

E. REDUCTION OF OLD CREDITS
Credits for a master’s degree dating back more than ten 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 adviser 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 semester hours of graduate credit.

H. MASTER’S DEGREE WITH THESIS

Not more than nine semester hours of credit for thesis research and writing shall be counted in satisfying the 30-semester-hour 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 not later than four weeks before the graduation date on which the degree is to be conferred. (See the Graduate College Thesis Manual). After approval by the Graduate College and by the thesis committee, a final copy of the thesis must be deposited with the Graduate College not later than ten days before graduation.

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. (See “K. Examining Committee.”)

I. MASTER’S DEGREE WITHOUT THESIS

A master’s degree without thesis, consisting of at least 30 semester hours of graduate study, 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 all master’s degrees 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. The examining committee will evaluate 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.

If the department so recommends, a candidate who fails the examination may present himself to the educational specialist degree are the same as prescribed for the one-year master’s degree in "Section X.B. Plan of Study"; "C. Major and Related Fields"; “F. Limit on Professional Courses"; “J. Final Examination"; and “K. Examining Committee.”

A master’s degree may be earned while in residence for the educational specialist degree provided the student meets all the requirements for the master’s degree in question.

C. MASTER OF SOCIAL WORK DEGREE

The M.S.W. degree is conferred by the University upon those students who give evidence of knowledge and competence in the professional practice of social work by meeting the following requirements:

1. A minimum of 24 semester hours in residence at the University of Iowa;
2. A minimum of 60 semester hours in graduate social work, including a research requirement;
3. A comprehensive examination, written or oral or both, covering all work for the degree.

The requirement of 60 semester hours may be interpreted to mean that a student who can satisfy the faculty of the school that he or she has accomplished, in the junior or senior undergraduate years, the clear equivalent of part or parts of the graduate curriculum in social work may be permitted, upon recommendation of the faculty of the school, to qualify for the M.S.W. degree on less than 60 semester hours. In no case may a student qualify for the degree on less than 36 semester hours of graduate social work study.

The curriculum is organized into four general areas: social work practice, human growth and behavior, the social services, and research. During the two-year graduate program, class work is combined with field practice in various settings. Since class work and field practice are arranged sequentially, students can enter the School of Social Work only in August.

For other requirements, see “Section X.B. Plan of Study”; “E. Reduction of Old Credits”; “F. Limit on Professional Courses"; “H. Master’s Degree with Thesis”; and “K. Examining Committee.”

Section XII. Doctor’s Degrees

A. CHARACTER OF DEGREE

The Graduate College awards two doctorates, the Doctor of Philosophy and the Doctor of Musical Arts. The doctorate is the highest degree awarded by the university. The Doctor of Philosophy degree indicates excellent work in research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy.

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 resident work 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 semester hours of graduate work; this requirement can be met either by: (1) enrollment as a full-time student (nine semester hours minimum) in each of two semesters; or (2) enrollment for a minimum of six semester hours in each of three semesters during which the student holds at least a one-third-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 semester hours of graduate work.)

D. 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 adviser. 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.

E. AD HOC INTERDISCIPLINARY PROGRAMS
A student may prepare a proposal for an interdisciplinary course of study, including the plan for the comprehensive examination, under the sponsorship of at least three faculty members and the department most directly concerned, which shall be designated as the sponsoring department. 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. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, parenthetically, the name of the sponsoring department.

F. REDUCTION OF OLD CREDITS
Courses taken ten 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.

G. 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 adviser and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will not be counted as part of the one academic year which must be spent in residence as a doctoral student on the campus of this university.

H. JOINT PROGRAM FOR MASTER’S AND DOCTORAL DEGREES
Those students who expect to continue their training through the doctoral degree may file 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.

1. 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.”). Departmental executive officers are responsible for reporting completion of requirements to the registrar for entering on the student’s record. Specifications of departmental requirements in foreign languages are filed in the Graduate College office and may be changed upon the initiative of the department.

J. COMPREHENSIVE EXAMINATION
The candidate must pass 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 taken not later than four months after the date of registration. This examination, administered on or off 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 doctoral degree.

The comprehensive examination will be evaluated by a convened meeting of the committee and reported as satisfactory, satisfactory with reservations, or unsatisfactory to the Graduate College office within 14 days after the completion of the examination. Two “unsatisfactory” votes will make the committee report unsatisfactory. In the event of a report with two or more votes of “satisfactory with reservations,” the exact stipulations of the committee should be recorded with the report form. The statement must specify the time allowed for satisfying the stipulations and must be specific in defining the area if further examination in a particular area is required, or in describing any additional courses or other procedures that are required. The candidate will not be admitted to the final oral examination until such stipulations have been satisfied. The executive of the major department should promptly send a written report to the Graduate College giving the date of removal of “reservations.”

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.

K. POSTCOMPREHENSIVE REGISTRATION
The student is required to register each semester after passing the comprehensive examination until the degree is awarded. If a student fails to register, the student may not be rereadmitted to candidacy until the student has submitted an application that has been approved by the student’s adviser, the departmental executive, and the Graduate College dean.

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. The student should register for the courses, research, and thesis necessary to complete the plan of study. When the registrations required for the plan of study have been completed, the student may meet the continuing registration requirement by registering for 000:000 Ph.D. Postcomprehensive Registration and paying a special minimum fee for any semester in which the department (i.e., department chair or director of graduate studies) and the student’s adviser determine that the student is neither making significant use of University facilities (except library privileges) nor partaking of consultation with the faculty. It is understood that no registration for a summer session is required when the student makes no use of University resources, unless the student is taking a degree at the end of that session or unless enrollment is required by the department.

L. 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 before the final examination, and not later than four weeks
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.

Q. 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, except that 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.

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. 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.

Courses

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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College of Law

Dean: N. William Hines, Jr.
Associate deans: Arthur E. Bonfield, Jonathan C. Carlson, Burns H. Weston
Assistant deans: Lois K. Cox, Thomas C. Senneff
Professors: S. James Anaya, Eric G. Andersen, David C. Baldus (Joe B. Tye Professor), Patrick B. Bauer, Randall P. Bezanson, Peter D. Blanck, Arthur E. Bonfield (John F. Murray Professor), William L. Boyd, Steven J. Burton (William S. Hammond Professor), William G. Buss (O.K. Patton Professor), Jonathan C. Carlson, Enrique R. Carrasco, Robert N. Clinton (Wiley B. Rutledge Professor), Mary L. Dudziak, Josephine Gittler, Michael D. Green, N. William Hines, Jr. (Joseph Rosenfield Professor), Herbert J. Hovenkamp (Ben and Dorothy Willie Professor), W.H. Knight, Kenneth J. Kreis, Shelly F. Kurtz (Percy Bordwell Professor), Marc Linder, Paul M. Neuhouser, Mark J. Osiel, John C. Reitz, Michael J. Saks, John-Mark Stenvaag, Randall S. Thomas, James J. Tomkovicz, Lea S. VanderVelde, David H. Vernon (Allan D. Vestal Professor), Larry D. Ward (Alder Professor), Burns H. Weston (Bessie D. Murray Professor), Gerald B. Wetlauffer, Alan L. Widiss (Josephine R. Witte Professor), Adrien Wing
Associate professors: Barry D. Matsumoto
Clinical faculty: Patricia Acton, John S. Allen, Lois K. Cox, Reta Noblett-Feld, Leonard A. Sandier, Barbara A. Schwartz
Lecturers: Jo Curris, Nicholas Johnson, Philip A. Leff, Barry A. Lindahl, Maria Lukas, Linda A. McGuire, Lon D. Moeller
Degrees: J. D., LL.M.
The objective of formal legal education is to establish a solid foundation for a lifetime of professional growth. The educational elements necessary to build this foundation are varied. For example, thorough familiarity with the substance of legal principles and the operation of legal institutions are important components. The University of Iowa places equal emphasis on developing fundamental lawyer’s skills and an appreciation of the roles of law and lawyers in society. These objectives are best achieved through an educational program that cultivates active student participation in the learning process and creates regular opportunities for individuals and small groups to confront challenging teachers who are genuinely interested in each student’s professional development.

The University of Iowa College of Law confers process and creates regular opportunities for through an educational program that cultivates in society. These objectives are best achieved an appreciation of the roles of law and lawyers of legal institutions are important components. substance of legal principles and the operation necessary to build this foundation are varied. professional growth. The educational elements establish a solid foundation for a lifetime of

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 semester hours 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: mid-May (at the beginning of the summer session) or late August (at the beginning of the fall semester). Most students elect to enter law school in the fall and expect to graduate in May of their third year of study; these students also may attend summer school at any point during their academic careers. The May entering class may number up to 45. Students entering in May complete nearly a full semester of work in the first 11-week summer session, and if they remain on the accelerated track by attending summer school in each subsequent summer, they can graduate nine months earlier than would otherwise be possible. Thus, the accelerated student who began law school in May 1994 might graduate in August 1996. Students who begin school in the accelerated program, however, are not required to continue in an accelerated track, but may switch to the regular three-year sequence of study.

Both the accelerated and regular programs consist of 90 semester hours of 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 dean or the dean’s representative. No student may take more than 18 semester hours per semester or 13 semester hours in the summer session without permission of the dean or the dean’s representative.

Summer Session

The summer session consists of two periods of five and one-half weeks, during which six to eight upperclass and three to four first-year courses usually are offered. Nonaccelerated students may attend either or both periods. Accelerated students attend the entire 11-week session.

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 no more than 60 days after beginning law school. Details are available from the dean’s office or from the clerk of the Iowa Supreme Court.

Program of Study

To be eligible for a J.D. degree, a student must receive course credit for 90 semester hours; take and complete all required courses; satisfy the writing requirements; satisfy the residence requirements; and achieve a cumulative grade-point average of at least 65.00 (C).

Receiving credit in a course is dependent upon the 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) and gain a sense of the role of legal institutions in society.

First-year courses are as follows.

Fall Semester

91:102 Introduction to Legal Reasoning 1 s.h.
91:120 Contracts and Sales Transactions I 3-6 s.h.
91:124 Criminal Law 3-5 s.h.
91:132 Property I 3-4 s.h.
91:364 Torts 3-4 s.h.

Spring Semester

91:104 Civil Procedure 2-5 s.h.
91:16 Constitutional Law I 3-5 s.h.
91:121 Contracts and Sales Transactions II 3-6 s.h.
91:136 Property II Legal Bibliography 3-5 s.h.

Students who enter law school in May take all of the above over the summer session and two regular academic semesters, plus 91:210 Appellate Advocacy I and 6 to 12 semester hours of electives.

Entering first-year students are expected to take all first-year courses and may not register for different courses or fewer hours without permission of the dean or the dean’s representative.

FIRST-YEAR SMALL-SECTION PROGRAM

One of the distinctive benefits of legal education at The University of Iowa is the first-year small-section program, which integrates training in basic lawyer’s skills into substantive courses taught by regular, full-time faculty. The program’s purposes include careful development of each student’s skills in legal analysis, argumentation, research, and writing.

In the fall semester (summer session for accelerated students), the entering class is divided into sections of approximately 30 students. In the spring (fall for accelerated students), each section includes approximately 20 students. The subject matter of the small-section courses varies from year to year but has included that of virtually every course in the first-year curriculum.

In the small-section course, students are given a series of challenging assignments, each with a different educational objective. Faculty members provide extensive critiques of student performance and discuss the assigned exercises both in class and in individual conferences.

First-year students receive one additional semester hour for their first-semester small section and two additional semester hours for their second-semester small section. A mandatory curve is applied to the grade distribution in all first-year courses.

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 or research opportunities in particular areas of interest.

Very few common requirements exist in the second and third years. All students must take 91:210 Appellate Advocacy I in the second year, and before graduating all must take 91:232 Constitutional Law II and 91:308 Professional Responsibility.

Writing Requirement

All students must earn five writing credits in order to graduate. They earn one of the credits with satisfactory completion of 91:210 Appellate Advocacy I. The remaining four may be earned through any combination of courses
and activities that carry writing credit, including seminar papers, small-section drafting courses, independent research papers, 91:406-407 Clinical Law Programs, 91:402 Moot Court Board, advanced appellate advocacy activities, and journals, including the Iowa Law Review, Journal of Corporation Law; and Translational Law and Contemporary Problems.

Specialization
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 as many as 21-22 semester hours of course work: 91:241-242 Corporations I and II (6 semester hours), 91:216 Business Planning (4 semester hours), 91:217 Corporate Finance (3 semester hours), 91:348 Securities Regulations (3 semester hours), 91:243 Federal Income Tax II (3 semester hours), and 91:253 Employment Discrimination (2-3 semester hours).

Independent Research and Seminars
Students may register for 1-3 semester hours of independent research, splitting the hours between semesters as they choose. In selecting topics for independent research or seminars, students should keep in mind that papers they write may be eligible for entry in one of several competitions.

Most seminars may be taken for up to 5 semester hours, including writing units. The usual format is 2 semester hours of credit for the class portion (usually taken in the fall), and up to 3 semester hours for the writing portion of the seminar (usually done in the spring).

Clinical Programs, Internships, Clerkships
Students who have completed one-half of the work toward their J.D. degrees 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.

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Some students are placed in law offices in Iowa City or the surrounding area, where they act as staff attorneys, assisting in all phases of the legal process. Typical placements include Student Legal Services, Legal Services Corporation (Iowa City and Cedar Rapids), HELP Legal Services (Davenport), and U.S. Bankruptcy Court (Cedar Rapids). Also available is a clinical semester, in which students spend an entire semester in the Iowa Attorney General’s Office or the U.S. Attorney’s Office in Des Moines.

Other students participate in in-house programs where they may represent financially distressed farmers in bankruptcy proceedings, interns at Iowa correctional institutions involved in habeas corpus and civil cases, clients in the AIDS project, and other clients in a wide range of civil and criminal cases.

Students may earn a total of up to 15 semester hours in the Clinical Law Programs, although those taking courses in other colleges of the University may receive no more than 20 semester hours of credit for those courses plus clinic activities.

The College of Law also participates 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. It also helps place students in a variety of unpaid clerkships and internships that provide insight into the workings of the legal system.

Joint Law and Graduate Degree Program
The college has developed 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 semester hours earned for the graduate degree toward the 90 required for the J.D., providing the courses are relevant to both degrees and the 12 semester hours are earned after admission to the joint degree program and after matriculation at the College of Law.

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 College of Business Administration; the Schools of Journalism and Mass Communication, Library and Information Science, Music, and Social Work; and the Departments of Accounting, American Studies, Anthropology, Computer Science, Counselor Education, Planning, Policy, and Leadership Studies, English, History, Hospital and Health Administration, Industrial Relations and Human Resources, Philosophy, Political Science, Religion, Sociology, Spanish, and Urban and Regional Planning.

Many departments have joint program advisers. For more information, consult the assistant dean of the College of Law and the individual graduate departments.

LL.M. in International and Comparative Law
In keeping with its educational mission of encouraging both broad social awareness and technical professional competence, the College of Law offers a strong program of study in the rapidly expanding fields of international, comparative, and foreign law.

It does so essentially for three reasons. First, virtually any lawyer in this era of accelerating global interdependence may be confronted by problems that require knowledge and understanding of international law and foreign legal systems. Second, as professionals and community leaders, lawyers often are called upon to influence, directly or indirectly, the theory and conduct of U.S. foreign policy. And third, by affording unique insight into the nature of law and legal process, the study of international and comparative law helps establish theoretical foundations vital to superior lawyering skills.

American and foreign students with a J.D. are eligible to work toward the Master of Laws (LL.M.) in International and Comparative Law. Candidates from the United States must have earned a baccalaureate degree from an approved college and must have graduated with high rank from a law school that is a member of the Association of American Law Schools or that is approved by the American Bar Association. Foreign applicants must have graduated with high rank from a law school or law faculty that maintains equivalent standards. Foreign applicants who hold degrees from institutions other than English-language universities must score at least 570 on the Test of English as a Foreign Language (TOEFL).

LL.M. candidates are encouraged to use the college’s resources to shape an individualized program of study. Each student works with a faculty adviser to coordinate course selection.

University of Iowa law students who seek the LL.M. must complete 114 semester hours over four years (including semester hours for the J.D. degree); 24 of the 114 must be in international and comparative law, and 4 of the 24 must be taken after successful completion of the minimum requirements for the preliminary J.D. degree.

Cocurricular Programs
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.

Client Counseling I (91:410), offered to 42 second-year students, consists of three sections. The first provides a theoretical basis and an introduction to the skills necessary for good interviewing and counseling, the second an opportunity to practice these skills in a supportive setting. In the third segment, students participate in simulated experiences to conduct two client interviews, a deposition, and a final counseling session, in which they advise clients of legal alternatives.

Approximately 14 students are chosen by the Client Counseling I staff to participate in Client Counseling II. This program is similar to Client Counseling I but more intense. The intraschool client counseling competition is held in the spring to determine the two-person team that will represent The University of Iowa College of Law in the regional client counseling competition.

Moot Court
The appellate advocacy program familiarizes students with writing appellate briefs and citation form, develops research skills, and strengthens persuasive ability in oral argument at the appellate level. Students in 91:210 Appellate Advocacy I (a second-year requirement) and 91:211 Appellate Advocacy II (an elective) receive the case record and testimony from a lower court trial. They identify
and research the issues, write an appellate brief, and argue the case before a panel of four judges.

The Van Oosterhout Memorial Moot Court Competition, a competitive version of Appellate Advocacy II, involves students who have demonstrated superior ability in writing and arguing their Appellate Advocacy I problem. The competition culminates with the final round argued before a panel of judges.

The appellate advocacy program is administered by the Moot Court Board, which consists of 20 student editors and a council of six executive members.

Trial Advocacy

Trial Advocacy (91:370) is a student-run, faculty-supervised program in which students develop and refine skills used to prepare and try civil and criminal cases. Students are on their feet during most class sessions, practicing the arts of voir dire, 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 Iowa judge and a jury of laypersons.

The Stephenson Competition, a competitive version of the full trials completing the trial advocacy course, was added to the program in 1984. The 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 week-long 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 American Bar Association national mock trial competition.

Journals

IOWA LAW REVIEW

The Iowa Law Review is a nationally respected publication. Its articles, written by students and professors, present a wide variety of perspectives and analyses of recent developments in law.

Students who meet the writing and secondary hour requirements or who are selected to write for the Contemporary Studies Project are eligible for a position on the Review editorial board, one of the highest honors that can be accorded a law student. They receive additional writing and academic credits and a monetary stipend.

TRANSLATIONAL LAW AND CONTEMPORARY PROBLEMS

Translational Law and Contemporary Problems is produced twice a year by Iowa law students. Each issue of this international law journal presents a symposium addressing a contemporary issue of international concern; recent issues have treated such diverse topics as regional trade arrangements, global warming, and international arms control. Contributors include experts from around the globe in a variety of disciplines, including law, economics, anthropology, sociology, and ecology. The journal also publishes articles written by Iowa law students and sponsors an internationally advertised student writing contest each year.

Law students who have completed at least two semesters may earn up to 3 semester hours of credit by writing for Translational Law and Contemporary Problems. 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 and a monetary stipend.

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, 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 published in each issue.

All students who have completed two semesters of class work are eligible to write for the journal. Those students who meet the writing and secondary hour requirements are eligible for selection to the journal’s editorial board. Students who serve on the editorial board receive additional academic and writing credit and a monetary stipend.

Study Abroad

A consortium of eight American law schools, including The University of Iowa College of Law, has established a program in which students attend a semester at the University of London law school. There they study American and English law with faculty from the American schools and the University of London.

The College of Law also offers up to 6 semester hours of credit for intensive course work at Arachon, France, in conjunction with the University of Bordeaux. Courses are taught for five weeks in May and June by professors from Iowa and Bordeaux. Application deadline is March 1.

The International Law Society has information on other study-abroad programs.

Academic Honors

Graduation with Distinction

In recognition of superior scholarship, the J.D. degree may be granted with special honors, as follows. (Averages are figured on final grade-point average.)

- With highest distinction-cumulative grade-point average of 85 or more
- With high distinction-cumulative grade-point average of 80 to 84
- With distinction-cumulative grade-point average of 75 to 79

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

Each year, in conjunction with graduation, the faculty recognizes outstanding contributions by third-year students.

The Client Representation Award recognizes outstanding service in the clinical law programs.

The Faculty Recognition Award is presented to the student who has made an especially distinctive contribution to the College of Law as an educational and community enterprise.

The Faculty Scholarship Award is presented to the student who has made an especially distinctive contribution to the development of written legal scholarship.

Hancher-Finkbine Medallions are awarded each year by the University to outstanding graduates; honorees are chosen from nominations made by University departments and colleges.

The Antonia D. Miller Award recognizes outstanding contributions by a student to the advancement of human rights in the law school community.

The Iowa Academy of Trial Lawyers Award is based on academic record, general contribution to the life of the law school, and special achievement in trial or appellate advocacy.

The International Academy of Trial Lawyers Plaque is presented to the student who has distinguished him- or herself, particularly in advocacy skills.

The Iowa State Bar Association Prize recognizes scholastic achievement and general contribution to the life of the college.

The John F. Murray Prize recognizes outstanding scholastic achievement.

The National Association of Women Lawyers Award is made to an outstanding third-year law student in consultation with the Organization for Women Law Students and staff.

The Robert S. Hunt Legal History Award is presented to a student who has made an outstanding contribution in the area of legal history.

Various publishers of law-related materials, including West Publishing Company, Bureau of National Affairs, Inc., and The Lawyers’ Cooperative Publishing Company, award books and periodicals to students each year in recognition of academic achievement.
Law Library

The centerpiece of the Boyd Law Building is the law school libraries. It contains 727,000 volumes and volume equivalents, making it one of the major repositories of legal materials in the United States. Iowa’s collection currently is ranked eighth in the number of volumes and volume equivalents and the sixth in the number of titles among all U.S. law school libraries. It contains 727,000 volumes and volume equivalents covering 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 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, and other users.

WESTLAW/Dialogue and LEXIS/NEXIS, computerized information retrieval systems, are available for training and research activities. WilsonDisk, a computerized CD-ROM and online data retrieval system, and PAIS Index are available on a workstation open to the public.

The entire collection of the law library is on the OASIS (Online Access System for Information Sources) database, including the collection of U.S. government documents. The OASIS system also features an automated circulation system for checking materials out of the library.

The library uses RLIN, the Research Libraries Information Network, for online cataloging, catalog card production, and interlibrary loans. RLIN’s law library program includes 38 of the major law collections in the country in addition to Iowa’s, and the RLIN online database permits researchers to search the collections of these institutions extensively.

Law students have access to a Local Area Network (LAN) that includes 32 IBM-type PCs, through which students can access E-mail. A small Macintosh computer lab houses four LC-3s and an Image Writer printer. The library also provides HP laser printers and photocopiers with Copicard mechanisms for public use.

Writing Resource Center

The Writing Resource Center serves as an extension of the classroom and as a supplement to the college’s small-section writing program. The center provides help with a broad range of writing, such as letters of application, writing samples, and resumes; class assignments and seminar papers; and articles for law journal publication and symposium presentations. The center’s staff helps students improve their writing in general and offers strategies for addressing problems such as overcoming writer’s block, adapting material for various audiences, and using appropriate grammar and style.

Law Placement Office

The College of Law Placement Office provides career planning and job search assistance to law students. Each year the placement office sponsors a comprehensive series of programs on career options and job search skills. It also maintains a library of placement 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, representatives of 200 employers visit Iowa City to conduct job interviews, and many more firms use the college’s placement 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 90 percent are employed within a few months of graduation. The placement staff is happy to talk with prospective students regarding the college’s programs and the success of its graduates.

Financial Aid

The College of Law administers an extensive financial aid program to help students finance their law school education through scholarships, fellowships, and loans. Scholarships, fellowships, the federal Perkins Loan, and the Iowa Law Foundation Loan are awarded by the College of Law’s Office of Admissions and Financial Aid, 276 Boyd Law Building. Other loan programs are administered by the Office of Student Financial Aid, 208 Calvin Hall.

Financial aid awards are made to admitted students as their financial aid files become complete. Students are encouraged to file the Free Application for Federal Student Aid (FAFSA) and the RLIN as soon as possible after January 1 for the upcoming academic year. In addition, students are asked to send a copy of their tax return to 208 Calvin Hall and to complete The University of Iowa’s Verification Form.

Scholarships are available for a limited number of students. Merit scholarships, based on the LSAT score and academic record, are awarded shortly after a student is admitted. Need-based scholarships are awarded on the basis of information provided on the FAFSA and the student’s financial aid file.

The Law Opportunity Fellowship program funds a limited number of tuition grants and research assistant positions for minority students who demonstrate financial need and a likelihood of academic success in law school.

Selected Scholarships

Adams-Oozb Law Scholarship Fund: for second- or third-year law students, preferably from the metropolitan Des Moines area

F. Arnold Daum: awarded on the basis of merit and need

D.J. Fairgrave: for students who display a strong academic record, personal achievement, and the potential to contribute significantly to the legal profession

J.P. Lagomarcino: awarded to Iowa residents with financial need who plan to practice in Iowa

E.A. McDermott: for third-year students specializing in international law

O.K. Patton Memorial: for students who have been born in Des Moines and who have completed a bachelor’s degree from The University of Iowa or who have earned an Iowa state diploma, with priority given to persons in the seventh judicial district

Assistantships

Many faculty members at the college hire research assistants at a modest hourly salary. Out-of-state students receive in-state tuition status for completing ten hours per week of assistantship work.

Employment

Law students may obtain part-time positions at the law school in a number of different programs. Law professors frequently advertise for research assistants. The ISBA employs students part-time in both the coffee shop and bookstore. In addition, the library employs law students, and several student organizations elect officers who receive a modest stipend for their services. Further information on part-time student employment is available from the dean’s office.

Admission

Applicants for admission must have earned a baccalaureate degree from an approved college or university prior to commencing work in The University of Iowa College of Law. The services of a college of Law graduate may be called upon to perform so as to participate in the possible fields of endeavor so broad and diverse, and the college prescribes no uniform undergraduate program for those planning to enter law school. With the assistance of faculty advisers, 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 greater understanding of human institutions and values; 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 the broader perspective for detailed specialization.

**Application Procedures and Materials**

All application materials must be received by The University of Iowa Director of Admissions by March 1 preceding the summer session or fall semester in which the applicant wants to enroll. (See “Law School Application Matching Form,” below, for additional information about time considerations.) Applications submitted after the March 1 deadline are considered only if accompanied by a cover letter explaining why the application is late.

An evaluation fee of $20 must accompany each application unless the applicant's baccalaureate degree was/is to be conferred by The University of Iowa. This fee is nonrefundable. Students from disadvantaged backgrounds who cannot afford the fee should apply for its waiver.

**TRANSCRIPTS**

Application materials, including the LSAT/LSDAS registration packet, may be obtained by writing to the Director of Admissions, The University of Iowa.

**LAW SCHOOL APPLICATION MATCHING FORM**

The LSAT/LSDAS registration packet includes Law School Application Matching Forms, without which the University cannot request the applicant's LSDAS report from Law Services. To avoid processing delays, applicants should enclose the matching form with their application materials.

Since it takes approximately three weeks from the time the University requests the LSDAS report until it arrives, applicants should send matching forms and accompanying materials well in advance of the March 1 deadline.

**TRANSFER CREDIT**

Applicants are responsible for submitting an official transcript from each college or university they have attended to Law Services, Box 2000, Newtown, PA 18940-0998. Before classes begin, every applicant who accepts admission to the College of Law must file official transcripts showing conferred degree with the University's Office of Admissions. This is in addition to the LSDAS report.

**LAW SCHOOL ADMISSION TEST**

Applicants for admission must take the Law School Admission Test (LSAT) administered by Law Services. The test is given several times each year and may be taken at numerous locations in the United States and abroad.

Applicants are urged to take the test during the fall preceding the fall semester or summer session for which they are applying. The February test date is the last one that the University can request from the applicant at a competitive disadvantage, since it takes at least four weeks for the College to receive test results.

Foreign students whose native language is not English 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**

Applicants accepted before April 1 must make a nonrefundable deposit of $250 by April 1; those accepted after April 1 must make the deposit within two weeks of being notified of acceptance. For those who enroll, the deposit is credited to the first University bill. Applicants who fail to make the deposit by the specified time forfeit their place in the entering class.

**Academic Policies**

**Residence Requirements**

To satisfy the academic residency requirements, students must complete 90 weeks of class during which they are enrolled for a minimum of ten class hours per week. Partial credit is earned pro rata when fewer than ten hours are taken.

Full residency credit is earned only when a student enrolls for ten or more class hours during the term and earns credit for at least 9 semester hours. During the summer term, full residency credit is earned only when a student earns a minimum of 4 semester hours for each summer session attended.

**Transfer Credit**

No more than two semesters of residency (30 weeks of full-time residence) and no more than 30 semester hours may be transferred from another law school. No credit is transferred for any course in which a grade lower than C is earned. Grades received at another law school are not counted in calculating the cumulative grade-point average.

**Courses taken prior to Admission to the College of Law**

Except for transfer students from other law schools, students may not receive credit toward residence requirements for courses taken prior to admission to the College of Law. They also may not receive credit toward the 90-semester-hour requirement for the J.D. by taking non-law graduate courses before being admitted to the College of Law. This applies to all law students, including those enrolled in joint degree programs with the Graduate College.

With approval of the dean and in consultation with the faculty admissions committee, students may count toward the J.D. up to 6 semester hours that they earned in law courses taken at the college or at another accredited law school while they were graduate students or postbaccalaureate special students (L-9) and before they were admitted to the College of Law. In deciding whether to award credit for such course work, the dean and the admissions committee consider the nature of the course, the grade received (minimum of 70), how much time has gone by since the course was taken, and the law school at which the course was taken.

**Courses Taken outside the College of Law**

Students who take courses outside the College of Law must first obtain written permission from the assistant dean. If “special permission of the instructor” is indicated in the course catalog, the student also must secure the instructor’s signature.

Students not enrolled in a joint degree program may apply toward the J.D. a maximum of 6 semester hours earned in courses outside the College of Law. Such courses are approved only if they contribute 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 registrar’s office.

**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 semester hours of credit. Externships for 6 to 15 semester hours 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.

Recent externships have been arranged with the U.S. Department of Justice, a U.S. district court judge in Illinois, a bankruptcy judge in California, and the Asian Law Alliance in San Francisco.

**Grading Policy**

A numerical grade is assigned to each student for each course and is recorded in the University’s permanent record.

The highest grade awarded at the College of Law usually is 90, the lowest 55. No academic credit is given for grades below 60.00.9 or for grades of “fail.”

Numerical grades may be translated into letter grades as follows.

- 92-85 = A
- 84-80 = B+
- 79-75 = B
- 74-70 = B-
- 69-65 = C
- 64-60 = D
- 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 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
For students taking courses pass/fail, the faculty supervisor or instructor is required to assign a numerical grade (i.e., between 59 and 55) for failing academic performance. Individual faculty members may allow students to withdraw rather than receive a failing grade.

Miscellaneous Grading Marks
Marks other than “pass,” “fail,” and numerical grades are as follows.

“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 grade 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 ten 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 based on the September ranking and 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 registrar’s office receive only the final grades.

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 four days as an upperclass study period between the end of regular classes and the first regularly scheduled upperclass exam.

Exam Policy for Students Who Need Extra Time
Students at a substantial disadvantage in taking timed exams should receive additional time to complete the exam, commensurate with the extent of their disadvantage. Disadvantages include not having English as a primary language at the time of the exam, having a physical or other recognized medical disability. Judgments concerning eligibility and the amount of additional time to be provided are made by the instructor of the course in which the exam is to be taken, in consultation with the assistant dean. Students seeking additional time must make a request in the assistant dean’s office at least two weeks before the end of classes.

Audit
Students may audit a class with the instructor’s permission, provided the class is not filled within the preregistration period.

Withdrawal
First-year students who withdraw during the academic year or who fail to re-enroll 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 re-enroll 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 re-enroll.

The assistant 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.

Academic Advising
Associate Dean for Academic Affairs: The associate dean for academic affairs and admissions works on academic programs and problems of the law school and coordinates the activities of the admissions office.

Assistant Dean for Student Affairs: The assistant dean for student affairs helps students solve problems related to course enrollment and scheduling that the registrar cannot solve.

Besides providing academic advice, the assistant dean also counsels and makes referrals concerning personal, family, and professional problems that interfere with students’ law school careers.

Associate Director of Admissions: The associate director of admissions provides counseling regarding financial aid for current students and the needs and concerns of minority students. The associate director also counsels students on academic and personal matters when the assistant dean for student affairs is not available.

Faculty Advisers: Each faculty member advises five or six students on curriculum and, when necessary, other concerns.

Small Section Instructors: Small section instructors advise students enrolled in their
small sections, during students' first year of study.

Ombudsperson: Each year one or two tenured faculty members are selected by the Iowa Student Bar Association to serve as law school ombudspersons. Students who have a problem or grievance should seek an ombudsperson's help. All complaints are handled in strict confidence.

Registrar: The law school registrar is in charge of student record keeping and should be students' first recourse for information about course enrollment, scheduling, residence requirements, joint program status, student certification for various loan agencies and state bar applications, and progress toward graduation.

Student Advising Committee: The advising committee is charged with oversight, coordination, and periodic review of the college's methods for providing academic and curricular counseling to students. The committee also serves as a listening post on matters of faculty/student collegiality.

Facilities

The Willard L. Boyd Law Building, completed in the spring of 1986, 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, computer paper and disks, and so forth. Photocopied handouts and teaching materials assigned by course instructors are available through the bookstore. Students are billed for assigned materials automatically unless they notify the law registrar that they do not want the materials.

Computers and Word Processing

The College of Law encourages its students to become proficient with computers and has installed 32 IBM-compatible computers and 4 Macintosh computers for general law student use. The college also encourages students to purchase computers, if possible, and to use them in connection with their law school work. Both of the major online computer research databases, West Publishing Company's WESTLAW and Mead Data's LEXIS, provide some free access for law students who own both their own computers and modems.

The College of Law supports two word processing and computer formats: IBM-DOS or MS-DOS using WordPerfect 5.0 and Macintosh using Microsoft Word and Macintosh 0/S using Microsoft Word. The IBM computers available for student use are dual disk drive machines that use 5.25-inch 360K floppy disks and 3.5-inch 720K floppy disks. The Macintosh machines can accommodate only one 3.5-inch disk. The college does provide limited facilities to convert DOS 3.5-inch disks, access to high-quality laser printing for both DOS and Macintosh, and other peripheral equipment.

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 from the library's circulation desk.

For better quality and/or high-volume copying, there is a University-operated copy service on the first floor of the law building. Prices are comparable with those at commercial concerns, and students may charge copying to their University bills.

Student Activities and Organizations

AALSA (Asian American Law Students Association): Instills greater awareness among law students of the needs of the Asian American community and encourages greater commitment toward meeting those needs.

ABA/LSD (Law Student Division of the American Bar Association): Fosters a comprehensive understanding of the law and of attorney's roles in American society.

BLSA (Black Law Students Association): Promotes the needs and goals of black law students, focuses on the relationship of the black attorney to the American legal structure, instills awareness of the black community’s needs and encourages greater commitment to meeting those needs, and fosters an attitude of professional competence.

CHALE (Chicano Association of Legal Education): Promotes viable changes within existing legal institutions in order to develop constructive legal and community programs, produce competent and effective Chicano attorneys, and utilize available resources.

Christian Law Students: Provides support, encouragement, and fellowship for law students who share a faith in Jesus Christ.

The Conservative Society: Promotes open and informed debate among members of the law school community, providing a voice for conservative students and faculty while welcoming opposing points of view.

Equal Justice Foundation: Supports public interest law concerns, with emphasis on promoting equal access to and adequate representation in the courts and other forums for citizens and citizens’ groups.

Environmental Law Society: Provides an educational forum and legal research and counseling services for attorneys, organizations, and citizens who have questions concerning environmental law.

The Federalist Society: Promotes the defense and preservation of individual liberties against encroachment by the state.

Iowa Society of International Law and Affairs: Increases student and faculty awareness of international law and affairs.

ISBA (Iowa Student Bar Association): Acts as the student government at the law school and is both a collective voice for the student body and a source of organization and funding for a variety of collegewide activities and programs.

Law Student Division of the Association of Trial Lawyers of Iowa: Helps train law students in all fields and phases of advocacy, improves the adversary system and the institution of trial by jury, broadens the career opportunities of graduating students.

NALSA (Native American Law Students Association): Promotes the needs and goals of American Indian law students.

NLGLA (Iowa Chapter of the National Lesbian and Gay Law Association): Facilitates discussions of local and national lesbian and gay issues, acts as advocate on behalf of victims of harassment and discrimination, fosters professional growth of lesbians and gays.

National Lawyers Guild: Advocates use of the law to promote progressive social change.

OWLSS (Organization for Women Law Students and Staff): Addresses the changing needs and problems of women in the legal profession; develops, recommends, and implements new programs with emphasis on the needs of women at the College of Law.

Phi Alpha Delta: Promotes unity among all members of the legal profession; bars restrictions on membership by reason of race, sex, color, creed, national origin, and grade-point average.

Phi Delta Phi: Provides an opportunity to balance legal education with social interaction among students, faculty, and members of the legal profession.

Society of Disability Law: Promotes the study of disability law, recruitment of disabled persons to the law school, increased accessibility to law school facilities, postgraduate placement of disabled law students, postgraduate job placement of law students interested in careers in disability law, and disability awareness in general; advises the law school administration on matters involving disability issues.
Special Activities

Parents and Partners Weekend

Each fall, the parents, spouses, and friends of all students are invited to the campus for activities sponsored by the Iowa Student Bar Association. Past activities have included a simulated class, a brunch, a musical, 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; in the evening, 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

The Iowa Advocate is the law school’s alumni magazine. Published twice a year, it features articles and news about the college, its students, faculty, and alumni.

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 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 Journal of Corporation Law, the Iowa Law Review, and the Iowa Advocate.

In order to support these programs and activities, the Law School Foundation actively solicits contributions from the college’s more than 6,000 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

First Year

91:102 introduction to Legal Reasoning 1 s.h.
Forms, interpretative methods of legal reasoning; problems of legitimacy; basic concepts, intellectual skills necessary for undemanding the law.

91:104 civil Procedure 2.5 s.h.
Subject matter jurisdiction, jurisdiction over the person, venue, pleadings, motion practice, summary judgment, simple joinder of parties and claims, pretrial discovery procedures, the trial, claim and issue preclusion.

91:116 Constitutional Law I 3.5 s.h.
Constitutional allocation of governmental powers; role of the courts in constitutional cases, powers and relationships among branches of national government relationship between state and national governments.

91:120 Contracts and Sales Transactions I 1.6 s.h.
Scope, scope, development of protection accorded to contractual agreements; judicially developed roles; statutes governing formation, performance, interpretation of contracts; remedies for breach of contract.

91:121 Contracts and Sales Transactions II 3.4 s.h.
Continuation of 91:120; emphasis on U.C.C. Article 2.

91:124 criminal Law 3.5 s.h.
General justifications of punishment and fundamental common law; statutory principles of Anglo-American substantive criminal law, including mens rea, actus reus, mistake, strict liability, homicide gradation, attempt, complicity, intoxication, insanity.

91:132 Property I 3.4 s.h.
Concept of private property as one of the legal system’s basic foundations; historical development of Anglo-American property law in conjunction with changing currents of economic, political thought; emphasis on understanding decision making by courts in the common law tradition.

91:136 Property II 3.5 s.h.
Continuation of 91:132; limitations imposed on use of property by private agreement, common law doctrine, public regulations; relationships between law and other disciplines, particularly economy, constitutional protection of private property rights from governmental influence.

91:364 Torts 3.4 s.h.
Historical development of tort liability theories, including fault-based liability for commission of negligent, reckless, or intentional acts as well as strict liability; emphasis on civil responsibility for harms to personal and property interests; roles of judges, juries, legislatures in development of tort law.

Second and Third Year

91:000 Cooperative Education Internship 0 s.h.
Administered by the Office of Cooperative Education and filled on a competitive basis by eligible students. Faculty approval, satisfactory completion of eligibility requirements required.

91:125 Criminal Procedure 3.5 s.h.
Constitutional law; focus on Fourth, Fifth, and Sixth Amendment regulation of police investigative practices, including searches and seizure, interrogation, undercover surveillance by informants, identification lineups; exclusionary rules.

91:193 Human Rights in the World Community: Problems of Law and Policy 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. Junior, senior, or graduate standing required. Same as 47:193.

91:195 Introduction to Public International Law 3 s.h.
Prerequisites: 91:132 and 91:136. Principles of law that determine rights and duties of nations in their dealings with each other; contemporary international problems, controversies. Same as 47:195.

91:201 Antitrust: Legal and Economic Analysis 3 s.h.
Survey and economic analysis of American antitrust laws; focus on relevant provisions of the Uniform Commercial Code and of federal antitrust laws.

91:202 Advanced civil Procedure 3 s.h.
Complex civil lawsuits, especially multiple-party litigation; discovery, intervention, mandatory joinder, interpleaded, class actions, appeals, jurisdiction, alternative to litigation.

91:203 Administration of Estates and Trusts 2.3 s.h.
Income taxation and administration of estates and trusts. Prerequisites: 91:272 and 91:378.

91:204 Administrative Law 3 s.h.
Formal and informal procedures, processes of function of state and federal administrative agencies; legislative, executive, and judicial control of their actions.

91:205 Admiralty Law 1-2 s.h.
Admiralty jurisdiction; admiralty law of creditor’s rights and personal injuries; laws pertaining to collisions and the law of salvage.

91:206 Advanced Criminal Procedure 3-4 s.h.
Constitutional and statutory rights applicable to formal criminal processes; discovery and disclosure, bail, double jeopardy, speedy and public real, press and public access, right to counsel, jury trial.

91:207 Arbitration-Labor 2-3 s.h.

91:208 Antitrust Law 3 s.h.
Law, history, economics of federal regulation of competitive behavior, primarily under the Sherman and Clayton Acts; multifirm collaboration, monopolies, mergers, resale price maintenance, customer and territorial restraints, related issues.

91:210 Appellate Advocacy I 0-1 s.h.
Students are assigned a fictitious case and must write an appellate brief asserting their client’s position and argue the case before a panel of students, faculty, community attorneys.

91:211 Appellate Advocacy II 0-1 s.h.
Continuation of 210; increased complexity; for second-year students who want more experience in appellate advocacy.

91:212 National Moot Court Competition 1 s.h.
Students participate as law school’s representatives in the Regional Moot Court Competition in fall of their third year, and judge intramural Moot Court Competitions in the spring semester. Open only to four finalists in Van Oosterhout Competitve version of 91:211.

91:213 Jessup International Moot Court Competition 1 s.h.
Second and third-year students compete in intramural regional, and national-level moot court competition in international law; intensive criticism in appellate brief writing and oral argument. Prerequisite: 91:210.

91:214 Bankruptcy Rehabilitations 2-3 s.h.
Means of rehabilitating financial affairs of businesses and individuals available in proceedings under Bankruptcy Code Chapters 11, 12, and 13. Prerequisite: 91:244.

91:215 Children and the Law 1 s.h.
The law of child custody and proceedings, termination of parental rights and adoption, child abuse and neglect, legal rights and responsibilities of parents and children.

91:216 Business Planning 3-4 s.h.
Problems involving common business transactions in the context of business planning and counseling; emphasis on problems of closely held corporations. Prerequisites: 91:241 and 91:272.

91:217 Corporate Finance 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: 91:241.

91:218 Federal Courts II 2-3 s.h.
Constitutional tort litigation, focus on cases of action brought under 42 U.S.C. § 1983; prana facce case of liability; remedies available in constitutional tort litigation, including damages and structural injunctive relief; defenses to statute of actions, including sovereign immunity. Prerequisite: 91:275 or consent of instructor.

91:219 Advanced Torts 3 s.h.
Challenges to continuation of tort liability; evaluation of social effects of tort rules; alternatives to tort liability as means of compensating personal injury by accident, other forms of incapacity. Prerequisite: basic knowledge of principles, practice of law of torts.

91:220 comparative International Organizations 2 s.h.

91:222 Commercial Transactions 3-4 s.h.
Commercial and consumer transactions involving negotiable instruments and personal property security interests; emphasis on relevant provisions of the Uniform Commercial Code and of the Bankruptcy Code and consumer protection legislation.

91:223 Comparative Corporation Law 1 s.h.
Community property law in nine states- Louisiana, Texas, New Mexico, Arizona, California, Nevada, Idaho, Washington, Wisconsin; common-law property systems.

91:226 The Federal Regulation of Banking 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.
91:303 The Law of Libel and Privacy 2 s.h.
Constitutional and common-law aspects of contemporary libel and privacy law; related issues of legal concern to journalists.

91:304 Latin American Perspectives in International Economic Relations arr.
Basic concepts in international finance and trade, in context of Latin American development.

91:305 Law and Psychiatry 2 s.h.
Current medical concepts of mental disease and disorder; application of these concepts to legal problems such as commitments, civil and criminal, the right to treatment, confidentiality, "dangerousness." Use of psychiatric testimony in criminal settings.

91:306 The Law of Electronic Media 2 s.h.
Legal and public policy issues in the operation and regulation of broadcasting, cable, and new technologies. Junior or senior standing required.

91:308 Professional Responsibility 1-3 s.h.
Public and private professional responsibility of lawyers; organization of the profession; its economics, ethics, and scope.

91:309 Labor Arbitration 3 s.h.
Development of arbitration, legal and institutional aspects; effect of law on the arbitration process; concepts dealing with the nature and purpose of arbitration relationship to grievance handling, contract administration, procedures and practices, current issues. Same as 40:259.

91:310 Legal Theory 3 s.h.
Nature and consequences of theory; variety of theories that bear upon law.

91:311 Introduction to Law of the European Economic Community 2-3 s.h.
Powers and operations of legislative bodies; approaches to statutory interpretation, including models of how legislative process should and does work.

91:312 Legal Reasoning arr.
Recent theories, philosophical underpinnings; recent philosophical work on theory construction, knowledge, language, objectivity, and morality. Same as 144:205.

91:313 Mass Communication Law 2-3 s.h.
Selected issues relating to role of the press in a free society; First Amendment theory; defamation; privacy, free press/fair trial; reporter privilege; access to governmental information. Same as 219:222.

91:314 Legislation 3 s.h.
Powers and operations of legislative bodies; approaches to statutory interpretation, including models of how legislative process should and does work.

91:315 Native American Law 3 s.h.
The specialized body of law allocating power and authority in Indian country, which has grown up around Native American people and their reservations; sovereignty arrangements, jurisdiction, federal Indian policy, tribal self-government. Same as 144:21.1.

91:320 Negotiations 2-4 s.h.
Extensive experience in simulated negotiations; detailed understanding of the negotiation process; focus on tension between effectiveness and integrity.

91:321 Alternative Dispute Resolution Methods I-3 s.h.
Theory and practice of nonadversarial dispute resolution; introductory survey.

91:322 Objectivity and Subjectivity: Morals and Law 3 s.h.
The debate about realism, anti-realism (i.e., objectivism) in theories of science and knowledge; realism (objectivity) in morals, law.

91:323 Natural Resource Law 2-3 s.h.
Evolution of patterns of law in response to resource scarcity and social demands.

91:324 Patents and Intellectual Property 2 s.h.
Protection of ideas under the patent and copyright laws and the common law of trade secrets; common-law and statutory protection of trademarks and trade names.

91:325 Law of Presidential Power 3 s.h.
Separation of powers theory and law pertaining to the president as chief administrator, executor of the laws, commander in chief, chief law-related issues of legal and domestic policy maker.

91:326 Poverty Law 2 s.h.
Income maintenance programs; case law and legislative policy regarding poor persons.

91:327 The Psychology of the Litigation Process 3 s.h.
The wide-ranging body of psychological and social science research examining the litigation process, from initial incidence of actionable events through appeals process.

91:329 Products Liability 2-3 s.h.
Negligence, warranty, strict liability tort theories for personal injury, property damage, or economic loss caused by defective products; focus on the expansion of liability of manufacturers, sellers, others.

91:332 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.

91:333 Pacific Legal Systems 3 s.h.
91:335 Race, Racism, and American Law arr.
Aspects of racism in public facilities, voting, housing, schooling, employment, marriage, administration of justice, gender, sports law. Junior, senior, or graduate standing required. Same as 129:141.

91:336 Professional Ethics: Professional Responsibility 3 s.h.
Ethical standards for lawyers; relationship of ethics to profession.

91:337 Empirical Studies on Race and Sex Discrimination arr.

91:340 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, reversion, reformation; law of restitution, with emphasis on restitutionary remedies (quasi-contract, constructive trust, equitable lien).

91:343 Risk Technology and the Public 2-4 s.h.
Same as 33:155.

91:345 Hard Cases: Science Policy and Values 2-4 s.h.
Major issues in practical ethics examined through difficult case studies in fields such as law, medicine, politics, readings from classic authors such as Plato, Aristotle, Kant, Mill; recent contributions from several disciplines.

91:348 Securities Regulations 3 s.h.
Federal and state regulation of issuance of securities; Use requirement that information be made available to the trading market; tender offers and proxy fights for corporate control. Prerequisite: 91:241.

91:349 Survey of Russian Law 2-3 s.h.
Middle Ages to the present, including pre-Soviet (from Kiev Rus to capitalist Russia), Soviet, and contemporary Russian law; Russian legal system as a whole, issues of the main branches of its substantive law—constitutional, civil and commercial, and criminal law.

91:352 Title Examination and Selected Real Estate Transactions 2 s.h.
Abstract examination, and preparation of resulting title opinion; drafting and interpretation of legal description of real property, subdivision of real property, negotiation and drafting of basic contractual and transfer documents in typical real estate transactions.

91:354 State and Local Government 1-3 s.h.
Allocation of decision-making authority in our society; principles and policies that underlie local governmental bodies; Use of countermajoritarian devices in local governmental bodies. Same as 40:259.

91:357 Litigation: Social Science and Social Change 3 s.h.
Use of empirical research in a wide variety of legal areas; how the law can best obtain, evaluate, use such information; student skill development in methodology and statistics; use of such knowledge to improve advocacy. Same as 144:205.

91:360 Taxation of Gratuities Transfers 3 s.h.
Federal estate, gift, and generation skipping taxes; tax and estate planning. Prerequisites: 91:272 and 91:378.

91:361 Zoning Law and Practice 3 s.h.
Zoning, comprehensive planning, preemption of services, subdivision development ordinances; mechanics of procedural devices. Prerequisite: 91:136.

91:362 Takeovers, Mergers, and Acquisitions 3 s.h.
Corporate acquisitions, emphasis on hostile tender offers; corporate law, securities law, tax law pertaining to acquisitions in general; special problems in hostile tender offers. Prerequisite: 91:241.

91:367 Tort Basis 2-3 s.h.
Tort principles governing liability for civil wrongs other than breach of contract; theoretical basis, doctrinal development, practical implementation of liabilities for harm caused by intentional and inadvertent behavior; in-depth study.

91:369 Trademark and Unfair Competition Law 3 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.

91:370 Trial Advocacy 2 s.h.
Basic skills of trial advocacy; students learn aspects of trial advocacy and participate in a full trial. Prerequisite: 91:265.

91:371 Trial Advocacy Board 1-2 s.h.
Administration of Trial Advocacy program and Stephanie Competition; research and writing in connection with trial problems and readings used in program, critique of performances of trial problems. Prerequisites: 91:265 and 91:370.

91:372 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: 91:370 and 91:265

91:373 Advanced Trial Advocacy arr.
Rigorous mock trial experience; discussion of substantive law, procedural miss, pretrial and trial techniques, strategy, ethics; focus on role of the expert witness in civil litigation. Prerequisites: 91:265 and 91:370.

91:374 Trial Advocacy Enhanced 3 s.h.
Expanded version of regular trial advocacy course; advanced cross-examination, impeachment, handling of real evidence.

91:378 Trusts and Estates 1-4 s.h.
Transmutation of wealth within the family.

91:379 U.S. Women’s Legal History 3 s.h.

91:400 Law Review arr.
Work on Iowa Law Review.


91:402 Moot Court Board 1-3 s.h.
Members of the Moot Court Board administer the Appellate Advocacy Program, research appellate cases used in the program, judge appellate arguments; members selected based upon their performance in 91:210-211.

91:406 Clinical Law Program-Internship arr.
Students work directly with faculty members on cases and in-house program; interns participate fully in interviewing, fact investigation, negotiation, courtroom proceeding.

Students represent clients through legal assistance offices in eastern Iowa, under supervision of faculty members and staff attorneys.

91:408 Clinical Semester arr.
Clinical assignment away from the law school.

91:410 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.

91:412 Client Counseling Board arr.
Coordination of client counseling program and Intracampus Client Counseling Competition under supervision of faculty adviser.

91:413 Client Counseling Competition 1 s.h.

Student-operated scholarly publication that examines subjects of current importance to business and the bar; staff members edit articles and write commentaries on suitable topics.

91:416 Student Journal Editor-Journal of Corporate Law arr.


91:421 Student Journal Editor-TLCPJournal arr.

91:430 Corporation Law Practicum arr.
Students get first-hand experience working with the Delaware Supreme Court for one semester under close supervision of Justice Andrew Moore.

Researching, drafting of materials related to legal and public policy issues associated with maternal and child health; development of materials for and in consultation with state attorneys' offices, public health agencies, public education agencies, public social service agencies, state legislatures.

91:500 Independent Research Project Work under faculty supervision.
91:504 Tutorial  
1-4 s.h.  
Work under faculty supervision; may revolve substantive area of the law of jurisprudential ideas as they appear in various intellectual spheres.

91:601 Advanced Problems in Contract Law  
Recent developments in contract law; with emphasis on writing and legal research; preliminary to researching and writing a substantial paper; yearlong seminar.

91:603 Capital Punishment Seminar  
Death penalty in America.

91:604 Adolescent Power to Make Health Decisions  
(No credit for students who have taken 16:281.)

91:605 Legal Aspects Of AIDS  
Education, employment, testing, housing, right to medical treatment, insurance, confidentiality; legal problems of institutions-schools, hospitals, military, prisons; problems of special groups-lesbians and gays, minorities, intravenous drug users.

91:606 Advanced Problems in International Business and Economic Relations  
Legal aspects of contemporary problems in transnational business and economic relations; year long seminar. Prerequisite: 91:282 or 91:287.

91:607 Ethical and Economic Realities of Legal Practice  
Studies of lawyering in diverse work settings; lawyers' power over clients; practical judgment and intellectual process— their importance to professional effectiveness; ethics rules and practitioners' perceptions of economic realities; professional styles, self-understanding, standard of self forcing disciplinary norms; the influx of women and its effect on adversarialism versus the "feminine ethic of care."

91:611 Citizen Enforcement of Environmental Law  
Implementation of the citizen suit—a novel, experimental feature of modern environmental statutes; simulated initiation, defense of fictitious citizen suits, involving student participation on two-attorney teams. Prerequisite: 91:255.

91:612 Selected Problems in Comparative Law  
Research; topics vary.

91:613 The Courts in the Twentieth Century  
The role of courts in American culture.

91:614 Civil Rights Movement and Civil Rights Law  
Civil rights movement in the 1950s and 1960s; relationship between the movement and developments in civil rights law. Corequisite: 91:232 or consent of instructor.

91:615 Asian American Law  
Asian American American law and its historical context.

91:616 Comparative Environmental Law  
Environmental laws of England and the Common Market countries compared to American environmental law; legislation and court decisions.

91:620 Law and Technology Seminar  
Topics will vary.

91:622 Conflict: Its Nature and Resolution  
Causes, effects, nature of conflict in various contexts, at various levels, from the intrapsychic and interpersonal to intergroup and international; management or resolution of conflict through novel or familiar interventions including negotiation, mediation, adjudication, threat deterrence, escape from social traps, graduated reciprocal reduction in tensions.

91:625 Comparative Responses to Social Welfare Problems in the United States and Great Britain  
Problems of poor persons in United States and Great Britain: health care, housing and homelessness, civil legal assistance, income support; readings of cases, statutes, secondary materials.

91:627 Courts and Social Integration Seminar  
History and capacity of judicial efforts to promote social integration through redistribution of rights and restructuring of public institutions.

91:630 Feminist Legal Harm Seminar: History and Theory  
Same as 16:281.

91:632 Higher Education and the Law  
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 statements by attorneys or their clients.

91:635 Indigenous Peoples in the International Legal System  
Historical and contemporary development of international law and institutions as related to indigenous peoples, culturally distinctive groups living in lands now dominated by nonindigenous populations.

91:638 International Commercial Arbitration Seminar  
Choice of arbitration, limits on arbitrability of disputes, choice of applicable law, arbitration process, enforceability of awards through national legal systems.

91:643 Freedom of Speech Seminar  
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 sub judi, dies, academic freedom.

91:645 Advanced Problems in International Law and Policy  
Current problems of international law and affairs; individual conferences and group study buses; emphasis on policy oriented research and writing.

91:656 Labor-Protective Legislation for Law-Paid Workers  
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.

91:659 Law and Lawyers in Literature  
Fundamental societal issues and ethical questions examined through discussion of literary works, including novels and plays by writers such as Camus, Coetzee, Dostoevsy, Durermatt, Faulkner, Ibsen, Kafka, Melville, Schaffer, Thucyldides. Same as 8:259.

91:662 Legal Theory Workshop  
Writing projects related to topics covered in 91:316; natural rights, legal formalism, legal realism, legal process school, law and economics, legal positivism/analytic tradition, rhetoric and the social construction of reality, literary theory and the law, critical legal theory. Prerequisite: 91:316 or consent of instructor.

91:665 Disability Law Seminar  
Disability law and policies in relation to mental retardation, mental health. Consent of instructor required.

91:666 Selected Topics in International Banking Law  
Transnational banking issues; focus on U.S. laws that affect international operations, development of EEC financial law.

91:667 Modern Constitutional History  
Civil rights and civil liberties issues in American legal and cultural history from World War II to 1960. Corequisite: 91:232 or consent of instructor. Same as 144:207.

91:668 Roman Law Seminar  
Laws, legal institutions of ancient Rome as they developed during the Republic, the Roman People, the Dominates.

91:671 Mass Toxic Disasters Seminar  
Modern mass toxic disasters, including asbestos, DES, Agent Orange; sociology of how such disasters occur, legal issues presented by toxic substances litigation.

91:672 Proxy Contests Seminar  
Fundamental issues of state and federal law relating to proxy contests for corporate control, shareholder proposals, proxy solicitation, shareholder meetings, corporate elections, tender offers, judicial remedies for violations of state and federal laws.

91:673 The Roots of Evidence Law Seminar  
Psychological and sociological roots of evidence law; why we have the rules we have, assumptions rule makers (common law judges and those code drafters) hold about how people give and receive information, errors in assumption by rule makers and their effect(s) on ensuing rules. Prerequisite: 91:265.

91:676 Self-Determination in International Law  
Principle of self determination, from emergence of political philosophy of the Enlightenment through incorporation into modern international law.

91:677 The Psychology of the Litigation Process Seminar  
Ligation process from initial incidence of actionable events through appeals process; research on what works in areas such as case selection and prediction, negotiation, jury selection, persuasion.

91:680 Race Theory Seminar  
Literature examining impact and intersection of race and law; ethnocentrism, political correctness, constitutional expression, race and class.
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Dean: Robert P. Kelch

**Associate dean, academic affairs:** Rex Montgomery

**Associate dean:** Richard P. Nelson

**Acting associate dean, medical student affairs and curriculum:** Peter Densen

**Associate dean, Veterans Affairs:** John E. Kasik

**Acting associate dean:** Susan R. Johnson

**Assistant dean:** William L. Lillibridge

Consultant to the dean: Woodrow W. Morris

Assistants to the dean: Richard K. Schmidt, Roger D. Tracy

Degrees: B. S., M.A., M. D., M. P.A.S., M. P.T., M. S., Ph.D.
The College of Medicine, as an integral part of the University, contributes to the educational programs of several thousand students, not only those in the Colleges of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences areas of the College of Liberal Arts and the health-related programs of other colleges. Additionally, it serves health professionals from throughout the Midwest who take part in a year-round program of continuing medical education, in which several thousand practicing physicians update their knowledge and skills through refresher courses, short courses, clinics, and conferences. It also expands and maintains educational opportunities in outreach health centers of the state, and it provides a statewide educational health care resource.

Beyond its academic responsibilities as the only college in Iowa that offers work toward the M.D. degree, the College of Medicine is concerned with broad public issues of education for physician assistants, medical and associated medical science students (biotechnology), physical therapists, and nuclear medicine technologists. Medical and associated medical science students have several opportunities to gain firsthand experience in physicians’ offices and community hospitals. For medical graduates, the college offers seven family practice-affiliated residency programs in six cities throughout the state. The college promotes and sponsors experimental programs that demonstrate methods of organizing health services at the local level.

Accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges, The University of Iowa College of Medicine meets the requirements of all state licensing boards. Its 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 of Medicine are accredited by their respective accrediting bodies.

Faculty
Nearly all College of Medicine faculty members are full-time, their work in practice and research being part of—not apart from—their work in teaching. Many have earned national and international honors.

Graduate Programs
The college offers programs leading to graduate degrees through the Doctor of Philosophy in anatomy, biochemistry, microbiology, hospital and health administration, pharmacology, physiology and biophysics, preventive medicine and environmental health, and radiation biology. In addition, graduate degree programs leading to a master’s degree are offered in pathology, physician assistant, and physical therapy.

Medical Scientist Training Program
An interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College, the Medical Scientist Training Program provides preparation for careers in medical science and academic medicine with emphasis on research and teaching. With support from the National Institutes of Health, the program integrates the requirements for doctoral training in sciences basic to medicine with the full clinical requirements of the medical curriculum. The program entails approximately seven years of study. Further details are given in the program description.

Combined M.D.-Master's Degree Programs
Students who want to pursue the M.D. degree in combination with a master's degree program must gain admission to both the College of Medicine and the Graduate College and must make detailed arrangements with the graduate department chair and the associate dean for medical student affairs of the College of Medicine.

Interdisciplinary Programs and Centers
Interdisciplinary programs and centers have been developed that draw strength from the faculty of the college and the facilities available to them, without regard to their departmental units or to the separation of graduate and postgraduate training. Further information is available from the associate dean for academic affairs.

The following centers are subdivisions of the College of Medicine.

Center for Health Services Research (CHSR)
The Center for Health Services Research (CHSR) has been the research division of the Graduate Program in Hospital and Health Administration since 1981. It is the University-wide focal point for a broad-based program of health services research.

With the coordination and support of the CHSR, faculty and staff from colleges and departments throughout the University investigate the organization, delivery, efficacy, and financing of health care services.

CHSR interests embrace a broad spectrum of perspectives and disciplines, including economics, geography, organizational behavior, psychology, operations research, sociology, preventive medicine and environmental health, preventive and community dentistry, nursing, and clinical medicine. Through its research activities, the center promotes links among health organizations throughout the Midwest. CHSR also fosters frequent exchanges with other universities, state government, professional and provider associations, policy and planning groups, insurance organizations, health delivery institutions, and other members of the health services research community.

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 33 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 (MHCRC)
The major emphasis of the MHCRC is the study of schizophrenia. The center provides the facilities for research linking the clinical picture of the illness with its underlying neurobiology. The seven research units of the MHCRC conduct the necessary investigative and interdisciplinary research to advance the knowledge of the disease.

Cardiovascular Research Center
The Cardiovascular Research Center coordinates research and training programs related to cardiovascular diseases. It encompasses several federally and non-federally funded programs: Project Program Grant on Integrative Functions in Neurovascular Control, Program Project Grant Fatty Acids, Lipoproteins and Lipid Oxidation, 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.

Diabetes and Endocrinology Research Center
The Diabetes and Endocrinology Research Center coordinates basic research programs related to diabetes and endocrinologic diseases. It was established in 1979 with support from the Institute of Arthritis, Metabolism, and Digestive Diseases.
Cancer Center
A Cancer Center was established in 1980 to coordinate the efforts of University of Iowa faculty and staff in research, education, and demonstration programs related to all aspects of cancer.

Alzheimer's Disease Research Center
This 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.

Educational and Patient Care Facilities
First- and second-year classes are taught in the Bowen Science Building and the Medical Laboratories.

The Eckstein Medical Research Building, opened for occupancy in early 1989, was designed to provide flexible research space that rapidly adapts to the changing needs of interdisciplinary research activities. The facility serves interdisciplinary groups of faculty scientists, each of whom is researching a human biology problem at the advancing edge of science, and enables them to conduct research in close proximity to other select researchers. In order to accomplish this, the facility's laboratories have been designed to accommodate a wide range of research. The spaces, mechanical systems, and available support services offer the greatest flexibility and adaptability for current and future research.

Research facilities for the College of Medicine have been extended by approximately thirty thousand square feet of space, including new space at the University Research Park.

A number of facilities that support the research and teaching endeavors of College of Medicine faculty are administered through the dean's office. University of Iowa research facilities housed in the College of Medicine include the Electron Microscopy Facility and a Computer-Assisted Image Analysis Facility. The animal care unit, which arranges for the purchase, housing and veterinary care of a wide variety of animals, also is responsible for investigator training in the use of research animals and for compliance with all laws relating to animal research. (See “Research Activities” in the Special Resources at Iowa section of the Catalog.)

The bioengineering facility provides specialized electronic design, construction, and repair services. The medical instrument facility designs and fabricates scientific equipment and provides precision machine services and custom signage. The medical graphics, photography, and television sections offer consultation, design, and production services in these various art forms. The spectrum of composition is greatly expanded by Genigraphics, a computer-generated graphics system. The P3 facility meets federal guidelines for recombinant DNA research requiring P3 containment. It also can be used for research on other biohazardous human or animal pathogens. The Radiation Facility is located in the Radiation Research Laboratory. Radiation sources available include two orthovoltage X-ray machines and a 12,000 Curie cesium-137 gamma ray source. These units make it possible to irradiate a wide variety of specimens, animate and inanimate, with low to very high doses.

The Electrion Spin Resonance Facility allows investigators to directly detect free radicals as well as to study paramagnetic transition metal complexes. The Protein Structure Facility provides services such as amino acid analysis, protein sequencing, peptide synthesis, and HPLC separations. In addition, instrumentation for the spectral characterization of macromolecules, the purification of proteins and peptides, and the measurement of kinetic parameters is made available to investigators for use in their research.

The DNA Facility provides a number of services through the Diabetes and Endocrinology Research Center, including the sequencing of nucleotides as part of the college's research core facilities. The FACS system in the Flow Cytometry Facility rapidly analyzes and separates cells on the basis of fluorescence and light-scattering properties.

The Microcalorimeter Facility enables researchers to measure thermal transitions and interactions of biological materials, including proteins, nucleic acids, and carbohydrates.

The High-Field Nuclear Magnetic Resonance Facility provides NMR spectral services through either a staff operator or by hands-on usage.

The Cytogenetics Laboratory helps researchers analyze the chromosomal constitution of cells and small animals. A facility for mass spectrometry provides service for the qualitative and quantitative identification of important biological molecules.

The Tissue Culture Hybridoma Facility provides tissue culture media for tissue culture. It prepares cell fusions to form hybridomas from which monoclonal antibodies are isolated.

The Flow Cytometry Facility provides facilities, technical personnel, and consultation services to investigators studying diverse problems in cell biology, immunology, endocrinology, hematology, cell physiology, and cell kinetics. The flow cytometer will measure any optically detectable cellular property.

The Transgenic Animal Facility provides small animals that have specific genomic modifications.

The Iowa University Affiliated Facility, a unit of the Division of Developmental Disabilities Department of Pediatrics, provides interdisciplinary training, exemplary services, technical assistance, and information dissemination and participates in research to enhance the quality of life for persons with developmental disabilities. Professionals from many disciplines (e.g., audiology, dentistry, education, family practice, pediatrics, nursing, nutrition, occupational therapy, physical therapy, psychology, leisure studies, social work, speech-language pathology, and rehabilitative engineering) work together as teams to provide short-term tertiary evaluation and treatment in support of community services for persons with developmental disabilities.

The Office of Consultation and Research in Medical Education is made up of education specialists in a broad range of areas who serve the faculty, staff, and administration of all College of Medicine programs. The office provides educational consultation, initiates and cooperates in educational research endeavors, and conducts faculty development activities.

Doctor of Medicine
The University of Iowa College of Medicine accepts 175 freshman students each year into its four-year course of study leading to the Doctor of Medicine (M. D.) degree.

The curriculum in medicine at the University is based on a strong tradition of excellence. It is evaluated and renewed continually to reflect the changing needs of the new physician and of society.
Basic Medical Sciences (First Three Semesters)

The first three semesters present a core of sciences basic to the study of medicine.

First Semester
- 99:163 Biochemistry for Medical Students 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.
- 60:103 Gross Human Anatomy for Medical Students includes clinically relevant areas of anatomical radiology and surface anatomy with clinical correlations. A complete dissection of the human body is undertaken, and the relationship to the living system is stressed.
- 60:104 Medical Embryology offers lectures on human embryology, with emphasis on the clinical aspect of development. Registration is limited to medical students; graduate students are referred to 60:217. The course is offered fall semesters.
- 60:105 General Histology for Medical Students provides a course of study for the core information concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.
- 115:102 Human Dimensions in Medicine is designed to introduce medical students to the importance of communication in the practice of medicine and to increase awareness of personal and social values. The course provides students with small-group experience through which they learn about and improve their ability to communicate sensitively with patients and colleagues.
- 63:110 Biostatistics provides guidelines for the application of statistical principles to the biological and medical sciences. Emphasis is given to the interpretation of studies published in medical journals.

Second Semester
- 72:212 Medical Physiology offers students an understanding of responses that an organism gives to external stimuli and provides a basis for understanding the integrated function of organ systems. Much of the material in these two courses is presented from a clinical point of view. In small discussion groups, which have essentially replaced laboratory exercises, students present their evaluations of the physiologic mechanisms at work in the clinical material. Some demonstrations are used.
- 61:103 Medical Microbiology includes immunology and presents a core of information on the classification and mode of action of infectious agents, as well as certain aspects of body response to these agents. Laboratory work plays an important role in this course.
- 50:234 Medical Neuroscience is an integrated course dealing with basic principles of neurophysiology and neuroanatomy, with emphasis on the human central nervous system.

Third Semester
- 69:201 General Pathology for Medical Students is correlated with microbiology in this semester to increase efficiency of the learning process. Emphasis is placed on pathogenesis and altered function in cellular and tissue degeneration, infection, and growth disorders. Clinical problem solving and discussion periods have replaced laboratories in this course.
- 69:202 Systemic Pathology for Medical Students applies the principles given in the previous semester to specific diseases in an organ system approach. Student-centered learning is fostered by discussion groups and practice in case analysis.
- 63:109 Preventive Medicine presents fundamentals to help prepare students in some of the sociologic, economic, and public health aspects of medical practice.
- 71:105 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.
- 50:165 Biomedical Ethics covers ethics vocabulary, the processes of moral reasoning, and illustrative problems increasingly prevalent in modern medical work.

Several elective courses are available to students during the third semester. These carry 2 semester hours of credit. Topics include areas not specifically covered in the regular curriculum and areas related to medical practice and the role of the physician. Typical examples are Perspectives in Aging, Humanistic Medicine, Human Nutrition, and Spanish for Health Professionals.

Introduction to Clinical Medicine (Fourth Semester)

A major interdisciplinary course, 50:111 Introduction to Clinical Medicine, fills the fourth semester. It includes participation by a large proportion of the faculty and is vital in providing students with the tools for a lifetime of patient care.

The first series of mornings is devoted to introducing the patient as a person and giving guidance in interviewing, counseling, and history taking. Following this is an intensive review of clinical medicine on an organ system basis, presented by teams of clinicians and basic scientists. The final group of mornings is spent in areas of medicine that do not fall naturally into organ systems, and on reemphasis of some key subjects.

Throughout the 16 weeks of the course, students spend afternoons acquiring and practicing the clinician’s skills in history taking and physical examination. Habits of care, concern, and compassion needed by all physicians are established in this semester. Toward the end of the semester, each student is evaluated individually several times to determine the level of skill achieved. If further work is needed, guidance and assistance are provided.

Clinical Clerkships (Third Year)

The third year includes the required clinical clerkships and presents students with opportunities to work with physicians of almost all disciplines as they care for their patients. Students spend nine weeks in internal medicine; six weeks each in surgery, pediatrics, psychiatry, and obstetrics and gynecology; three weeks in family practice; and two weeks each in anesthesia, dermatology, neurology, otolaryngology—head and neck surgery, orthopaedic surgery, and urology. Students spend most of this time in Iowa City except during the family practice clerkship, which exposes students to primary care in a physician’s private practice somewhere in Iowa.

The clinical clerkship year is the most critical period of time in medical education, for it is when students take on the posture of physicians to learn firsthand the complexity of medical science when viewed at the bedside and to understand the physician’s responsibility for human life.

Period of Selective Study (Fourth Year)

Following the clerkships, the fourth year provides a period of selective study, giving students many options. The broad, comprehensive orientation to the different medical disciplines and the level of clinical sophistication achieved during the clerkship year qualify students to participate in a variety of medical experiences, ranging from advanced courses in specialty areas to community-based clerkships in primary care. All students must complete a required course in clinical pharmacology and therapeutics.

Financial Aid

The College of Medicine’s philosophy is that no student should be denied a medical education due to a lack of funds. Therefore, the College of Medicine staff actively seeks adequate financial aid sources to enable every student interested in a medical education to finance that education.

Financial assistance is provided by The College of Medicine on the basis of demonstrated financial need. Although limited grants are available for the most economically disadvantaged students, most aid is in the form of loans. Examples of available federal loan programs are the Health Professions Student Loan (HPSL), the Primary Care Loan (PCL), the Subsidized Stafford Student Loan, the Unsubsidized Stafford Student Loan, the Perkins Loan program, and the Health Education Assistance Loan program (HEAL).

In addition, the College of Medicine has a number of funds that support collegiate loan programs through permanent endowments and/or contributions from alumni and friends of the College of Medicine. The three largest of these funds are the Kellogg/Medical Education Assistance Program, the Carroll Brown Medical...
Student Loan Fund, and the Sled Foundation Loan Fund. The Dr. George Scanlon Medical Student Loan (offered through the Iowa Medical Education Fund of the Iowa Medical Society) also is available to M3 and M4 students who are residents of the state of Iowa.

The College of Medicine also manages a number of small funds that support short-term emergency loans for students with immediate financial needs. Information and advice concerning financial aid can be obtained through the College of Medicine Office of Student Affairs.

Educational Opportunities Program

The Educational Opportunities Program provides financial and academic assistance to disadvantaged students from groups that are underrepresented in American medicine: African-Americans, Mexican-Americans, American Indians, and Mainland Puerto Ricans.

Admission to the M.D. Program

The 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. Preliminary applications are processed by AMCAS beginning June 15 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 closing date is November 15.

Final application will be forwarded to applicants whose AMCAS applications pass a review conducted by the College of Medicine. A $20 fee must accompany the final application from applicants who have not completed work in residence at The University of Iowa.

Admitted applicants also must file with the University Office of Admissions an official transcript from each college attended.

Requirements

Applicants for admission to the College of Medicine must have received the baccalaureate degree, or have completed three years of a curriculum qualifying them to receive the baccalaureate degree after completing the first year in medicine, or have completed three years of a baccalaureate program meeting the general graduation requirements of the college they are attending.

Prospective students must have earned at least 94 semester hours of credit, or the equivalent, including the following.

Physics: a complete introductory course.

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; ordinarily following a complete introductory course in modern general chemical principles.

Biological sciences: a complete introductory course in the principles of animal biology, or zoology and botany (not botany alone), and an advanced biology course.

All the foregoing must be taken with appropriate laboratories.

Applicants for admission to the College of Medicine must possess the capability to complete the entire medical curriculum and achieve the degree, Doctor of Medicine. The medical curriculum requires demonstrated proficiency in a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills. Therefore, the following abilities and expectations must be met by all students admitted to the College of Medicine.

- Candidates must be able to observe demonstrations and experiments in the basic sciences.
- Candidates must be able to learn to analyze, synthesize, solve problems, and reach diagnostic and therapeutic judgments.
- Candidates must have sufficient use of the senses of vision and hearing and the somatic sensation necessary to perform a physical examination. Candidates must be able to perform palpation, auscultation, and percussion.
- Candidates must be able to relate reasonably to patients and establish sensitive, professional relationships with patients.
- Candidates are expected to be able to communicate the results of the examination to patients and to their colleagues with accuracy, clarity, and efficiency.
- Candidates are expected to be able to learn and perform routine laboratory tests and diagnostic procedures.
- Candidates are expected to be able to display good judgment in the assessment and treatment of patients.
- Candidates must be able to learn to respond with precise, quick, and appropriate action in emergency situations.
- Candidates are expected to be able to accept criticism and respond by appropriate modification of behavior.
- Candidates are expected to possess the perseverance, diligence, and consistency to complete the medical school curriculum and enter the independent practice of medicine.

Applicants who may not meet these standards are encouraged to contact the College of Medicine director of admissions.

Fulfillment of the specific requirements for admission does not ensure admission to the College of Medicine. From applicants meeting the requirements, the admissions committee of the College of Medicine selects those who appear to be best qualified for the study and practice of medicine.

Applicants who have completed the baccalaureate degree and required courses five or more years before seeking admission to the College of Medicine are considered by the admissions committee only under exceptional conditions.

To be considered for admission, applicants must have attained at least a 2.50 grade-point average for all college work undertaken. Where courses are available on a graded or pass/fail basis, it is expected that applicants will have taken the required science courses for a grade.

Preference is given to applicants with high scholastic standing who are residents of Iowa. Consideration also is given to outstanding nonresidents.

Applicants are required to take the Medical College Admission Test administered by the Association of American Medical Colleges no later than the summer of the year preceding that for which they are seeking admission. Students may arrange to apply for this examination through the University’s Evaluation and Examination Service.

Personal interviews are not usually conducted but are occasionally requested by the admissions committee. Applicants who feel that an interview is necessary may request that one be arranged by contacting the College of Medicine director of admissions. Requests for interviews normally should be made before January 1. The specific purpose of the interview should be clearly stated.

Applicants accepted on or prior to February 15 must submit a $50 advance payment by March 1. Applicants accepted after February 15 must submit this payment within two weeks after they receive notification of acceptance. The advance payment is credited toward tuition and fees.

All students entering the College of Medicine are required to comply with the pre-entrance and periodic health screening program developed by the Student Health Service in cooperation with The University of Iowa Hospitals and Clinics.

Student promotions Policies and Procedures

Promotion

The College of Medicine has established promotion policies and procedures to ensure that each person who graduates from The University of Iowa College of Medicine 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 one student member, 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 in any case in which a student’s skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. Possible recommendations by the committee include immediate dismissal of the student from the college; requiring the student to repeat all or any part of the curriculum on academic probation; and allowing the student to continue with a full or partial course load on academic probation. These recommendations are then forwarded for action to the medical
council and executive committee, meeting in joint session to represent the faculty.

Medical students have the right to appeal a promotion decision. Students desiring to do so must submit the appeal in writing to the dean of the College of Medicine within two weeks after the date of written receipt of the decision. Appeals are considered by the medical council and executive committee, meeting in joint session. Students may request an opportunity to appear personally before the joint session to make a statement and to answer questions.

More specific information about student promotion policies and procedures is available at the Medical Student Affairs Office and is published annually in the Medical Student Handbook for new students.

Leaves of Absence, Withdrawal, and Reinstatement

The 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 Medical Student Affairs Office and is published annually in the Medical Student Handbook for new students.

Informal Procedures

Student complaints concerning actions of faculty members or departments are pursued first through informal mechanisms established in the College of Medicine. These informal procedures allow the greatest flexibility for all concerned in resolving a conflict. They are intended for any situation a student may encounter including 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 “Policy on Sexual Harassment”) in the Student Life at Iowa section of the Catalog.

Information concerning the established informal mechanisms is available in the Medical Student Affairs Office and is published annually in the Medical Student Handbook for new students.

Division of Associated Medical Sciences

The division offers a B.S. degree in medicine. (The M.P.T. and M.A. degrees offered by the Physical Therapy Program, the Ph.D. offered in cooperation with the Department of Exercise Science, M. P.A.S. offered by the Physician Assistant Program, and the M.S. physician assistant tracks in preventive medicine and environmental health or exercise science are offered through the Graduate College and are subject to its policies.)

General 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 College of Medicine at the time of formal admission to one of its programs. Admission policies and procedures vary from program to program. The Physician Assistant Program has an early admission process.

Students should consult the individual program descriptions and/or program offices for details of the admission processes. Students may be admitted as degree or nondegree candidates (special students). Nondegree candidates are subject to College of Medicine rules for academic probation and dismissal.

To be considered for admission, applicants must have earned a cumulative grade-point average on all college work attempted as appropriate to each program: medical technology, 2.50; nuclear medicine technology, 2.50; and physician assistant, 2.70. Admission committees give special attention to grades in the sciences, particularly those prerequisite science courses required by the individual programs. The cumulative or science grade-point average for the last 60 semester hours may be used to satisfy the minimum grade-point average requirement, at the discretion of the program admission committee.

Student Health

Students admitted to division programs must show proof that they have had a recent physical examination including routine laboratory procedures and immunizations for their own and their patients’ protection before they enter the program. These records are maintained through Student Health Service, which should be consulted for further information.

Financial Aid

Students in the 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.

Graduation Requirements for Baccalaureate Degrees

General Requirements

Students must earn a minimum of 124 semester hours of credit. The number 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 2.00 minimum grade-point average in all college work attempted, all work undertaken at The University of Iowa, and all graded work attempted after admission to the 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 30 consecutive semester hours in residence, or 45 of the last 60 semester hours in residence, or an overall total of 90 semester hours in residence.

Nonresident instruction includes course work at other colleges and universities, course work in other undergraduate colleges at The University of Iowa, and all work by correspondence, including University of Iowa Guided Correspondence Study courses.

General Education Requirements vary from program to program. Students must check the requirements of the specific program or degree objective. Specific requirements for the major are listed in each program description.

Double Majors

Students may earn more than one major in the 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, must do so under a combined degree program and must have their combined course of study approved by the dean of the College of Medicine and the dean of the other college.

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 consecutive semester hours in the College of Medicine. Students who hold a B.A. or B.S. degree will be considered to have satisfied all General Education Requirements for graduation except the foreign language requirement. Holders of other degrees must meet college and program degree requirements. Students with B.A. or B.S. degrees 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 Office of Admissions.

combined Baccalaureate Degree Program

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum program in the Colleges of Medicine and Liberal Arts. Although students begin their academic program in the College of Liberal Arts, they must be eligible for admission to College of Medicine baccalaureate programs in medical technology or nuclear medicine technology.

Students who select this program must meet 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 advisers, one in the major department of the College of Medicine and the other in the major department of the College of Liberal Arts.

Candidates in the combined degree program must satisfy all requirements for both degrees. They must complete an overall total of 154 semester hours of credit, including at least 30 semester hours of courses offered by the College of Medicine and at least 30 semester hours of courses offered by the College of Liberal Arts.

Students interested in the combined degree program should see the director of the baccalaureate program of their choice in the College of Medicine.

Minors
Students graduating from the 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 semester hours must be taken in the minor.

Applications 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 satisfactorily completed course. Regression occurs when students take a more elementary course after having satisfactorily completed a more advanced or higher level course in the same subject. Duplication and regression are assessed by the registrar at the time of graduation analysis. Hours earned by duplication or regression do not count toward the number of hours needed for graduation.

Graduation Honors
Approximately ten 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
Students are not allowed to register after the third week of the semester or the first one and one-half weeks of the summer session. The maximum permitted registration is 20 semester hours in a regular semester and 10 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 adviser 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 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 adviser, and the head of the division at any time prior to the end of the first two-thirds of the course.

Other changes in registration (such as to audit for O 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 prior to 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.

Graduating Procedures
Marking procedures vary from program to program. Students should consult individual program policy statements for information.

Auditing Courses
Students may register as auditors 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 registrar’s office before the end of the first one-fifth of the course. Both grades will 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. Incomplete 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. The program director should be consulted for further information.

Reports to Students
Instructors contact any student whose work falls below the minimum acceptable level when the problem is recognized. Grades are reported on the student’s transcript, following University protocol. No formal midterm reports are given.

Academic Progress, Program probation, and 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 the program are placed on probation. Probation serves as a warning that students will not graduate unless their 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 executive committee of
the division, at least four months prior to 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; a copy is placed in their file.

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 summarily 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 College of Medicine are reported to the dean with a statement of relevant facts. The program director and the instructor concerned 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 disciplinary probation, assessment 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 submit an appeal in writing to the dean within two weeks after the date of receipt of the decision in writing.

#### Unclassified Students

Students who do not want to be admitted to the College of Medicine but who want to register for certain courses will be permitted to do so only if the course is an essential component of a planned program of study and the student complies with all requirements for registration for the course, or by action of the program’s faculty upon recommendation of the course director.

### Nondepartmental courses

- **50:000 Medical Student Research Fellowships** 0 s.h.
  - Full time, on or off campus; interdisciplinary.
- **50:1 Medicine Elective Fourth Year** arr.
- **50:2 Medicine Clinical Third Year** arr.
- **50:3 Nutrition** 2 s.h.
- **50:4 Medicine in the Humanities** 2 s.h.
- **50:6 Interpersonal Skills for the Medical professional** 1 s.h.
  - Introduction to a model of helping others through verbal communication; indicates both the stages through which this helping process generally moves and the skills the helper should exercise at each stage.
- **50:20 Introduction to Selected Health Professions** 1 s.h.
  - History, organization, education, and role of health providers in medical technology, nuclear medicine technology, physical therapy, physician assistant professions; current health care issues affecting these professions.
- **50:105 Law and Medicine for Physician Assistant Students** 1 s.h.
  - Fundamental principles of law bearing on professional activities; basic vocabulary necessary to understand legal concepts.
- **50:106 Introduction to Behavioral Medicine** 1 s.h.
- **50:111 Introduction to Clinical Medicine** arr.
  - Provides the bridge between basic sciences and required clinical clerkships; basic skills of interviewing, history taking, and performing physical exams; lectures cover all clinical medical specialties; prerequisite includes specialized faculty teaching sessions and teaching associated simulated patients.
- **50:121 Introduction to Clinical Medicine for physician Assistant Students** arr.
- **50:150 Molecular Modeling Techniques I** 2 s.h.
  - Theoretical and practical aspects of computer-assisted molecular modeling utilizing supercomputing graphics workstations; building computer graphics models of molecules and performing molecular mechanics calculations with computers. Consent of instructor required. Same as 46:155.
- **50:151 Molecular Modeling Techniques II** 2 s.h.
  - Theoretical and practical aspects of computer-assisted molecular modeling using supercomputing graphics workstations; advanced concepts such as QSAR, macro development, advanced optimization techniques, loop searches. Prerequisite: 50:150 or consent of instructor. Same as 46:156.
- **50:152 Introduction to 3-D Modeling and Animation** 3 s.h.
  - Theoretical and practical aspects of computer-assisted three dimensional modeling and animation, using super computing graphics workstation; rendering scenes, sharing, key frame animation. Consent of instructor required.
- **50:153 Advanced 3-D Modeling and Animation** arr.
  - Independent study. Prerequisite: 50:152.
- **50:161 Designing and Developing Instructional Materials** 3 s.h.
  - Design, development, use of Selfpaced materials. Same as 7w:121.
- **50:165 Biomedical Ethics** 2 s.h.
  - Ethical concepts, principles, problems in medicine; discussion group analysis of ethical aspects of individual cases. Open only to sophomore medical students.
- **50:166 History of Medicine in Western Society** 2 s.h.
  - Open only to sophomore medical students. Consent of instructor required. Same as 32:268.
- **50:198 Advanced Biomedical Studies** 2 s.h.
- **50:199 Advanced Biomedical Studies** 2 s.h.
- **50:201 Dietetics Seminar I** 1 s.h.
  - Current research findings in nutrition, clinical dietetics, food service management, nutrition education; emphasis on development of skills in critical reading, concise oral presentation, abstracting of current literature.
- **50:202 Dietetics Seminar** 1 s.h.
  - Selection of a current topic in nutrition; in-depth review of current literature for critical analysis presentation; emphasis on defense of methods, presentation of conclusions.
- **50:203 Critical Care Dietetics** 14 s.h.
  - Nutritional aspects of health and disease, with emphasis on therapeutic use of food; student participation.
- **50:204 Clinical Dietetics** 1-4 s.h.
  - Application of 50:203 through clinical case presentations.
- **50:205 Projects in Dietetics** arr.
  - Administrative, therapeutic, epidemiologic, food science, and metabolic studies; introduction to research.
- **50:206 Projects in Dietetics** arr.
  - Application of 50:205.
- **50:207 Dietetic Research** arr.
  - Dietetic research topics, and development of written protocols, emphasis on methods, application of food science to research diets, calculation and preparation of liquid diets, metabolic balance studies, nutritional assessment, compliance with dietary protocols.
- **50:208 Dietetic Research** arr.
  - Applications and discussion of 50:205 through selection, execution of independent projects and/or applied clinical studies.
- **50:209 Hospital Dietary Administration** 1-4 s.h.
  - Administrative problem solving techniques, methods for management, purchasing, cost control, data processing, food system.
- **50:210 Hospital Dietary Administration** 1-4 s.h.
  - Application of 50:209 through independent projects, management case presentations, development of a department policy and procedure.
- **50:211 MSTP Summer Research** 1 s.h.
  - Summer research experience for students in the Medical Scientist Training Program.
- **50:212 MSTP Clinical Conference** 1 s.h.
  - Introduction to clinical research, with patient presentations and discussion of clinically oriented research topics; for students in the graduate studies component of the Medical Scientist Training Program.
- **50:216 Analysis of Food Service Systems** arr.
  - Review and evaluation of methods and equipment of various food service operations.
- **50:234 Medical Neuroscience** Same as 60:234, 72:234, 132:234.
- **50:262 Facilitating Learning in Health Sciences Professions** 3 s.h.
  - Clinical teaching models; factors involved in developing a comprehensive clinical evaluation system.
- **50:263 Multidisciplinary Ambulatory Care** 12 s.h.
  - Rotation for fourth-year medical students; four 3 week blocks in family practice, internal medicine, obstetrics and gynecology, pediatrics ambulatory care clinics.
- **50:995 Individual Projects: History of Medicine** arr.

### Anatomy

**ANATOMY**

Interim head: John P. Long


Associate professors: Martin D. Cassell, Masatuka Kawai, Nicholas J. Pantazis

Graduate degrees: M.S., Ph.D. in Anatomy

The department performs three major functions: teaching anatomy of the human body to students preparing for careers in the health care professions; providing advanced courses, teaching experience, and research training to graduate students preparing for careers in academic research and related scientific fields; and conducting original research into biological structure and function-long-term relationships.

### Preclinical Study for the Health Care Professions

The department contributes to the preclinical education of health care professionals by providing major courses in gross anatomy, histology, and neuroscience. The department
participates in the Medical Scientist Training Program, the Molecular Biology Program, and the Neuroscience Program.

Graduate Programs

Master of Science

Admission to the M.S. program is limited to individuals who hold or are currently registered for a health professional degree, and to individuals who are established in a career and who seek a master’s degree for reasons of professional improvement.

Doctor of Philosophy

Students in the Ph.D. program work directly for the doctorate without an intermediate master’s program. They complete required courses in at least three of the five major subject areas (cell biology, neuroscience, gross human anatomy, histology/tissue biological sciences, developmental biology), 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 adviser. By the end of the second year, students undertake the comprehensive examination, define a research problem with their major adviser, and formulate a research prospectus. The comprehensive examination assesses students’ ability to analyze, organize, and apply the information, concepts, and skills acquired in the first two years of the program. Subsequent years are devoted primarily to research.

The final examination for the Ph.D. consists of a public oral defense of the dissertation. The dissertation is based on original research conducted with the guidance of the major adviser and at least four other faculty members on the thesis committee.

Financial Aid

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.

Admission

Applicants for admission to the Ph.D. program in anatomy should have undergraduate preparation including college mathematics, one year of organic chemistry, one year of general physics, and upper-level courses in biological sciences. For admission requirements, see the Graduate College section of the Catalog. In addition to taking the Graduate Record Examination (CRE) General Test, applicants to the Ph.D. program in anatomy are strongly encouraged to take the Graduate Record Examination Subject Test in Biology or their major undergraduate area.

Facilities

The department occupies over 35,000 square feet in the Bowen Science Building on the health sciences campus. These quarters house modern teaching facilities and well-equipped research laboratories. The most modern instrumentation is available, including facilities and equipment for electron microscopy, microscopic digital imaging, autoradiographic studies, polymerase chain reaction, and other molecular biological techniques; spectrophotometers, cryostats, tissue culture and protein chemistry, and automated gamma/beta counting systems. Through collaborative programs with the Cancer Center, Cardiovascular Research Center, Diabetes and Endocrinology Research Center, and the Alzheimer’s Disease Research Center, faculty and students also have access to outstanding research facilities throughout The University of Iowa Medical Center.

Courses

60:1 Principles of Human Anatomy 3 s.h.
Gross and microscopic human anatomy; systemic approach to all body areas, with emphasis on clinical relevance. Open only to pharmacy, premedical, and medical sciences majors. Corequisite: 260:11.

60:2 Humans Histology 4 s.h.
60:10 Demonstration Laboratory in Human Anatomy 1 s.h.
Gross, microscopic human anatomy. Open only to preprofessional students. Corequisite: 60:11.

60:101 Human Gross Anatomy for Dental Students 6 s.h.
Regional dissection, lectures, demonstrations, with emphasis on head and neck. Prerequisite: Offered spring semesters. Consent of instructor required.

60:103 Gross Human Anatomy for Medical Students 7 s.h.
Regional dissection, lectures, demonstrations, tutorials; discussions; clinically relevant areas of anatomical radiology. Surface anatomy with clinical correlations. Open only to medical students. Offered fall semesters.

60:104 Medical Embryology 1 s.h.
Human embryology, with emphasis on clinical aspect of development. Open only to medical students. Offered fall semesters.

60:105 General Histology for Medical Students 4 s.h.
Microscopic study of cells, fundamental tissues, organ systems. Open only to medical students. Offered fall semesters.

60:108 Human Anatomy 4 s.h.
Regional dissection, lectures, demonstrations, with emphasis on areas important to physical therapists. Open only to physical therapy students or to others with consent of instructor. Offered fall semesters.

60:11 Gross Human Anatomy for Physician Assistant Students 6 s.h.

60:112 General Histology for Dental Students 4 s.h.
Microscopic study of cells, fundamental tissues, organ systems. Open only to dental students. Offered fall semesters.

60:114 Oral Histology and Embryology 1 s.h.
Emphasis on tooth-illustrated structures. Open only to dental students and anatomy graduate students. Offered fall semesters.

60:122 Independent Study in Anatomy arr.
Projects arranged with department faculty members. Consent of instructor required.

60:156 Scanning EM and X-ray Microanalysis 3 s.h.
Same as 12:156, 52:156, 2156.

60:202 Anatomy Research 3 s.h.
Projects arranged with faculty member engaged in research. Open only to graduate students in anatomy.

60:203 Gross Human Anatomy for Graduate Students 7 s.h.
Regional dissection, lectures, demonstrations, tutorials, discussions, seminars; clinically relevant areas of anatomical radiology, surface anatomy with clinical correlations. Consent of instructor required. Offered fall semesters.

60:205 General Histology for Graduate Students 4-5 s.h.
Cells, tissues, organs at light and electron microscopic levels. Consent of instructor required. Offered fall semesters.

60:206 Problems arr.
Individual laboratory research training in anatomical sciences.

60:216 Cell Biology I 3 s.h.
Correlation of cellular ultrastructure, function. Offered fall semesters. Consent of instructor required.

60:217 Developmental Anatomy 2 s.h.
Events of normal morphogenesis; mechanisms, patterns of abnormal development. Offered fall semesters. Consent of instructor required.

60:218 Electron Microscopy Techniques 3 s.h.
Same as 218:1, 218:2.

60:220 Advanced Electron Microscopy 3 s.h.
Same as 220:220, 212:220.

60:224 Graduate Student Seminar 0-1 s.h.
Open only to graduate students who present seminars. Consent of instructor required.

60:225 Graduate Student Seminar 4 s.h.
Open only to graduate students. Consent of instructor required.

60:231 Advanced Anatomy I 2 s.h.
Regional dissections involving demonstrations, tutorials, discussions. Open only to sophomore, junior, and senior medical and dental students, and graduate students. Prerequisites: 60:103 or 60:205, and consent of instructor.

60:232 Advanced Human Anatomy 1 4 s.h.
Open only to senior medical students and graduate students. Consent of instructor required.

60:233 Advanced Histology 2 s.h.
Cells, tissues, organs, with emphasis on clinical relevance. Open only to sophomore, junior, and senior medical or dental students, and graduate students. Consent of instructor required. Prerequisite: 60:105 or 60:112.

60:234 Medical Neuroscience 4 s.h.

60:235 Advanced Neuroanatomy 4 s.h.
Consent of instructor required. Prerequisite: 50:234 or 60:234.

60:236 Secondary Human Anatomy 4 s.h.

60:245 Developmental Neuroscience 4 s.h.

60:265 Neuroscience seminar 0-1 s.h.

60:272 Seminar in Cellular and Molecular Biology 1 s.h.

60:998 Special Study on Campus arr.
Special study in anatomy; interdisciplinary core approach. Open only to four-year medical students.

Head: John H. Tinker
Professors: Won W. Choi, Robert B. Forbes, Samir Gergis, Mohamed Ghoneim, Peter Jebson, John R. Moyen, David J. Murray, Martin Sokoll, Michael M. Todd
The department introduces the second-year student with approval of department head.

Well-defined research project relating to anesthesia; assigned a faculty adviser from the division.

Flexible undergraduate programs prepare students for entry into these professional areas. Students usually enroll initially in the College of Liberal Arts and are assigned a faculty adviser from the division.

Although each program in the division has its own admission requirements, the first two years of undergraduate study are similar. Each program requires a foundation in biology, chemistry, and mathematics; physics, computer science; general statistics, and psychology are required by some programs and are highly recommended for others. Students should plan their study programs carefully so that conflicts in specifically required courses do not occur. It is imperative that students consult with the appropriate program adviser to assure the proper sequencing of courses.

The following is a typical curriculum for undergraduate students, with options being exercised after consultation with program advisers. Programs are abbreviated as follows: MT–Medical Technology (MT-CG–cytogenetics track, MT-P–perfusion track, MT-BT–biotechnology track); NMT–Nuclear Medicine Technology; PA–Physician Assistant; PT–Physical Therapy.

FRESHMAN YEAR

First Semester
(Total of 16 semester hours)
4:13 Principles of Chemistry I 3 s.h.
10:1 Rhetoric I 4 s.h.
22M:15 Mathematics for the Biological Sciences 4 s.h.
General Education Requirement courses 5 s.h.

Second Semester
(Total of 16-18 semester hours)
2:10 Principles of Biology I (MT–all tracks) 4 s.h.
2:11 Principles of Biology II (MT–all tracks) 4 s.h.
4:14 Principles of Chemistry I 3 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
10:2 Rhetoric II 4 s.h.
General Education Requirement courses 3-9 s.h.

Sophomore Year

First Semester
(Total of 14-15 semester hours)
2:10 Principles of Biology I (MT–all tracks, PA) 4 s.h.
2:1 Principles of Biology II (MT–all tracks) 4 s.h.
4:121 Organic Chemistry I (MT–all tracks, PA) 3 s.h.
29:11 College Physics (NMT) 4 s.h.
61:157 General Microbiology (MT–all tracks) 5 s.h.
General Education Requirement courses 2-12 s.h.

Second Semester
(Total of 14-18 semester hours)
2:11 Principles of Biology II (PA) 4 s.h.
29:12 College Physics (NMT) 4 s.h.
31:3 General Psychology (PT) 4 s.h.
8W:112 Writing for the Sciences (MT-BT) 3 s.h.
99:110 Biochemistry (MT–all tracks, PA) 3 s.h.
100-level zoology course (PA) 3 s.h.
General Education Requirement courses 4-15 s.h.

Students who have satisfactorily completed the above prerequisites have satisfied the minimum academic requirements for early admission to the Medical Technology (all tracks) and Nuclear Medicine Technology Programs. Others complete the additional requirements below.

Junior Year

First Semester
(Total of 14-18 semester hours)
2:112 Cell, Tissue, and Organ Biology (MT-CG) 5 s.h.
29:11 College Physics (PT, PA) 4 s.h.
63:158 Principles of Epidemiology (MT-BT) 3 s.h.
31:13 Introduction to Clinical Psychology (PT, MT-P) 3 s.h.
60:1 Principles of Human Anatomy (MT-P) 3 s.h.
72:130 Systemic Physiology (NMT, PT) 3 s.h.
Computer science (MT–all tracks) 3-4 s.h.
General Education Requirement, foreign language, or elective courses 4-15 s.h.

Second Semester
(Total of 14-18 semester hours)
2:128 Fundamental Genetics (PT, MT-CG) 4 s.h.
2:155 Cell Physiology 4 s.h.
29:12 College Physics (PT, PA) 4 s.h.
60:1 Principles of Human Anatomy (NMT) 3 s.h.
69:119 Instrumentation in Clinical Laboratory Science (MT–all tracks) 3 s.h.
69:136 Independent Study in Immunology (MT–all tracks) 1 s.h.
72:150 Intermediate Physiology (MT–all tracks, PA) 4 s.h.
22S:101 Biostatistics (NMT, MT–all tracks, PA, PT) 3 s.h.
or
22S:102 Introduction to Statistical Methods (NMT, MT–all tracks, PA, PT) 3 s.h.
General Education Requirement, foreign language, or elective courses 0-8 s.h.

Senior Year

General Education Requirement, elective, or advanced courses in the Departments of Biochemistry, Microbiology, Chemistry, Biology, or others specified for specific degree requirements.

Medical Technology

Director: Marian Schwabauer
Medical director: Robert D. Tucker
Associate professor: Robert D. Tucker
Lecturers: Ruthanne Hyduke, Marian Schwabauer
Adjunct lecturer: John Abadi
Associates: James O’Connor, Gail S. Williams
Adjunct associates: Beverly Pennell, Thomas Persson
Assistants-in-teaching: Kathleen Kelly, Lucy Wall
Adjunct assistants-in-teaching: Martha Bale, Mike Bizzina, Delores Corde, Charlene Elbert, Dennis D. Gaunt, Jan Gavin, Jerry Hudson, Patricia Knebel, Mike Last, Julie Leahy, Marlene Loonan, Sandra Matthey, Barbara Moore, Maynard Much, Michael Newell, Julie Paulson, Darren Peterson, Lisa Parmam, Kathy Ryerson, Gloria Sarnswaber, Barbara Stewart, Janice Vought, Cindy Wamecke, Susan Woratschka
Undergraduate degree: B.S. in Medical Technology
Medical technologists/clinical laboratory scientists perform the laboratory tests on which physicians rely 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. Medical technologists/clinical laboratory scientists 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 Medical Technology Program is sponsored cooperatively by the College of Medicine, the College of Liberal Arts, The University of Iowa Hospitals and Clinics, and the Veterans Affairs Medical Center. Satisfactory completion of the program qualifies students to take all medical technologist/clinical laboratory scientist certification examinations. The program is accredited by the Council on Medical Education and Hospitals and Clinics, and the Veterans Affairs Medical Center, other hospitals in Cedar Rapids, Des Moines, and Waterloo. They attend additional seminars and may begin a specialized track, if they wish. The program is made up of the following courses.

Alternate tracks include the following courses.

**Biotecnology**

69: 134 Clinical Research for Medical Technologists

69: 175 Selected Biomedical Research Techniques

**Cytogenetics**

69: 150 Medical Cytogenetics

69: 151 Medical Cytogenetics Laboratory

69: 152 Medical Cytogenetics Seminar

69: 155 Clinical Medical Cytogenetics

Required pre-entry courses include 2: 112 and 2: 128.

### Admission

The medical technology clinical laboratory science professional program is limited to 32 students, who begin the program in late May. Applications close October 15. Sixteen students continue during the fall and spring semesters and complete the program in May. The other 16 have the opportunity to complete unfinished prerequisite course work during the fall semester and then return to the program for the spring and fall semesters of the following year, graduating in December. Additional students who wish to complete alternate tracks (cytogenetics or biotechnology) must observe the same admissions process and complete the first two sessions of the program year. The amount of additional time required varies by track.

To apply for admission to the professional program, students must be able to complete all of the following prerequisites and University graduation requirements by the end of the professional (clinical) year:

- fourteen semester hours of chemistry, including qualitative analysis, organic chemistry, and biochemistry;
- three semester hours of mathematics; and
- fourteen semester hours of biology, including general zoology, microbiology, and human physiology.

Admission is on a competitive basis. Cumulative grade-point averages of 2.50 overall and 2.50 in science generally are required. Applicants who enter the program as undergraduate students must meet the general admission requirements of the College of Liberal Arts and should consult with a Medical Technology Program adviser as early as possible to plan preclinical studies that meet all requirements.

### Expenses

Medical technology students in the professional-year curriculum are responsible for textbooks, University tuition, and student fees. Laboratory coats and equipment such as microscopes are provided by the program.
admitted to the NMT program can complete a degree in their chosen area.

**JUNIOR YEAR**

The following are recommended courses.

- 60:1 Principles of Human Anatomy 3 s.h.
- 72:130 Systemic Physiology 3 s.h.
- 22C:1 Survey of Computing 3 s.h.
- 22C:7 Introduction to Computing with FORTRAN 3 s.h.
- 22C:16 Introduction to Programming with Pascal 4 s.h.
- 22S:101 Biostatistics 3 s.h.
- 63:161 Introduction to Biostatistics 3 s.h.

Advanced courses in chemistry, biology, or physics based on alternative major, possible minors, interest, and career goals.

**SENIOR YEAR**

The curriculum of this clinical year is organized in accordance with the “Essentials of an Accredited Educational Program in Nuclear Medicine Technology.” Courses are taught in the following areas: radiopharmacy, radiobiology, radiomunnoimmunology, radioimmunoassay laboratory procedures, radiation protection, patient care, medical terminology, anatomic and physiologic bases of nuclear medicine procedures, physics and instrumentation, administration and management, mathematics and statistics of nuclear medicine, and computer applications in nuclear medicine. Clinical rotations focus on nuclear imaging, clinical radiopharmacy, computer applications, and quantification of radioactivity in vivo and in vitro, including kinetic studies. Rotations also are established in radioimmunoassay, diagnostic X-ray, computed tomography, magnetic resonance imaging, echocardiography, cardiac catheterization, and ultrasound.

The clinical year consists of these courses.

- 74:101 Principles of Nuclear Medicine I 6 s.h.
- 74:102 Introductory Clinical Nuclear Medicine 6 s.h.
- 74:103 Principles of Nuclear Medicine II 3 s.h.
- 74:104 Intermediate Clinical Nuclear Medicine 9 s.h.
- 74:105 Advanced Clinical Nuclear Medicine 6 s.h.

For course descriptions, see “Radiology” in this section of the Catalog.

**Admission**

Prerequisites for admission to the Nuclear Medicine Technology Program include the following:

- a minimum of 94 semester hours in all course work, with a 2.50 minimum cumulative grade-point average;
- fulfillment of the College of Liberal Arts General Education Requirements in rhetoric, foreign language, physical education, humanities, historical perspectives, foreign civilization and culture, and social sciences (sociology and psychology are recommended);
- a minimum of 20 semester hours in three science areas, including a complete introductory course with laboratory in chemistry, physics, and zoology; and
- a minimum of 3 semester hours in mathematics, including at least intermediate algebra.

Fulfillment of these basic admission requirements does not ensure acceptance into the Nuclear Medicine Technology Program.

A new class begins in late August each year. Application materials must be received by March 1. Personal interviews are scheduled in March and the class is selected by April 15. At present, class size is limited to ten students. Prospective students are encouraged to consult with the program office to plan an appropriate preprofessional program.

**Physical Therapy**

Director: David H. Nielsen

Professors: David Nielsen, Gary Smidt
Associate professor: Thomas Cook
Assistant professor Richard Shields
Adjunct assistant professor: William Dostal
Lecturer: Byron Bork

Adjunct lecturer: Donald Shurr

Associates: Jerry Gillon, Katherine Lampe, Karla Laubenthal, Joseph Leone, Mary Lohse

Graduate degrees: M. P.T.; M.A. in Physical Therapy

Physical therapists participate in evaluation of the capabilities and disabilities of patients. They provide treatment to alleviate pain; prevent, correct, or minimize deformity; and improve the general health status of the individual. They administer physical therapy facilities, supervise support personnel, do clinical research and teaching, and consult with other health professionals.

A wide variety of opportunities exist for professional practice in general or specialized hospitals, in programs for children with disabilities, and in physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces, foreign service, and athletic departments. Additional career opportunities are available for teaching in educational programs of physical therapy and related professions.

Education in the program is available at three different levels: the basic professional (Master of Physical Therapy), Master of Arts, and more advanced training obtained by completing the Ph.D. in the Department of Exercise Science (College of Liberal Arts) with special emphasis on therapeutics. There are 72 (36 in each class) students in the basic professional program and approximately 25 full- and part-time students in advanced degree programs.

The facilities are well-equipped for classroom and laboratory instruction. The Physical Therapy Program is located in the College of Medicine on the health center campus, which includes The University of Iowa Hospitals and Clinics, the nation’s largest university-owned teaching hospital. This location makes several resources readily accessible to the Physical Therapy Program: basic science and medical faculty, basic science courses, and intangible benefits associated with a college of medicine environment.

**Professional Program**

**Master of Physical Therapy**

The professional program is fully accredited by the American Physical Therapy Association. Satisfactory completion of the professional program qualifies candidates for the Assessment Systems Inc. (A.S.I.) exam for licensure in Iowa and other states.

The two-year Master of Physical Therapy Program consists of the following courses.

**First Semester**

- 60:108 Human Anatomy 4 s.h.
- 69:133 Introduction to Human Pathology 3 s.h.
- 101:141 Principles of Physical Therapy 4 s.h.
- 101:210 Kinesiology and Pathomechanics 4 s.h.

**Second Semester**

- 60:234 Medical Neuroscience 4 s.h.
- 101:131 Therapeutic Physical Agents I 4 s.h.
- 101:185 Musculoskeletal Therapeutics 2 s.h.
- 101:191 Clinical Education I 1 s.h.

**Third Semester**

- 101:222 Psychosocial Aspects of Patient Care 1 s.h.
- 101:192 Clinical Education II 1 s.h.
- 101:201 Applied Clinical Medicine 2 s.h.
- 101:203 Advanced Seminar in Orthopedic Physical Therapy 2 s.h.
- 101:205 Cardiopulmonary Therapeutics I 2 s.h.
- 101:224 Principles of Motor Control and Applied Neuroscience 3 s.h.
- 101:249 Research Practicum I 2 s.h.

**Fourth Semester**

- 101:121 Physical Therapy Management and Administration 2 s.h.
- 101:170 Prosthetics and Orthotics 2 s.h.
- 101:193 Clinical Education 111 0-1 s.h.
- 101:206 Cardiopulmonary Therapeutics II 3 s.h.
- 101:225 Neuromuscular Therapeutics II 2 s.h.
- 101:250 Research Practicum II 2 s.h.
- Elective 3 s.h.

**Summer Session**

- 101:194 Clinical Internship (May-August) 6 s.h.
Admission

A new class is admitted to the Master of Physical Therapy Program each fall. To qualify for admission to the program, applicants must have completed or planned to complete before enrollment a baccalaureate degree from a regionally accredited institution in the United States. The following course prerequisites must be included in the baccalaureate degree program:

- 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 semester hours
- Physics: a complete introductory course equivalent to 8 semester hours
- Chemistry: a complete introductory course equivalent to 8 semester hours
- Psychology: courses equivalent to 6 semester hours
- Mathematics: a college-level mathematics course, at the level of trigonometry or higher; equivalent to 3 semester hours
- Statistics: a college-level statistics course equivalent to 3 semester hours

All science courses must include the appropriate laboratory instruction. The prerequisite courses must be taken for a letter grade.

A 2.70 overall grade-point average (on a 4.00 scale) is the minimum for consideration of admission. In addition, a 3.00 grade-point average is required.

Admission to the master’s degree program is limited, not all applicants are invited for interviews. Selections for each class are made from the applicants recommended. The master’s degree requires a minimum of 30 semester hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experience is recommended.

Physical therapy research laboratories are available. These laboratories are well-equipped with electromechanical systems and computers for measurement and analysis of cardiopulmonary responses (heart rate, blood pressure, energy cost, and ventilation), musculoskeletal function (muscle strength and endurance, gait, posture, kinematics, and neuromuscular activity), and neural activity (electromyography, spinal reflexes, CNS control mechanisms). Use of extradepartmental laboratories also may be arranged.

Collaborative studies are encouraged with other departments, such as neurology, internal medicine, pediatrics, orthopedic surgery, physiology and biophysics, anatomy, engineering, and pharmacology, and with personnel in the physical therapy clinics. Students successfully completing the M.A. program in physical therapy will:

- be able to engage in teaching at the undergraduate and postbaccalaureate basic professional level of physical therapy training and show promise of teaching at the advanced master’s level;
- be able to engage in original scholarship and research directed toward the discovery of new knowledge and the development of theoretical principles that will advance the understanding of physical therapy clinical practices;
- have knowledge of the physical therapy theoretical and research literature related to a specific topic; and
- be skilled in the application of basic concepts in the areas of cardiopulmonary, musculoskeletal, and neuromuscular physical therapy.

The following courses are required.

- 63:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
- 101:212 Biomedical Instrumentation 3 s.h.
- 101:301 Thesis: Physical Therapy (may be taken pass/fail) 4 s.h.
- 101:326 Analysis of Scientific Literature 2 s.h.

One of the following specialty courses:

- 101:213 Biomechanical Principles of Therapeutics
- 101:260 Health Promotion and Cardiopulmonary Therapeutics
- 101:270 Occupational Biomechanics
- 101:275 Analysis of Sensori-Motor Systems in Health and Disease

The following courses are recommended.

- 27:141 Exercise Physiology 3 s.h.
- 27:153 Connective, Muscle, Nerve Tissue Anatomy 2 s.h.
- 69:133 Introduction to Human Pathology 3 s.h.
- 7W: 120 Introduction to Instructional Design and Technology 3 s.h.
- 71:120 Drugs: Their Nature, Action, and Use 2 s.h.
- 101:295 Electromyography in Kinesiology and Biomechanics 3 s.h.
- 101:327 Research in Therapeutics arr.
- 101:280, 282, or 284 Practicum (teaching, research, and/or clinical; maximum of 6 semester hours) 3 s.h.

**Admission**

To be considered for admission, applicants must be graduates of an approved professional program of physical therapy and must have earned at least a 2.75 grade-point average (on a 4.00 scale) on all undergraduate work. Two years of clinical experience also is highly desirable.

Admission to the master’s degree program is based on the grade-point average for previous collegiate academic work; scores on the Graduate Record Examination (GRE) General Test; recommendation from three sources; and a personal interview. Applicants also must meet the requirements established by the Graduate College.

Applicants must complete the Graduate College application. The Office of Admissions evaluates application materials to insure that the minimum Graduate College standards are met. The application is then sent to the department for review.

Deadlines for completed written applications are October 15 (notification by December 15); March 15 (notification by May 15); and May 15 (notification by July 15).
Ph.D. in Physical Education (Therapeutics)

Doctoral training related to physical therapy is received in a program in exercise science (Division of Physical Education), with special emphasis on therapeutics. The program is described in detail under “Exercise Science and Physical Education” in the College of Liberal Arts section of the Catalog.

Students successfully completing the Ph.D. program in physical education with the specialty in therapeutics will:

- be able to teach at the basic professional and master’s degree levels of physical therapy education and show promise of teaching at the doctoral level;
- be able to perform original scholarship and research directed toward the discovery of new knowledge and the development of theoretical principles that will advance the understanding of physical therapy clinical practices;
- have comprehensive knowledge of theoretical and research literature in areas of specialization; and
- be skilled in the application of basic and advanced concepts in the areas of cardiopulmonary, musculoskeletal, and neuromuscular physical therapy.

Admission

Students are admitted to the study program leading to the Ph.D. on the basis of their grade-point average on work completed for the master’s degree and scores on the GRE General Test. To be considered for admission, students must have earned at least a 3.00 grade-point average on all graduate work undertaken. In addition, GRE scores must be on file at The University of Iowa.

Applicants must complete the Graduate College application. The Office of Admissions evaluates application materials to ensure that the minimum Graduate College standards are met. The application, including test scores and copies of transcripts, is then sent to the department for review.

Deadlines for the completed written applications are October 15 (notification by December 15); March 15 (notification by May 15); and May 15 (notification by July 15).

Financial Aid

A number of teaching and research assistantships are available; part-time clinical work also may be available.

Courses

101:121 Physical Therapy Management and Administration 2 S.h.

Principles of management in physical therapy practice; historical perspective, current health care reform.

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.

101:131 Therapeutic Physical Agents I 4 s.h.

Physical and physiological bases for safe, effective use of various agents, including massage, heat and cold, hydrotherapy, ultraviolet light, laser, biofeedback, electricity; wound healing, electrophysiological evaluation; emphasis on the development of clinical rationales, problem-solving.

101:141 principles of physical Therapy 4 s.h.

Patient treatment, discussion of profession (e.g., history, ethics, professional issues); team approach to patient care; teaching-learning cycle; problem-oriented medical records; patient management skills; assessment of gait, joint motion, strength; lectures, laboratories.

101:170 prosthetics and (orthotics 2 s.h.

Principles, techniques in design and use of prosthetic, orthotic devices.

101:185 Musculoskeletal Therapeutics 2 s.h.

Principles, techniques of therapeutic exercise related to prevention, correction, alleviation of physical dysfunction; follows 101:141 with continued instruction in assessment, treatment of common musculoskeletal problems.

101:191 Clinical Education I 1 s.h.

Part-time experience in several different clinical facilities in patient care under supervision of clinical education Faculty.

101:192 Clinical Education II 1 s.h.

Continuation of 101:191; theory of physical therapy procedures correlated to practice; competence in basic skills.

101:193 Clinical Education III 01 s.h.

Continuation of part time clinical education interspersed with a short term, full-time block.

101:194 Clinical Internship 2 s.h.

Full time clinical education divided among three settings; students develop competence in independent assessment of patients under supervision of clinical faculty; 21-week minimum.

101:201 Applied clinical Medicine 2 S.h.

Pathological disorders frequently encountered by physical therapists in clinical practice, addressed by physicians, health professionals who are not physical therapists; physical therapy management.


Pathology, assessment, management of orthopedic conditions; lectures, demonstrations, laboratories.

101:203 Advanced seminars in Orthopedic Physical Therapy 2 s.h.

Problem Solving sessions on evaluation, management of patients with musculoskeletal conditions; advanced and specialty approaches.

101:205 Cardiopulmonary Therapeutics I 2 s.h.

Overview of applied physiological and clinical perspective of physical therapy involvement in health promotion.

101:206 Cardiopulmonary Therapeutics II 3 s.h.

Cardiorespiratory anatomy, physiology; application of basic concepts, techniques in physical therapy, management of patients with acute and chronic cardiac, pulmonary disorders.

101:210 Kinesiology and Pathomechanics 4 S.h.

Selected anatomical, structural, functional properties of human connective, muscular, nervous tissue and skeletal structures; emphasis on mechanical, neuroregulatory, muscular influences on normal, pathological motion.

101:212 Biomedical Instrumentation arr.

Basic principles of electronics, measurement; their application to physical therapy research, practice. Offered fall semesters.

101:213 Biomechanical Principles of Therapeutics arr.

Mechanical, physiological principles applied to study of human movement; emphasis on exercise, posture, locomotion; laboratories. Offered fall semesters of even years.

101:214 Advanced Seminar in Physical Therapy arr.

Current status of research for biological, mechanical, psychological components pertinent to cardiopulmonary, musculoskeletal, neurornuscular areas of physical therapy.

101:220 Seminar physical Therapy arr.

101:224 Principles of Motor Control and Applied Neuroscience 3 s.h.

Sensorimotor systems involved with normal and abnormal neuromuscular systems function; skeletal muscle properties/plasticity, neural mechanisms of muscle strengthening; spinal circuitry, simple and complex reflexes, spasticity, rigidity, posture control/balance, motor learning applied neurological -merit of pathological conditions, such as stroke, SCI.

101:225 Neuromotorics Therapeutics II 2 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 in children; 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.

101:249 Research Practicum I 2 s.h.

Continuation of 101:249; methods, laboratory and clinical research; group research projects involving data collection, data analysis, preparation of final research paper, and presentation.

101:250 Research Practicum II 2 s.h.

Continuation of 101:249; method, laboratory and clinical research; group research projects involving data collection, data analysis, preparation of final research paper, and presentation.

101:260 Health Promotion and Cardiopulmonary Therapeutics arr.

Anatomical, physiological principles applied to health care continuum, including wellness programs, cardiac and pulmonary rehabilitation; emphasis on composition and weight control, exercise and hypertension, diabetes and cardiopulmonary adaptations to training; laboratories. Offered fall semesters of even years.

101:270 Occupational Biomechanics arr.

Biomechanical factors that affect performance of occupational tasks; emphasis on prevention of musculoskeletal injuries; anatomical and physiological limits, workplace and tool design, traditional and newer methods of worker evaluation, workplace analysis. Offered spring semesters of odd years.


Neuropsychophysical mechanisms underlying posture, movement in normal, pathologic conditions; systems approach to nervous system control of movement-evaluation of spinal cord, brain stem, higher center function in control of movement. Offered spring semesters of odd years.

101:280 Teaching Practicum arr.

Individual instruction, observation, experimentation in teaching guidance, analysis of evaluation processes in Physical Therapy Program.

101:282 Clinical Educational Practicum Application of newly acquired knowledge and skill in a clinical setting; specialty oriented.

101:284 Practicum in Research arr.

Laboratory experiences connected with investigative process; individual instruction; observation, experimentation in methodology, development, data acquisition, data analysis aspects of research.

101:295 Electromyography in Kinesiology and Biomechanics 3 s.h.

Electromyographic recording instruments, techniques commonly used in Kinesiological and biomechanical studies; intramuscular and surface electrode techniques performed in laboratory; evaluation of variables such as muscle length, tension, type of contraction; use of electromyography in motor unit training biofeedback. Offered spring semesters of even years. Same as 27:295.


101:325 Independent Study arr.

Problem-solving experience in physical therapy; commensurate with student’s interest, ability.


Evaluation of experimental research; writing of proposal. Offered spring semesters.

101:327 Research in Therapeutics 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.
The initial didactic phase consists of seven months of course work in a number of basic science areas, including anatomy, biochemistry, clinical pathology, microbiology, pathology, pharmacology, and physiology. Whenever appropriate, related subjects are integrated to provide sequential lecture and laboratory experience. Also offered during this session are courses in interpretation of medical literature and in research methods and design, as well as courses in law and medicine, preventive medicine, and an introduction to medical history and physical examination.

The second phase is 50:121 Introduction to Clinical Medicine for Physician Assistant Students. This full-semester course involves the application of basic science knowledge to the understanding of clinical-pathologic correlations of the common and/or catastrophic disorders encountered in the major disciplines of clinical medicine. Students also are instructed in the science and art of obtaining a medical history and performing a thorough physical examination. This course is taken with sophomore medical students.

The third clinical phase consists of a 34- to 36-week core primary-care curriculum, including six weeks each of family medicine, general internal medicine, obstetrics/gynecology, pediatrics, psychiatry (four to six weeks), and surgery. Students select either a primary-care or specialty track, 12 to 14 weeks in length. The primary-care track includes an additional six weeks of family medicine, and electives might include geriatrics, emergency medicine, cardiology, dermatology, and orthopedics. The specialty track might include any of the electives mentioned or other rotations in more specialized areas such as transplant surgery, gastroenterology/hepatology, and pulmonary.

These clinical rotations are designed to provide students with instruction and experience in the care of patients in a manner that facilitates effective integration of the knowledge, skills, and attitudes derived from the basic science and preclinical phases of the program. Clinical training is provided by The University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Centers in Des Moines and Iowa City, Broadlawns Medical Center in Des Moines, and other affiliated hospitals throughout the state. Students gain additional clinical experience through placement with selected preceptors involved in clinical work in office-based practices.

The didactic and clinical phases of the program emphasize primary health care delivery and the use of physician assistants as members of the health care team. The program is integrated with the teaching of the College of Medicine, permitting interdisciplinary activities between various medical and health care professional students.

The curriculum’s independent study component requires the completion of a senior paper. Each student is expected to select a pertinent health care topic or issue and to write a literate, concise paper. Two types of papers are feasible: a clinical review article, or a paper reporting the findings from a small research project completed either independently or with a research mentor. The student must complete a comprehensive literature review, state a purpose and rationale, hypothesis, and based on the information gathered, present the results, a thorough discussion of the findings, and appropriate conclusions and recommendations for further study in the topic area.

**Professional Curriculum**

### FIRST YEAR

**Phase I**

- 50:105 Law and Medicine for Physician Assistant Students 1 s.h.
- 60:111 Gross Human Anatomy for Physician Assistant Students 6 s.h.
- 61:112 Health Sciences Microbiology 4 s.h.
- 69:130 Clinical Pathology for Physician Assistant Students 1 s.h.
- 69:133 Introduction to Human Pathology 4 s.h.
- 71:125 Pharmacology for Health Sciences: Physician Assistant Students 6 s.h.
- 72:164 Human Physiology for Physician Assistant Students 4 s.h.
- 99:164 Biochemistry for Physician Assistant Students 3 s.h.
- 117:101 Seminar for Physician Assistant Students 1 s.h.
- 117:102 Introduction to the Medical and Physical Examination for Physician Assistant Students 1 s.h.
- 117:103 Introduction to Research Design and Methodology 1 s.h.
- 117:104 Interpretation of Medical Literature 1 s.h.
- 117:105 Preventive Medicine for Physician Assistant Students 1 s.h.

**Phase II**

- 50:121 Introduction to Clinical Medicine for Physician Assistant Students 20 s.h.

### SECOND YEAR

**Phase III**

The following are required clinical rotations.

- 66:100 Obstetrics and Gynecology for Physician Assistant Students 6 s.h.
- 70:555 Pediatrics for Physician Assistant Students 6 s.h.
- 73:100 Psychiatry for Physician Assistant Students 4-6 s.h.
- 75:555 General Surgery for Physician Assistant Students 6 s.h.
- 78:555 Internal Medicine for Physician Assistant Students 6 s.h.
- 115:555 Family Practice I for Physician Assistant Students 6 s.h.
- 117:201 Independent Study 1 s.h.

Elective clinical rotations are selected from the following.

- 62:5 Dermatology Elective for Physician Assistant Students 2 s.h.
- 64:100 Neurology Elective for Physician Assistant Students 2 s.h.
- 66:110 Obstetrics and Gynecology Elective for Physician Assistant Students arr.
Admission

In order to be considered for admission to the physician assistant professional program, applicants must meet the following requirements.

They must hold a baccalaureate degree from a regionally accredited institution in the United States. They must have a cumulative grade-point average of 3.00 (where A = 4.00) and must have taken the Graduate Record Examination (GRE) General Test within the last ten years. They must have at least six months health care and/or research experience.

In addition, they must have completed the following preparatory science courses: complete courses in inorganic and organic chemistry; a complete introductory course in animal biology or zoology; and general statistics or biostatistics. General college physics is highly recommended.

They also must have completed the following upper division science courses:

- human or animal physiology (lower division, combined anatomy/physiology course(s) do not satisfy this requirement);
- a minimum of two upper division level courses (highly recommended are endocrinology and histology; also recommended are cell biology, cell physiology, genetics, molecular biology, microbiology, neurobiology, and parasitology);
- general introductory biochemistry (a combined organic/biochemistry course does not satisfy this requirement).

Applicants must have achieved at least a 3.00 cumulative grade-point average on all course work completed at the college or university level. The admissions committee gives special attention to applicants’ performance in science courses. In the past, successful applicants have had a cumulative and science grade-point averages of 3.50; a total of 132 semester hours of college credit, of which 69 semester hours were in the sciences; and more than 3,700 hours of clinical and/or research experience.

Satisfaction of the basic admission requirements does not ensure acceptance into the Physician Assistant Program. The admissions committee selects the applicants it considers best qualified. Applicants with previous health care experience involving direct patient contact or scientific background receive preferential consideration. The committee requests interviews with the most qualified applicants.

Each new class begins the last week in May. Applications are accepted from September 1 to January 1. Each applicant must complete the Physician Assistant Program application and submit at least three letters of recommendation. All application materials, GRE scores, and prerequisite requirements must be completed by the January 1 application deadline.

Expenses

In addition to general University student expenses, students in the Physician Assistant Program are responsible for the purchase of their medical uniforms and diagnostic equipment, approximately $1,000. Microscopes are not required.

Combined Degree Programs

The Physician Assistant Program offers a three-year combined degree with either the Department of Exercise Science (College of Liberal Arts) or the Department of Preventive Medicine and Environmental Health (College of Medicine). Consult the Physician Assistant Program for information about the combined degree programs.

Courses

117:1 Physician Assistant Clinical Second Year
- History, development of physician assistant profession. Open only to Physician Assistant Program students.

117:102 Introduction to the Medical History and Physical Examination for Physician Assistant Students
- Basic examination techniques for physical data gathering, problem oriented medical records, their applications in obtaining accurate health history, detecting variations from the normal state through physical exam, interviewing skills, inspection and observation, use of medical equipment. Open only to Physician Assistant Program students.

117:103 Introduction to Research Design and Methodology
- Design, implementation of research project, from conception of question to development of a study plan; literature review, formulation of research question, common research design presentation; types of sampling, measurement scales: design and administration of consent forms, questionnaires, interview protocols; use of secondary data sets. Open only to Physician Assistant Program students.

117:104 Interpretation of Medical Literature
- Peer review process, format for research and clinical review article; library use, computerized searches; development of framework for analyzing research articles; article critique. Open only to Physician Assistant Program students.

117:105 Preventive Medicine for Physician Assistant Students
- Epidemiology; clinical preventive medicine: occupational, environmental, public health; emphasis on application of skills to disease control, clinical prevention. Open only to Physician Assistant Program students. Same as 63: 105.

117:201 Independent Study
- Health care project; research, writing of clinical review paper, diagnostic or treatment article, case study, or research paper. Open only to Physician Assistant Program students.

Biochemistry

Head: Alan G. Goodridge


Associate professor: Theodore A. Koerner, David H. Price, Larry S. Tobacman, Daniel L. Weeks

Associate professor emeritus: Gene F. Lata

Adjunct professor: Nancy C. Stellwagen

Associate professor Theodore A. Koerner, David H. Price, Larry S. Tobacman, Daniel L. Weeks

Associate professor emeritus: Gene F. Lata

Adjunct associate professor: Robert E. Cohen

Assistant professors: Robert J. Deschesnes, Pamela Ceyer, Andrew D. Robertson, Madeline A. Shea, Marc S. Weld

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

Graduate degrees: M.S., Ph.D. in Biochemistry

Biochemistry is the study of the basic chemical processes that occur in all living systems. Currently one of the most active sciences, it also 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 administers undergraduate programs and grants undergraduate degrees in biochemistry. See the College of Liberal Arts introductory section of the Catalog for general information about undergraduate study at the University.

The department offers both Bachelor of Science and Bachelor of Arts degrees; requirements are outlined below. Students choose the advanced science electives to supplement biochemical studies or as part of a minor or a double major (e.g., 2: 128 Fundamental Genetics or 22C:7 Introduction to Computing with Fortran). Science elective courses need not be numbered above 100 to be counted toward the degree.

Bachelor of Science

The B.S. degree program in biochemistry prepares students to work in positions that require a basic mastery of 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.

In addition to the College of Liberal Arts General Education Requirements, the B.S. degree in biochemistry requires 76-78 semester hours in courses, as follows.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 M:25-26</td>
<td>Calculus I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>22M:35-36</td>
<td>Engineering Calculus I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>2:10-11</td>
<td>Principles of Biology I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>4:13</td>
<td>Principles of Chemistry I</td>
<td>3 s.h.</td>
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<tr>
<td>4:14</td>
<td>Principles of Chemistry II</td>
<td>3 s.h.</td>
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<tr>
<td>4:16</td>
<td>Principles of Chemistry Lab I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>4:121-122</td>
<td>Organic Chemistry I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>4:131</td>
<td>Physical Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>99:101</td>
<td>Technical Writing in Biochemistry</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>99:130</td>
<td>Biochemistry and Molecular Biology I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:140</td>
<td>Experimental Biochemistry</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:155</td>
<td>Research, Independent Study</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Students who have completed 2:3 Principles of Animal Biology may use that class instead of 2:10-11 if they declare a biochemistry major by the first day of class fall 1996.

In addition, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include 4 semester hours or more of 99:155 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. Students should consult with an adviser in the College of Education.

Honors

Qualified students may earn an honors degree in biochemistry. They must be enrolled in the College of Liberal Arts Honors Program and receive close personal attention from the biochemistry faculty members who serve as research advisers. Honors students 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, prelaw, psychology, or journalism. This prepares them for one of the many vocations on which biochemistry has an impact.

Graduate Programs

The College of Medicine administers graduate programs in biochemistry; graduate degrees are granted through the Graduate College. See the College of Medicine introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

The Department of Biochemistry offers programs of study leading to the M.S. and Ph.D. degrees. The department also offers opportunities for qualified and interested students to pursue combined programs leading to the M. S.-M.D. or Ph. D.-M.D. (medical scientist training) degrees.

The focus of the graduate program is on the individual student. In the first year, students’ educational needs are met with formal course work and tutorial research experiences that serve as the basis for selecting a thesis topic.

First-year students spend half of their time taking biochemistry courses-usually 99:241, 99:242, 99:282, and the interdisciplinary molecular biology courses 142:210 and 142:215 (for course descriptions, see “Molecular Biology” in this section of the Catalog). Students spend the other half of their time working in three different faculty laboratories (99:261 Research Techniques), learning research techniques in the context of ongoing projects.

After the first year, students choose research laboratories for Ph.D. thesis research, begin their thesis projects, and take courses that supplement and complement their interests and preparation. During this time, they must complete a minimum of 9 semester hours consisting of a seminar and two short courses (1 semester hour each) in biochemistry and 6 semester hours of elective science courses (100 or 200 level) in other departments.

The comprehensive examination is taken in May of the second year. After this examination, students are admitted formally to degree candidacy and concentrate on thesis research. The program culminates in the successful defense of the completed thesis work before an examining committee.

In addition to meeting these requirements and the general ones 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 small research seminar groups and receive close personal attention from the biochemistry faculty members who serve as research advisers.

Admission

The graduate program in biochemistry is sufficiently flexible 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 course in biochemistry, but those with demonstrated ability may make up deficiencies after they enroll.

Minimum requirements for admission to the department include a 3.00 undergraduate grade-point average and acceptable scores on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) General Test. Candidates are more competitive if they also submit scores for the advanced examinations in chemistry, biology, or biochemistry, molecular and cell biology.
Financial Aid

Usually, all students admitted to the Ph.D. graduate program in biochemistry receive financial assistance.

Research

The department’s current research interests include the study of protein structure and function, complex carbohydrate structure and function, regulation of gene expression, mechanisms involved in transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, structure, membrane determinants of cell shape and motility, and mechanisms of hormone action.

Facilities

The Department of Biochemistry occupies modern research quarters in the Bowen Science Building, where the Departments of Anatomy, Microbiology, Pharmacology, and Physiology and Biophysics also are located. Most of its research and teaching facilities are located on a single floor. However, a few of the department’s research groups are located in adjacent buildings.

The University of Iowa maintains a number of central research support facilities and equipment that promote campuswide interactions between research groups. These include the Electron Microscopy Facility, Fermenter Facility, Image Analysis Facility, High Field NMR Facility, High Resolution Mass Spectrometry Facility, and Weeg Computing Center. Other facilities operated by the College of Medicine and available to biochemistry researchers include the Protein Structure Facility, Flow Cytometry Facility, DNA Synthesis Core Facility, Molecular Biology Core Facility, Hybridoma Facility, ESR Facility, Radiation Facility, and Cytogenetics Facility.

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 can provide virtually all of the equipment required for modern biochemical research. Examples of such equipment include analytical and preparative ultracentrifuges, computerized fluorescence, optical rotatory dispersion, high-field NMR, ultraviolet-visible and rapid kinetic instruments, infrared spectrometers, amino acid analyzers, protein sequenator, peptide synthesizer, gas chromatography, preparative high performance liquid chromatography, liquid scintillation counters, electrophoresis equipment, instrumentation for protein X-ray crystallography, computer terminals, a number of Cary spectrophotometers, an automatic DNA synthesizer, and an automatic DNA sequencer.

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 near the Bowen Science Building. Excellent resources also are provided by other deparmental branches of the University Libraries system and by computer access to Bibliographic Retrieval Services.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>99:000</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>99:050</td>
<td>Orientation and Introduction to the Reid of Biochemistry</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>99:101</td>
<td>Technical Writing in Biochemistry</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>99:120</td>
<td>Biochemistry I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:130</td>
<td>Biochemistry and its Application to Other Areas of Basic Science</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:140</td>
<td>Biochemical Genetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>99:150</td>
<td>Biochemistry for Physician Assistant Students</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>99:160</td>
<td>Biochemistry for Pharmacy Students</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:161</td>
<td>Biochemistry for Dental Students</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:162</td>
<td>Biochemistry for Pharmacists</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:241</td>
<td>Biophysical Chemistry I</td>
<td>1-4 s.h.</td>
</tr>
<tr>
<td>99:242</td>
<td>Biophysical Chemistry II</td>
<td>1-4 s.h.</td>
</tr>
<tr>
<td>99:257</td>
<td>Topics in Biochemistry</td>
<td>1.2 s.h.</td>
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<tr>
<td>99:272</td>
<td>Seminar in Cellular and Molecular Biology</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>99:275</td>
<td>Perspectives in Biocatalysis</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>99:282</td>
<td>Seminar in Biochemistry</td>
<td>0-4 s.h.</td>
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</table>

The University of Iowa program is one of the few in the country with a required rotation for medical students. Each third-year medical student spends two weeks in the clinic and attends about ten one-hour lectures. A good cross section of patients is available due to the mixture of primary and tertiary care patients, including a large number referred from Student Health Service. Additional patients are seen at the nearby Veterans Affairs Medical Center.

Various electives are available for fourth-year medical students, including further clinical experience, dermatologic research, and special studies.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>62:1</td>
<td>Clinical Dermatology</td>
<td>2 s.h.</td>
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<tr>
<td>62:2</td>
<td>Dermatology Elective</td>
<td>S.S.</td>
</tr>
<tr>
<td>62:4</td>
<td>Research in Dermatology</td>
<td>arr.</td>
</tr>
</tbody>
</table>

The Department of Dermatology instructs medical 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.

The University of Iowa program is one of the few in the country with a required rotation for medical students. Each third-year medical student spends two weeks in the clinic and attends about ten one-hour lectures. A good cross section of patients is available due to the mixture of primary and tertiary care patients, including a large number referred from Student Health Service. Additional patients are seen at the nearby Veterans Affairs Medical Center.

Various electives are available for fourth-year medical students, including further clinical experience, dermatologic research, and special studies.
DIETETIC INTERNSHIP

Director: Suzanne Davis Koury
Assistant director: Marlys Dunphy

The University of Iowa Hospitals and Clinics offers a Dietetic Internship Program that is fully accredited by the Commission on Dietetic Registration of the American Dietetic Association (ADA) and that qualifies graduates to take the exam for qualification as a Registered Dietitian (RD). Clinical dietitians and food service system managers of The University of Iowa Hospitals and Clinics Diet Department provide the clinical teaching for the program. Courses in the program are administered by The University of Iowa College of Medicine. The following courses are required.

50:201-202 Dietetics Seminar 2 s.h.
50:203-204 Clinical Dietetics 4-8 s.h.
50:205-206 Projects in Dietetics 2 s.h.
50:209-210 Hospital Dietary Administration 3-8 s.h.
69: 104 Principles of Human Pathology 1 s.h.

The following are recommended electives.

50:207-208 Dietetic Research arr.
50:216 Analysis of Food Service Systems arr.

Students generally complete the program with 12 semester hours 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, most typically the master’s degree in preventive medicine, health education, or business administration.

The University of Iowa Hospitals and Clinics awards a certificate to program graduates.

To be admitted to the program, applicants must meet the requirements of The University of Iowa College of Medicine and must complete a didactic program in dietetics that has accreditation/approval of the ADA Council on Education’s division of education. Students must enter the program in the fall semester. The postmark deadline for application is February 15.

The University of Iowa Hospitals and Clinics pays an internship stipend that partially covers educational and living expenses.

For descriptions of program courses, see “Nondepartmental Courses” in the College of Medicine section of the Catalog.

FAMILY PRACTICE

Head:
Professors: Charles E. Driscoll, Craig L. Gjerde, Glenys O. Williams
Professor emeritus: Reuben B. Widner
Clinical professor: John E. Sutherland
Associate professor: David M. Rosenthal
Clinical associate professors: Robert L. Friedman, Gerald D. Loos, Gerald J. McGowan, Jay Mindorff, Monte L. Skaufe
Assistant professors: Cherie A. Bagley, George R. Bergus, Richard C. Dobryts, John W. Ely, Daniel S. Fick, Gerald J. Jogerst, David Keans, Barcey T. Levy

The Family Practice Program was initiated in response to the need for more primary care physicians in Iowa and throughout the nation.

Appropriate course work in the department is included throughout the four-year M.D. program. The department’s 18 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 preceptorship with selected family physicians throughout the state. There is also opportunity for independent study during the senior year.

Residency Program

The department directs a three-year residency program whose graduates are eligible for certification by the American Board of Family Practice. This residency trains physicians to provide continuing and comprehensive care to the total family unit, using a concept that integrates the patient, health professionals, and the physician into an efficient and effective health care team.

The program is flexible, allowing residents freedom to tailor training to their interests and needs. It includes a broad spectrum of electives in internal medicine, pediatrics, obstetrics and gynecology, psychiatry, medical and surgical subspecialties, geriatrics, rural family practice, and community medicine. The program currently offers 72 individual rotations.

The hospital-based clinical experience is a unique combination of exposure to practice in The University of Iowa Hospitals and Clinics, where the patients have been referred by physicians from all over the state, and in various community hospitals, where inpatient care is of a nature more typical of family practice.

During the first year, a large portion of the program is based at Mercy Hospital in Iowa City, where residents have the opportunity for total participation in the practice—both inpatient and outpatient—of the private physician staff. Rotations are specifically designed to provide breadth of experience. In the second and third years, residents spend increasing time on rotation, at The University of Iowa Hospitals and Clinics. Residents may select model office experiences in the Family Practice Center or the Lone Tree rural office.

Facilities

The department office, located in the Steindler Building on the health center campus, is the center of department activities. It contains faculty offices and the Family Practice Model Office. It also has a rural satellite office located in Lone Tree, Iowa. Patient families are assigned to a resident with faculty supervision and are seen by appointment. Responsibility for the patient family remains with that resident for the period he or she is in the training program. Emphasis is placed on teaching the principles of practice management, including the organizational and administrative decision making, patient record and bookkeeping procedures, and chart auditing methodologies required to manage a private practice.

Courses

115:102 Human Dimensions in Medicine 1 s.h.
Small-group discussion in nontechnical, structured format.
115:201 Principles of Family Medicine 2 s.h.
Theory, practice of family medicine, with emphasis on clinical problems commonly seen by family physicians; role of psychosocial factors and family function in health, disease; social, political, economic factors that affect practice of family medicine.
115:202 Facilitation of Human Dimensions in Medicine 1 s.h.
115:205 Practical Clinical Nutrition 2 s.h.
Core knowledge, attitudes, skills for fulfillment of nutritional needs of patients in hospital, outpatient settings; preventive, therapeutic aspects of nutrition.
115:300 Preceptorship in Family Practice 3 s.h.
One-on-one experience with a practicing physician in his or her office; exposure to illnesses, conditions often seen in primary care; background for evaluation of family medical as a career alternative.
115:401 Family Practice Clerkship, Broadlawns Hospital, Des Moines Family Health Center 4 s.h.
Clinical experience in both inpatient, outpatient care. Consent of department required.
115:402 Emergency Room Outpatient Clinic Broadlawns Hospital, Des Moines 4 s.h.
Professionalism in delivery of quality primary care, knowledge of normal human behavior in socioeconomic environment; effects on people’s behavior, diseases. Consent of department required.
115:404 Preceptorship in Family Practice 4 s.h.
Experience in community practice of family medicine. Consent of individual preceptor, Department of Family Practice required.
115:405 Family Practice Clerkship, Cedar Rapids 4 s.h.
115:407 Family Practice Iowa Lutheran Hospital, Waterloo 4 s.h.
Open only to senior medical students.
115:408 U of I Family Practice Rotation 4 s.h.
Work with family practice residents, staff in day-to-day delivery of primary medical care in Family Practice Model Office; experience in the Family Stress Clinic observing family-centered counseling; nursing home visits work with departmental social worker.
115:409 Family Practice, 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. Consent of department required.
115:410 Independent Studies 4 s.h.
Work with departmental researcher on investigation in family medicine, community medicine, health care delivery, health maintenance, similar areas. Consent of department required.
115:411 Rural Preceptorship Family Practice 4 s.h.
115:412 Central Nervous System Management and Rehabilitation Covenant Medical Center, Waterloo, Iowa 4 s.h.
Work with patients who have neurological problems such as quadriplegia, paraplegia, brain injury, stroke; understanding of multiple issues involved in brain injury rehabilitation.
115:413 Primary Care Sports Medicine 4 s.h.
Sports clinics, on-field experiences, training room coverage, interdisciplinary approach; introduction to use of exercise prescription; month-long course.
115:419 Family Practice Clerkship, Davenport  4 s.h.
Assignment to problems commonly seen commonly in family practice office; supervision by residents and faculty for history and physical evaluation and diagnostic workshops and treatment of each specific problem; exposure to acutely ill patients in services of medicine, surgery, obstetrics, pediatrics. Consent of department required.

115:420 Family Practice Clerkship, Sioux City  4 s.h.
Methods common in family practice medicine; participation in care of patients seen by family practice physicians, residents. Consent of department required.

115:421 Family Practice Clerkship, Oakdale  4 s.h.
Rotation at Blackhawk Area Family Practice Center, work with patients from outpatient care through hospitalization; basic concepts of family practice, team concept in medical care.

115:425 senior Selective in Emergency and Outpatient Care  4 s.h.
Participation in acute emergency care, management of acute illnesses, follow up care when possible; Covenant Medical Center, Waterloo.

115:426 Geriatric Medicine in Family Practice  4 s.h.
Learning modules of geriatric medicine, patient care in local community settings (family practice office, day center, nursing home, HMO setting), assessment of patients at home, working in a multidisciplinary team.

115:427 Clerkship, Alchoholism Treatment Unit
Oakeal Campus  4 s.h.
Philosophy of substance abuse treatment program; community resources for treatment of substance abuse, treatment for medical conditions associated with chemical dependency; daily rounds, primary responsibility for patients; University of Iowa Chemical Dependency Center Unit.

115:430 Emergency Medicine: Marian Health Center, Sioux City  4 s.h.
Routine emergency problems in regional trauma center, functions of area hospital resource (St. Luke’s Medical Center). Option to accompany ambulance crews. Prerequisite: basic life support certification (can be arranged on arrival in Sioux City).

115:500 Family Practice Elective for physician Assistant Students
arr.

115:555 Family Practice I for Physician Assistant Students
6 s.h.
Delivery of ambulatory primary care, work under supervision of family practice residents, faculty, and private physicians; problems commonly encountered in ambulatory settings; study of selected patients, their families, skills, efficient use of allied health professionals.

115:556 Family Practice II for Physician Assistant Students
arr.

115:999 Special Studies Off Campus
Clerkships; may include community hospitals.

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**HOSPITAL AND HEALTH ADMINISTRATION**

**Director:** James E. Rohrer  
**Professors:** Samuel Levey, James L. Price  
**Emeritus:** Gerhard Hartman  
**Associate professors:** James E. Rohrer, Douglas S. Wakefield

Adjunct associate professors: Robert L. Ludke, William D. Petasnick  
Assistant professors: Michael S. Hendryx, Peter E. Hilsenhoff

Adjunct assistant professors: Richard F. Hansen, William W. Hesson, John H. Staley, Kenneth H. Yerinton

Associate: Elizabeth D. Shulman


Graduate degrees: M.A., Ph.D. in Hospital and Health Administration

For more than forty years, The University of Iowa’s Graduate Program in Hospital and Health Administration has educated health care executives to assume leadership roles in an increasingly complex and dynamic health care system. Consistently ranked among the foremost programs in the field, it has produced graduates who hold key positions in all areas of health management, both in the United States and abroad.

The program, which is accredited by the Accrediting Commission on Education for Health Services Administration, offers two graduate degrees—the Master of Arts (M.A.) and the Doctor of Philosophy (Ph.D.). The M.A. program meets the needs of those seeking managerial positions in health care or health-related organizations. The Ph.D. program prepares candidates for teaching or research careers, as well as senior-level executive and policy positions.

**Programs**

**Master of Arts**

The master’s degree in hospital and health administration requires four semesters of full-time study. The curriculum is designed to develop the knowledge, understanding, and skills that its graduates need to succeed in responsible managerial positions in hospitals, long-term care institutions, alternative delivery systems, ambulatory care facilities, planning agencies, consulting firms, and other health-related organizations.

First-year students examine the social, political, economic, and financial aspects of hospitals and health care organizations. At the same time, they are introduced to the concepts, tools, and techniques of effective managerial decision making, planning, and control. Second-year students are exposed to advanced management concepts and applications to health care.

Sixty semester hours of graduate work are required for the degree. Required courses, totaling 39 semester hours and representing a core of disciplines and fields of knowledge, are carefully sequenced to establish a unified approach to learning. The 60-semester-hour curriculum includes the following required courses.

- 80: 100 Executive Seminar Series  0 s.h.
- 80: 200 Introduction to Health Care Organization  3 s.h.
- 80: 201 Health Care Management  3 s.h.
- 80: 204 Quantitative Management in Health Care  3 s.h.
- 80: 205 Issues in Health Care and Policy  3 s.h.
- 80: 212 Health Economics I  3 s.h.
- 80: 213 Health Economics II  3 s.h.
- 80: 214 Financial Accounting for Health Care Organizations  3 s.h.
- 80: 215 Managerial Finance  3 s.h.
- 80: 216 Financial Management of Health Institutions  3 s.h.
- 80: 237 Legal Aspects of Health and Medical Care  3 s.h.
- 63: 158 Principles of Epidemiology  3 s.h.
- 63: 161 Introduction to Biostatistics  3 s.h.
- Electives*  24 s.h.

*At least 9 of these 24 semester hours must be taken in the hospital and health administration program.

A thesis is optional for the master’s degree but is recommended for students intending to pursue doctoral studies.

**Health care Analytics**

The need for data analysts and health care managers who are specialists in quality assurance (QA) and utilization review (UR), or planning is increasing as information systems improve and health care organizations search for ways to improve quality and constrain costs.

Responding to the emerging job market for health care analysts, The University of Iowa offers elective courses in the health analytics area within its M.A. program. Health analytics differs from general management in that it includes more advanced coverage of epidemiology, statistics, QA/UR, and health planning. Students learn to apply research methods, including small area analysis, to a variety of health management activities.

**H. H.A.-M.B.A. Program**

The H. H.A.-M.B.A. dual degree program is designed for students who want to combine the traditional strengths of the Graduate Program in Hospital and Health Administration with greater exposure to advanced management techniques.

A minimum of 72 semester hours must be earned for both degrees to be awarded. Of this number, 27 semester hours must be taken in the hospital and health administration program. This dual degree program can be completed in three years.
Five-Year Program

The University of Iowa was the first institution in the nation to offer a five-year program in hospital and health administration to nontraditional students. This option, which was launched with a grant from the W.K. Kellogg Foundation, enables qualified students to complete their baccalaureate and master’s degrees in five years rather than the usual six.

To be eligible for admission, students must complete all general requirements for a baccalaureate degree at their undergraduate institution by the end of the summer session of their junior year.

During the senior year, students are enrolled in the program in hospital and health administration as undergraduates. After completing the first year of study, the bachelor’s degree is conferred by the undergraduate institution. Students are then admitted formally to The University of Iowa Graduate College. The master’s degree is conferred after completion of the second year of study.

Joint Programs

Students who wish to pursue an integrated program combining a graduate degree in hospital and health administration with that of another field are encouraged to do so. In addition to the M.A.-M.B.A. dual degree program, joint programs currently are offered with the College of Law (J. D.) and the Program in Urban and Regional Planning (M.A.).

Other alternatives may be established on an individual basis. Students interested in a joint program should discuss their plans with both academic units and indicate their interest when submitting application materials.

Summer Internships, Fellowships, Residencies

The program facilitates placement of students in optional summer internships the summer between the first and second years of study. Most students choose to complement their academic training with an administrative postgraduate fellowship or residency. Such experiences afford a valuable means of observing, developing, and demonstrating practical management techniques and skills. The program takes an active role in assisting students to identify and secure fellowship and residency positions.

Doctor of Philosophy

The Ph.D. program, the nation’s first doctoral program in hospital and health administration, prepares students to assume positions in teaching and research as well as senior policy and executive assignments. Graduates of the program demonstrate advanced capabilities in research and management that enable them to work effectively in a wide variety of health-related organizations.

The Ph.D. requires completion of a minimum of 90 graduate semester hours, comprehensive examinations, and a dissertation. Doctoral candidates prepare dissertations based on original research that tests, extends, or applies concepts or principles to a problem in health care. The program requires all doctoral students to develop expertise in three areas of study. These areas and the required courses are as follows.

**HEALTH SERVICES MANAGEMENT AND POLICY**
80:229 The Politics of Health Policy 3 s.h.
80:251 Planning for Health Policy 3 s.h.
80:253 Seminar: Health Systems Management 3 s.h.
**Elective** 3 s.h.

**RESEARCH METHODOLOGY AND STATISTICS**
80:261 Health Services Research I 3-4 s.h.
80:262 Health Services Research II 3-4 s.h.
80:263 Independent Research Project arrangement

**ADVANCED STATISTICAL TECHNIQUES**
Doctoral students also are required to complete at least four courses (a minimum of 12 semester hours) from a statistics sequence. They may choose the general measurement/statistics sequence, as follows.

7P:243 Intermediate Statistical Methods 3 s.h.
7P:244 Correlation and Regression Statistical Methods 4 s.h.
80:265 Application of Multivariate Statistical Methods 3 s.h.
**Elective** 3 s.h.

Or they may choose another statistical sequence depending on their choice of minor area.

**MINOR**
Students must complete at least 12 semester hours in a discipline such as regional planning, epidemiology, sociology, political science, social psychology, management science, or economics.

Alumni Association

An active alumni association supports the program in a number of ways, including scholarships, curriculum consultation, continuing education, research, and fund development. The association also functions as a network for persons entering the profession. Alumni serve as visiting faculty, consultants, and as preceptors for summer internships, residencies, and fellowships.

Each fall, the program sponsors the Executive Symposium, a two-day conference for health care executives, featuring presentations by leaders in the health care field. This event brings together alumni, students, educators, and leaders of the health care industry to address and discuss critical issues in health care. Recent symposia have addressed the changing role of the physician, the balance between business ethics and the healing mission, prospects for a new era in American health care, leadership in health care, and managerial applications of health services research.

Admission

Applicants to the master’s program are required to hold a baccalaureate degree (except for early admission program applicants). Applicants to the Ph.D. program generally are expected to hold master’s degrees in health-related fields, although other degrees are considered. A 3.00 grade-point average (on a 4.00 scale) is required for M.A. applicants. A 3.25 grade-point average (on a 4.00 scale) is required for Ph.D. applicants. Graduate Record Examination (GRE) General Test verbal and quantitative scores at the 50th percentile or Graduate Management Admission Test (CMAT) scores above 550 are preferred. Courses in finance, economics, and statistics are strongly recommended.

International students must have a 600 TOEFL. All applicants are required to submit academic transcripts, GRE or CMAT scores, three letters of recommendation, and a Statement of Objectives form (available from the program).

Generally, admissions are made for the fall semester only. Campus visits are encouraged and personal interviews are required prior to admission. For those unable to interview on campus, arrangements are made to interview with a program alumni in the applicant’s home area.

Financial Aid

Approximately three-quarters of the students in the program receive some form of financial aid. Every effort is made to provide financial assistance to all students who demonstrate need.

In addition to various scholarship, grant, and loan programs administered by the University, the program provides qualified students with research assistantships that afford valuable experience in health services research and management projects. Research assistants work 10 to 20 hours per week and must apply for reappointment each semester. Appointment as a research assistant provides a stipend and entitles nonresident students to in-state tuition rates.

In addition to these student financial aid programs, opportunities exist for part-time employment both on and off campus. Further information and application forms for financial aid are available from the Office of Student Financial Aid.

Center for Health Services Research

The Center for Health Services Research (CHSR), the research division of the Graduate Program in Hospital and Health Administration since 1981, is the University-wide focal point for a broad-based program of health services research.

With the coordination and support of the CHSR, faculty and staff from colleges and departments throughout the University investigate the organization, delivery, efficacy, and financing of health care services. CHSR interests embrace a broad spectrum of perspectives and disciplines, including management science, health care organization, economics, geography, organizational behavior, psychology, operations research, sociology, preventive medicine and environmental health, preventive and community dentistry, nursing, and clinical medicine.

Through its research activities, the center promotes links among health organizations throughout the Midwest. CHSR also fosters
frequent exchanges with other universities, state government, professional and provider associations, policy and planning groups, insurance organizations, health delivery institutions, and other members of the health services research community.

Master’s and doctoral students from the program are encouraged to become involved in the center's projects and activities.

**Courses**

80:100 Executive Seminar Series 0 s.h.
Issues, topics, governing health care industry; talks by executives from academic health centers, health related associations, multinational systems, government agencies, health maintenance organizations, community hospitals, health insurance industry. Consent of instructor required.

80:200 Introduction to Health Care Organization 3 s.h.
Basic arrangements of services in the United States; social, political, psychological, economic forces that shape health services; determinants of use, amounts and types of health resources available; methods of financing, government regulations, current issues, etc. as 60:200.

80:201 Health Care Management 3 s.h.
Application of basic management principles such as leadership, goal setting, decision making, human resource management, health care organizations. Consent of instructor required.

80:202 Hospital Organization and Management 3 s.h.
Organizational structure, medical staff organization, departmental operations. Prerequisite: 80:201.

80:203 Strategic Management and Marketing 3 s.h.
Management, marketing. Prerequisite: 80:201.

80:204 Quantitative Management in Health Care 3 s.h.
Quantitative decision making in health field: utility of model building approach to managerial decision making: formulation, solution, interpretation of management science models; application of models to health field. Consent of instructor required.

80:205 Issues in Health Management and Policy 3 s.h.
Integration and application of theories, concepts, principles, case studies. Consent of instructor required. Prerequisite: 80:201.

80:206 Management of Alternative Delivery Systems 3 s.h.
Organization, management of HMOs, PPOs, emphasis on managed care programs, utilization management techniques. Prerequisite: 80:201 or consent of instructor.

80:207 Group Practice and Ambulatory Care Administration 3 s.h.
Delivery of ambulatory health care services, for profit and nonprofit organizations; emphasis on manpower education and training, personnel administration, clinic scheduling, managerial accounting, other internal issues. Prerequisite: 80:201.

80:208 LongTerm Care Administration 3 s.h.
Problems of health care delivery for elderly, those with functional disabilities; proposals for federal payment programs; issues in providing care for chronically ill. Prerequisite: 80:201 or consent of instructor.

80:210 Long-Term Care Management 3 s.h.
Options, organization, delivery in the United States; needs of long term care patient; emphasis on management of facilities, such as nursing homes, hospices, specialized care units. Offered through Saturday and Evening Class Program.

80:211 Health Behavior and Promotion 3 s.h.
Health behavior and attitudes, definitions in health and illness, clinician-patient interactions, sociobehavioral correlates of disease development, adherence/compliance behavior, health promotion/modification programs, strategic targeting and medical ethics; focus on social marketing strategies in public and private health sectors related to medical management, and outcome research. Graduate standing required. same as 60:250.

80:212 Health Ecomics I 3 s.h.
Intermediate demand level theory, production theory, industrial organization; analysis of health care markets, role of insurance. Consent of instructor required.

80:213 Health Economics II 3 s.h.
Continuation of 80:212. Health care markets; emphasis on analysis of cost-effectiveness, government policy. Prerequisite: 80:212 or consent of instructor.

80:214 Financial Accounting for Health Care Organizations 3 s.h.
Introduction to financial accounting practices in health care delivery organizations.

80:215 Managerial Finance 3 s.h.
Asset valuation, capital structure, capital budgeting under uncertainty, intertemporal efficiency, mergers and acquisitions.

80:216 Financial Management of Health Institutions 3 s.h.
Issues in working capital management, capital financing analysis and rate setting, budgeting, reimbursement, internal control mechanisms, financial management information systems; emphasis on uses of reformation from accounting, financial management systems. Consent of instructor required.

80:217 Topics in Health Insurance 3 s.h.
Financing of personal health care; theory of insurance, health insurance market, cost sharing, HMOs, PPOs, public and catastrophic health insurance, AIDS and insurance, care for uninsured poor; emphasis on public policy. Prerequisite: 80:212 or consent of instructor.

80:219 Managerial Decision Support Systems 3 s.h.
Development, application by health care managers; issues, methods development of databases, decision making under different environmental assumptions; role of managers in decision making; use of quantitative, qualitative decision-making aids. Consent of instructor required.

80:223 Managerial Ethics of Health Delivery 3 s.h.
Implications of other standards for health care management; administrative issues; organizational strategies for resolving conflicts. Consent of instructor required.

80:224 Human Resources Management 2 s.h.
Major issues, laws, management processes, procedures, psychological factors characteristic of human resources management in health care organizations. Consent of instructor required.

80:225 Topics in Health Care Information Systems 3 s.h.
Use of information technology in the health care system; computerized patient records, community health networks, patient data confidentiality requirements, software for medical centers, current issues facing information systems executives. Consent of instructor required.

80:234 Administrative Internship arr.

80:235 Administrative Residency/Fellowship arr.

80:250 Planning for Health Policy 3 s.h.
How public policy affecting health is generated, promoted, adopted, implemented; emphasis on political analysis of who gets what, how they get it. Consent of instructor required. Prerequisite: 80:200 or equivalent.

80:251 Planning for Health Policy 3 s.h.
Conceptual framework, empirical base for analyzing organization, delivery of medical care; literature, policy regarding accessibility, productivity, program benefits, quality, assessment of need and supply. Consent of instructor required. Prerequisite: 80:200 or equivalent.

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. Prerequisite: 80:251.

80:255 seminar in Contemporary Health Issues 0 s.h.
Review of literature on methodological, substantive issues in health services research. Consent of instructor required.

80:261 Health Services Research I 3-4.5 s.h.
Fundamental of problem formulation, design, methodology; emphasis on evaluation of health services. Consent of instructor required.

80:262 Health Services Research II 3-4.5 s.h.
Continuation of 80:261, which is prerequisite; defense of research protocol.

Continuation of 80:262, which is prerequisite; design, pursuit, completion of project.

80:266 Application of Multivariate Statistical Methods 3 s.h.
Prerequisite: 80:262.

80:280 Independent Study and Research arr.
Supervised tutorial. Consent of instructor required.

Research for preparation dissertation; seminar presentation. Consent of instructor required.

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**HUMAN NUTRITION**

Director: Ekhard E. Ziegler

Professors: Robert S. Bar (Internal Medicine), Edward F. Bell (Pediatrics), C. Patrick Burns (Internal Medicine), George D. Cain (Biolog), Kevin P. Campbell (Physiology and Biophysics), Robert A. Clark (Internal Medicine), P. Michael Corm (Pharmacology), John E. Donelson (Biochemistry), F. Jeffrey Field (Internal Medicine), Alice B. Fulton (Biochemistry), Alan G. Goodridge (Biochemistry), James W. Hanson (Pediatrics), Lawrence G. Hanssicker (Internal Medicine), C. Thomas Kisker (Pediatrics), Ronald M. Lauer (Pediatrics), Victoria S. Lim (Internal Medicine), John P. Long (Pharmacology), Frank J. Longo (Anatomy), Rex Montgomery (Biochemistry), Arthur Nowak (Pediatric Dentistry-Pediatrics), John D. Olson (Pathology), Jeffrey E. Pessin (Physiology and Biophysics), William J. Rhead (Pediatrics), Peter A. Rubenstein (Biochemistry), Alexander Sandra (Anatomy), William I. Sivitz (Internal Medicine), Arthur A. Spector (Biochemistry/Internal Medicine), Lewis D. Stegin (Pediatrics/Biochemistry), John B. Stokes (Internal Medicine), Robert B. Wallace (Preventive Medicine/Internal Medicine), Health/Internal Medicine, Daniel L. Weeks (Biochemistry), Joel V. Weinstock (Internal Medicine), John A. Widness (Pediatrics), Ekhard E. Ziegler (Pediatrics)

Professors emeriti: Samuel J. Formon (Pediatrics), Harold P. Schofield (Internal Medicine)

Associate professors: Lawrence P. Kaminski (Internal Medicine), Gene F. Lata (Biochemistry), Jeffrey C. Murray (Pediatrics), Charles J. Rebouche (Pediatrics), Thomas J. Schmidt (Physiology and Biophysics), Helmut G. Schrott (Preventive Medicine and Environmental Health/Internal Medicine), Eva Tsakian (Pediatrics)

Assistant professors: William S. Moye-Rowley (Physiology and Biophysics), Gregory E. Tennyson (Internal Medicine), Marc S. Wold (Biochemistry)

Graduate degree: Ph.D. in Human Nutrition

The Ph.D. program in human nutrition is no longer accepting applications and will close when currently enrolled students graduate.

The goal of the doctoral program in human nutrition is to train individuals for careers in research and teaching. Most individuals who complete this training find employment as faculty members of medical centers, departments of nutrition in schools of public health, various governmental agencies, or industry. Students accepted into the program without previous graduate training devote approximately five years to acquiring the necessary breadth in biomedical education, laboratory methodology, and animal models for study of human problems, and experimental design for clinical investigation.

Course work is arranged to permit students to be involved in research throughout each semester. During the first 24 to 36 months of the training program, students rotate through three research laboratories. It is anticipated that students eventually will choose to perform...
Admission

The doctoral program in human nutrition attracts students with a wide range of interests and training. Prerequisites for admission to the program include completion of accepted courses in college-level biology, mathematics through calculus, organic chemistry, and physics; a 3.20 minimum undergraduate record in biology, chemistry, biochemistry, and mathematics. Entering students generally are expected to have a strong record in biology, chemistry, biochemistry, microbiology, genetics, and mathematics. Deficiencies in specific areas often can be remedied through appropriate course work taken during the first year of graduate studies.

Facilities

Students can participate in a wide range of nutrition research activities carried out in a number of departments, including anatomy, biochemistry, biology, internal medicine, pediatrics, pediatric dentistry, pharmacology, physiology, and preventive medicine and environmental health.

Financial Aid

Financial support is available to all students in the program.

COURSES

65:201 Nutrition Seminar 1 s.h. Student presentations of research projects. Offered full semesters.
65:202 Nutrition Seminar 1 s.h. Student presentations of research projects. Offered spring semesters.
65:204 Clinical Nutrition 4 s.h. Assessment of nutritional status, age- and sex-specific considerations, common clinical disorders, formula diets, parenteral nutrition.
65:206 Projects in Nutrition arr.
65:207 Nutrition Research arr.
65:208 Nutrition Research arr.
65:213 Nutrition Methods 2 s.h.
65:213 Nutrition Methods 2 s.h. History of nutrition research; animal models—selection, environmental factors, diets, feeding methods, sample collection, body composition; human subjects—ethics, dietary intake, metabolic balance studies, indirect measurements of body composition, compliance. Offered fall semesters.

IMMUNOLOGY

Director: Robert A. Clark
Professors: Michael Apicella (Microbiology), Robert Ashman (Internal Medicine), Zuhair Ballas (Internal Medicine), Bradley Britigan (Internal Medicine), John Butler (Microbiology), Thomas Casale (Internal Medicine), Robert Clark (Internal Medicine), John Cowdery (Internal Medicine), Nancy Goecken (Internal Medicine), Charles Grose (Pediatrics), Michael Hart (Pathology), Louis Hoffmann (Microbiology), Gary Hunninghake (Internal Medicine), William Johnson (Microbiology), John Kemp (Pathology), David Lubaroff (Urology), Richard Lynch (Pathology), William Nauseef (Internal Medicine), Hal Richerson (Internal Medicine), John Weiler (Internal Medicine), Joel Weinstock (Internal Medicine)
Associate professors: Gail Bishop (Microbiology), Morris Dailey (Pathology), Elizabeth Field (Internal Medicine), Ted Koemer (Pathology), Gary Koretzky (Internal Medicine), Charles Lutz (Pathology), Stanley Naides (Internal Medicine), Thomas Waldschmidt (Pathology), Mary Wilson (Internal Medicine)
Assistant professors: John Hart (Microbiology), Arthur Krieg (Internal Medicine), Larry Schlesinger (Internal Medicine), George Weiner (Internal Medicine)
Graduate degree: Ph.D. in Immunology
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.

Curriculum

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 a strong record in biology, chemistry, biochemistry, microbiology, genetics, and mathematics. 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 didactic training in the conceptual and methodologic aspects of immunology. There is ample opportunity for study in a variety of fields that interface with immunology.

The following courses are required of all students.

142:210 Molecular Biology I 3 s.h.
142:215 Molecular Biology II 3 s.h.
148:201 Immunology I 3 s.h.
148:202 Immunology II 3 s.h.
148:211 Graduate Immunology Seminar (required each year for four years) 1 s.h.
148:221 Advanced Topics in Immunology 3 s.h.
148:231 Research in Immunology arr.
148:270 Ethics and Responsible Conduct in Research 1 s.h.

Although Molecular Biology I-II is required, students with experience in this area or special interests in alternative course areas may petition for substitution of other appropriate courses. In addition to the above requirements, students must take at least 6 semester hours of approved elective courses.

After successful completion of the comprehensive examination, usually at the end of the second year of graduate study, students advance to candidacy for the Ph.D. degree, devoting full time to thesis research and writing the dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense in accord with the rules and regulations of the Graduate College, students are awarded the Ph.D. degree in immunology.

Financial Aid

Students in the Ph.D. program in immunology receive stipends and tuition support from a variety of sources. Available aid includes training grants from the National Institutes of Health and University of Iowa fellowships and graduate research assistantships.

Facilities

Training is conducted in laboratories and teaching facilities of the Departments of Internal Medicine, Pathology, Microbiology, Pediatrics, and Urology. Faculty laboratories as well as central research core facilities provide students with access to state-of-the-art research equipment.

Admission

Information regarding the program and application procedures is available from the program office.

Courses

148:201 Immunology I 3 s.h. Ontogeny, activation and function of T lymphocytes and B lymphocytes; mechanisms of immunologic tolerance; major histocompatibility complex; antigen presentation; emphasis on experimental methods for analysis of these processes. Prerequisites: college biology, genetics, general chemistry, and organic chemistry.
148:201 Immunology II 3 Sh.
Immunoglobulin molecular mechanisms, genetic regulation, generation of antibody diversity, ligand-receptor interactions, cell signaling; immune effector mechanisms, including cytotoxic T cells, natural killer cells, macrophages, neutrophils, complement, and other effector cells; cell migration and homing; emphasis on problem oriented experimental approaches.
Prerequisite: 148:201.

148:211 Graduate Immunology Seminar 1 s.h.
Graduate standing in Immunology Ph.D. Program required.

148:221 Advanced Topics in Immunology 3 Sh.
In-depth analysis of selected areas. Prerequisites: 148:201 and 148:202.

148:231 Research in Immunology arr.
Laboratory research. Graduate standing in immunology required.

148:270 Ethics and Responsible Conduct in Research 3 s.h.
Conducting and reporting research, peer review, mentoring and laboratory supervision, human and animal subjects, misconduct, conflict of interest. Same as 127:270, 132:270, 142:270.

INTERNAL MEDICINE
Head: Francois M. Abboud


Associate professors emeriti: David F. Funk, Jeanne M. Smith


Clinical associate professors emeriti: Oscar C. Beazley, Eugene J. East, George G. Spellman, Jr., Lawrence F. Staples


Adjunct assistant professors: Kathrynn G. Lamping, Donald D. Lund, Benet J. Pardini


Clinical assistant professor emeritus: Edward Posner, Jr.

Instructors: Thomas L. Carlisle, Choon-Kee Lee


Associate research scientists: Gienna L. Fry, Pas-Min T. Loh, Satya Mathur, Michael V. Rollins

Assistant research scientist: Gerene M. Denning, Russell F. Hustad, Shankar Iyer, Jheem Medh, Shuba Murthy, Oyebode Olakamni, Lynda Ostgardt, Linda G. Snelhaar, Laura Stunz, John L. Teem, Sue Travis, Chong Zhang

The Department of Internal Medicine is concerned with the diagnosis, prevention, and treatment of diseases of adults. The educational, patient care, and research activities of the department cover all facets of internal medicine, including general internal medicine and primary care as well as the specialized areas of allergy-immunology, cardiology, clinical epidemiology, clinical pharmacology, oncology, endocrinology, pulmonary medicine, gastroenterology, hematology, infectious diseases, renal and hypertensive disease, and rheumatology. The department is organized into divisions in order to carry out these many functions.

Members of the department bear a major share of the teaching of clinical-medical students in 50:11 Introduction to Clinical Medicine, in which students begin to learn the pathophysiology, signs, symptoms, complications, prevention, and treatment of disease. Students are taught to obtain histories, perform physical examinations, and plan rational approach to diagnosis and treatment.

In the third year, students are assigned for nine weeks to medical services at The University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center. Under the guidance of the Department of Internal Medicine house staff and faculty members, they actively participate as members of the ward team in diagnosis and treatment.

In the fourth year, students may select a clinical experience to fit their own plans from courses offered in general medicine and the specialties.

Graduate Program

The department offers straight internships and an approved residency program of high quality. In addition, most of the department’s specialty divisions offer clinical and research fellowships for periods of two to three years. These permit the development of special knowledge and skills relevant to the specialty. Candidates for internships are accepted from approved medical schools. Postdoctoral fellows who have received their doctorates also are accepted for programs in which the major focus is laboratory research.

Facilities

Teaching occurs in the medical services and in the laboratories of The University of Iowa Hospitals and Clinics in Iowa City, the Veterans Affairs Medical Centers in Iowa City and Des Moines, and Iowa Methodist Hospital in Des Moines.

Courses

78:100 Internal Medicine Elective for Physician Assistant Students

78:101 Clinical Internal Medicine Elective

78:110 Internal Medicine Cardiology Elective for Physician Assistant Students

78:120 Internal Medicine Elective (EKG) for Physician Assistant Students

78:130 Internal Medicine Elective (Oncology) for Physician Assistant Students

78:150 Development of diagnostic skills in clinical oncology; methods of staging common cancers; principles and practice of rational chemotherapy; therapy and outpatient management of patients with solid tumors, lymphomas, and hematologic leukemias.

78:180 Internal Medicine Elective for Physician Assistant Students

78:190 Internal Medicine Elective for Physician Assistant Students

78:201 General Medicine Diagnostic Clinic

78:202 Subinternship in internal Medicine

78:250 Clinical Allergy Immunology Elective for Physician Assistant Students

78:251 General Medicine Diagnostic Clinic

78:280 General Medicine Diagnostic Clinic
78:253 Survey of Immunology 4 s.h.
base principles of immunology, immunopathology. Same as 61:147.
78:253 Clinical Immunology and Immunopathology: Laboratory and Clinical Correlations 4 S.h.
Same as 69:249.
78:290 Research in Allergy Immunology 2 s.h.
Work in faculty directed investigations.
78:300 Clinical Cardiology 4 S.h.
Development of breadth, depth in diagnostic and therapeutic problems encountered in clinical cardiology; participation in evaluation, decisions regarding patients seen in coronary and intensive care units, in house consultations, Cardiovascular Clinic; techniques, regimens of managing acute myocardial infarction, p.m. and postoperative conditions, chronic states in postoperative patients during clinic follow-up visits.
78:304 Electrocardiography 2 S.h.
Scalar electrocardiography and vectorcardiography, exercise studies including submaximal treadmill testing; initial interpretation of current tracings, daily staff conferences, treadmill studies in cooperation with a cardiac fellow.
78:306 Cardiac Intensive Care Medicine 4 S.h.
Work as subint in the coronary care unit; responsibility for evaluation, management of patients; indepth clinical, didactic exposure to critical care medicine.
78:310 Clinical Cardiology: VA Hospital, Des Moines 4 S.h.
Work on medical service under supervision of cardiac disease instructors; electrocardiography experience, consultations in cardiovascular disease; work in cardiac, pacemaker clinics of coronary care-intensive care units.
78:320 Clinical Cardiology, Iowa Methodist Des Moines 4 S.h.
New patient evaluation, inpatient referral; returning patients in follow-up visits. Interpretation of current tracings, daily staff conferences, management of patients with terminal illness; interaction with physicians, other health team members, patients, families to deal effectively with prospect of death; evaluation, treatment, education of people affected by HIV virus.
78:554 Internal Medicine Elective (Infectious Disease) for Physician Assistant Students 2 S.h.
Philosophy, methods of hospice palliative care for dying patient; work as part of hospice care team; evaluation of patients with terminal illness; interaction with physicians, other health team members, patients, families to deal effectively with prospect of death; evaluation, treatment, education of people affected by HIV virus.
78:555 Internal Medicine for physician Assistant Students 2 S.h.
Infectious diseases, host's reaction to disease processes; diagnosis, management of patients, including proper use of antibiotics; techniques of diagnostic microbiology; evacuation, follow-up for patients seen on consult service; daily clinical rounds.
78:590 Research in Infectious Disease 2 S.h.
Rural infections, infection in mice, experimental antibiotic study, staphylococcal infections in mice, experimental infections and biochemistry in tissue culture, septicemia and fungal infections. Consent of instructor required.
78:600 Pulmonary Disease 2 S.h.
Breath, depth in diagnostic, therapeutic problems encountered in clinical pulmonary disease; evacuation 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 diagnostic procedure for patients examined as part of consultation service; work up and responsibility for new patients in follow-up service; management of acute respiratory failure in intensive care units at University Hospitals and Clinics, Veterans Affairs Medical Center.
78:610 Research in pulmonary disease 4 S.h.
Faculty directed investigation; clinical laboratory, pulmonary physiology, biopsy procedures in lung disease, pulmonary pathology, metabolic behavior of mycobacterium tuberculosis, clinical pharmacology. Consent of instructor required.
78:615 Pulmonary Inpatient Ward, Iowa Methodist Des Moines 4 S.h.
Diagnostic, treatment of pulmonary diseases according to standard procedures; work up and responsibility for new pulmonary inpatients, under supervision of senior residents, staff, teaching conferences.
78:620 Clinical Pulmonary Disease, Iowa Methodist Des Moines 4 S.h.
78:625 Pulmonary Medicine and Critical Care, Gundersen Clinic 4 S.h.
78:650 Nephrology 2 S.h.
Evaluation of patients from University Hospitals and Clinics or Veterans Affairs Medical Center; assistance in diagnostic procedures for patients examined as part of consultation service; participation in patient followup through weekly return clinic.
78:650 Research in Nephrology 2 S.h.
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 followup through weekly return clinic.
78:662 Clinical Nephrology, Iowa Methodist Hospital, Des Moines 4 S.h.
78:673 Adult and Pediatric Nephrology and Hypertension 2 S.h.
Same as 70:653.
78:680 Internal Medicine Elective (Pulmonary Medicine) for Physician Assistant Students 4 S.h.
Diagnostic skills in pulmonary medicine, acquaintance with wide variety of acute, chronic lung diseases; interpretation of pulmonary function studies and arterial blood gas analysis, assistance with pleural biopsies, thoracosentesis, intubations, tube thoracostomies; one-on-one teaching. Open only to seniors.
78:690 Research in Renal, Hypertension, and Electrolyte Disorders 2 S.h.
Laboratory investigations in renal physiology; participation in ongoing research involving large and small animals, using classical clearances and autoradiography for studying aspects of sodium metabolism, influence of drugs. Open only to seniors.
78:700 Clinical Rheumatology 2 S.h.
Clinical features of rheumatic diseases, their differential diagnosis, principles of management; patients from arthritis clinic, inpatient consultation service of University Hospitals and Clinics, Veterans Affairs Medical Center.
78:720 Clinical Rheumatology, Iowa Methodist Des Moines 4 S.h.
78:800 Internal Medicine Geriatrics 4 S.h.
Health monitoring, evacuation of patients 75 and older on University Hospitals and Clinics internal medicine service; emphasis on diseases that occur most commonly or exclusively in elderly.
78:850 Geriatrics Seminar 1 S.h.
78:808 Independent Study in Geriatrics 2 S.h.
78:832 Introduction to Medical Psychiatry 2 S.h.
78:835 Senior Clinical Clerkship in Medical Psychiatry 4 S.h.
78:902 General Medicine: Gundersen Clinic, La Crosse, Wisconsin 4 S.h.
78:903 General Internal Medicine, Keokuk Iowa 4 s.h.
78:910 Inpatient Ward Service: VA Hospital, Des Moines 4 s.h.
78:915 Inpatient Service, Iowa Methodist Des Moines 4 s.h.
78:997 Senior Honors Seminar in Medicine 1 S.h.
78:998 Special Study on Campus: Clinical Medicine 1 S.h.
78:999 Special Study off Campus: Clinical Medicine 1 S.h.
Consent of department required.

Director: Robert E. Fellows (Physiology and Biophysics)
Associate director: William Johnson (Microbiology)

The Iowa Medical Scientist Training Program is a combined M. D./Ph.D. program that prepares trainees for careers in academic medicine, with emphasis on preclinicaland clinical research. To accomplish this, the program provides efficient integration of graduate education, doctoral research training, and all clinical studies necessary for the medical degree. Requirements for both the M.D. and Ph.D. degrees can be completed in approximately seven years of continuous study.

In the first two years of the program, trainees are associated primarily with the College of Medicine for the basic science and introductory clinical portions of its curriculum. The basic science core of the first three semesters consists of formal courses in biochemistry, histology, anatomy, embryology, biostatistics, biomedical ethics, physiology, microbiology, neuroscience, general and systemic pathology, pharmacology, and preventive medicine. These courses provide the language and organizing concepts of the preclinical sciences that are the foundation for subsequent training in both research and clinical medicine.

During the summer between the first and second years, trainees engage in research under the supervision of a member of the program faculty. Entering trainees may also choose to do research during the summer before their first year.

In the second semester of the second year, trainees enroll in an introduction to clinical medicine sequence that provides instruction and practice in medical history taking, physical diagnosis, and laboratory diagnosis, as well as...
Insight into major health problems. In the summer of the second year, they engage in clinical clerkships involving primary patient care. This early clinical component integrates scientific and clinical aspects of the program and provides an overview of research needs in the health care system. Trainees maintain contact with clinical medicine during the graduate phase of the program through participation in weekly clinical conferences and voluntary clinical activities.

In years three through six, the graduate phase of the program, trainees enroll full-time in the departments they select in the middle of the second year. This graduate experience is designed to prepare trainees for careers as independent investigators. Graduate training is supervised by departmental faculty and is pursued with the rigor and standards applied to all doctoral students at The University of Iowa.

Third-year trainees take advanced courses while defining their selection of a thesis problem and adviser. After completion of required courses and qualifying examinations, trainees focus on original research, the essential requirement for the doctoral degree. While it is not possible at the outset to predict the amount of time this segment of the program will require, most trainees complete the Ph.D. research and thesis defense in approximately four years.

Immediately after completing graduate study, trainees reenter the medical curriculum to begin the final year of clinical clerkships. They return to the clinical environment with a wealth of information and sophistication in laboratory science that can be applied to problems of human disease, and as the final year progresses, they continue to develop the clinical skills they began to acquire in the second year of the program. After completing this clerkship year, trainees receive the M.D. and Ph.D. degrees.

Financial Aid
Trainees admitted to the first year of the program receive stipend and tuition awards provided by a Medical Scientist Training Program grant from the National Institutes of Health (NIH) to The University of Iowa. Support from this grant and/or institutional sources is continued through the completion of combined degree studies, provided the trainee’s progress remains satisfactory. Support for trainees admitted to advanced standing in the program is arranged on an individual basis.

Admission
Applicants must meet requirements for admission to the College of Medicine and the Graduate College at The University of Iowa. Trainees are expected to 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, applicants should demonstrate aptitude for and commitment to scientific research, usually through productive research experience as undergraduates. Applications are accepted from students who request admission to the first year of the program. Consideration also is given to applications for admission to advanced standing from individuals currently enrolled in the College of Medicine at The University of Iowa.

Application Procedures
The University of Iowa College of Medicine participates in the American Medical College Application Service (AMCAS). Program applicants should instruct AMCAS to forward their credentials to the College of Medicine (AI131) as soon as possible after June 15. At the same time, applicants should request a separate Medical Scientist Training Program application from the program office. Applications to the Medical Scientist Training Program are reviewed by the program selection committee after AMCAS applications are received.

The deadline for receipt of applications is November 15. Applications should be submitted as early as possible to facilitate review by both the College of Medicine admissions committee and the program selection committee. Equal consideration is given to all applicants regardless of their state of residence.

Courses
50:211 MSTP Summer Research 1 arr.

Summer research experience. Open only to students in the Medical Scientist Training Program.

50:212 MSTP Clinical Conference 1 s.h.

Clinical research, with patient presentations. Open only to students in graduate phase of Medical Scientist Training Program.

Medical Technology
See “Division of Associated Medical Sciences.”

Microbiology
Head: Michael A. Apicella

Professors: Michael A. Apicella, Robert F. Ashman (Internal Medicine), Steven Clegg, John E. Butler, John Cazin, Jr., Charles D. Cox, Lacy Daniels, Michael G. Feiss, Rudolph P. Galasok (Obstetrics and Gynecology), David T. Gibson (Biocatalysis Professor), E. Peter Greenberg, Charles Grove (Pediatrics), Louis G. Hoffmann, William Johnson, John D. Kemp (Pathology), David M. Lubratto (Urology), Richard G. Lynch (Pathology), Allen J. Markovetz, Stanley Perlman (Pediatrics), Erich W. Six, Donald P. Stahly, George V. Stauffer, Mark F. Stinski, C. Martin Stolzfrus

Associate professors: Gail A. Bishop (Internal Medicine), Morris O. Dailey (Pathology), Caroline S. Harwood, Jose E. Rodriguez, Mary E. Wilson (Internal Medicine)

Associate professors emeriti: Robert L. Richardson, Donald H. Walker, Jr.

Assistant professors: John T. Harry, Bradley D. Jones, Richard J. Roller

Undergraduate degree: B.S. in Microbiology; minor in Microbiology

Ph.D. degrees: M. S., Ph.D. in Microbiology

Microbiology is the branch of biological sciences that deals with the smallest living things: bacteria, 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 fraction of contemporary biochemical research employs microbiological and immunological methods.

Some research areas in which both practical and theoretical advances are occurring include the study of microbial species and viruses that infect animals, including man, plants, and other microbes; the use of 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 selection and culture of hybrid cell lines able to produce antibodies of single type (monoclonal antibodies).

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. For the graduate with a bachelor’s degree in microbiology, positions are available in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies).

Students who continue beyond the bachelor’s degree have more advanced career opportunities in these same areas as well as college and university teaching.

Undergraduate Program
The College of Liberal Arts administers undergraduate programs and grants undergraduate degrees in microbiology. See the College of Liberal Arts introductory section of the Catalog for general information about undergraduate study at the University.

Bachelor of Science
Undergraduate students majoring in microbiology at The University of Iowa must meet the General Education Requirements of the College of Liberal Arts. They must complete a minimum of 21 semester hours in microbiology to obtain a B.S. degree. No more than 2 semester hours of 61:161, 61:171, or 61:172, and 1 semester hour of 61:163 may be counted. Students may count 61:218 and 61:220 toward this requirement only once.

Students who want to apply for certification by the National Registry of Microbiologists are required to earn 30 semester hours of credit in biological sciences, 20 of which must be in microbiology. Certification is required for employment or advancement in some areas, primarily in diagnostic microbiology.

Students may take microbiology courses more advanced than 61:157 General Microbiology
Microbiology majors must take the following courses in addition to required microbiology courses.

- 4:13 Principles of Chemistry I 3 s.h.
- 4:14 Principles of Chemistry II 3 s.h.
- 4:16 Principles of Chemistry Lab I 2 s.h.
- 4:121 Organic Chemistry I 3 s.h.
- 4:122 Organic Chemistry II 3 s.h.
- 4:141 Organic Chemistry Laboratory 3 s.h.
- 99:120 Biochemistry and Molecular Biology I 4 s.h.
- 99:130 Biochemistry and Molecular Biology II 4 s.h.
- 22M: 16 Calculus for the Biological Sciences 4 s.h.
- 22M:25 Calculus I 4 s.h.
- 22M:35 Engineering Calculus I 4 s.h.
- *2:10-1 1 Principles of Biology I-II 8 s.h.
- 29: 11-12 College Physics 8 s.h.
- *Students who completed 2:3 Principles of Animal Biology may use that class instead of 2:10-11 if they declare a microbiology major by the first day of class fall 1996.

Recommended courses include the following.

- 8W:100 Nonfiction Writing 3 s.h.
- 8W: 112 Writing for the Sciences 3 s.h.
- 22C:7 Introduction to Computing with FORTRAN 3 s.h.
- 22C:16 Introduction to Programming with Pascal 4 s.h.
- 22C:17 Programming Techniques and Data Structures 3 s.h.

**Honors**

The honors program is open to juniors and seniors who have a grade-point average of at least 3.20 overall and 3.20 in microbiology courses. The program requires 25 semester hours of course work in microbiology, including 6 semester hours in 61:171-172 Honors Microbiology. These two courses constitute an introduction to experimental research. At the end of the research, students present a written report. Students who successfully complete these requirements receive the B.S. degree with honors.

**Minor**

An undergraduate minor in microbiology requires at least 15 semester hours of credit in microbiology courses with a minimum grade-point average of 2.00. Of these 15 semester hours, at least 12 must be taken at the University of Iowa in courses numbered 61:103 and above.

**Graduate Programs**

The College of Medicine administers graduate programs in microbiology; graduate degrees are granted through the Graduate College. See the College of Medicine introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

The objectives of the graduate programs in microbiology are to help students become highly qualified in research and in teaching of microbiology.

Five areas are included in the program: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, and animal virology. Several of these specialized areas involve interdisciplinary training both within and outside of the department, so students receive broad experience during their course of study. An interdisciplinary Ph.D. program in Immunology is also available.

Students working for the Ph.D. may obtain an M.S. during their graduate work or proceed directly toward the Ph.D.

All students admitted as candidates for advanced degrees are expected to assist in departmental teaching.

Incoming students choose a research supervisor who serves as chair of their advisory committee. This committee assists students in planning a program of study and, from time to time, reviews students' progress.

The department cooperates with other departments in the various colleges on campus, affording ample opportunity for students to avail themselves of diverse course offerings, seminars, and research programs. For example, courses and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, biocatalysis/biotechnology, and electron microscopy are taught on an interdepartmental basis.

**Master of Science**

Candidates for the M.S. are required to take a minimum of 12 semester hours of microbiology courses in three of the five different subdiscipline available in microbiology. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the M.S. committee. Additional course requirements or selections 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.

**Doctor of Philosophy**

The minimum course requirements for the Ph.D. are one course in each of four subdiscipline (of the five subdiscipline available in microbiology) or 15 semester hours of course work in two different areas. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the Ph.D. committee. Students also must pass a comprehensive examination and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

**Admission**

Prospective graduate students should become familiar with the general admission requirements of the Graduate College. Departmental requirements include a review and formal vote by the faculty before students are admitted. Before beginning graduate work, students must have completed courses in biological sciences, chemistry (inorganic and organic), mathematics including calculus, and physics. Students admitted without the above course work must take it during the first year of graduate school. Students should have at least a 2.70 grade-point average to be admitted to the graduate program in microbiology. Preference is given to students applying for the Ph.D. program.

**Facilities**

The department shares the Bowen Science Building with the Departments of Anatomy, Biochemistry, Pharmacology, and Physiology and Biophysics. Laboratory space and modern equipment are available for teaching and research.

**Courses**

- 61:000:000 Cooperate Education Internship 0 s.h.
- 61:105 Medical Microbiology arr. Principles, methods essential to study of micro-organisms, their isolation and identification; microorganisms involved in infectious diseases; current concepts of immunology. Open only to College of Medicine students or to others with consent of course director.
- 61:12 Health Sciences Microbiology 4 S.h. Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Open only to dental, physician assistant, and pharmacy students.
- 61: 147 Survey of Immunology 4 S.h. Fundamentals of cellular and molecular immunology, their application to clinical problems; participation by faculty from microbiology, internal medicine, pathology, andology. Prerequisite: 61:157 with a grade of C or higher.
- 61:157 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. Prerequisite: 2:10 and 2:11. Corequisite: 4:121.
- 61:159 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. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.
- 61:160 Microbial Physiology 3 S.h. Microbial cell structure and function, growth, energy metabolism, biosynthesis, control mechanisms; laboratory supplement in 61:180. Prerequisites: 61:157 with a grade of C or higher and a biochemistry course.
- 61:161 Problems in Microbiology arr. Research under faculty supervision. Undergraduate major and consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.
61:163 Seminar Microbiology 1 s.h.
Current topics in microbiology, immunology. Prerequisite: 61:157 with a grade of C or higher.

61:164 Microbiology 4 s.h.
Emphasis on medical microbiology, principles of immunology. Sophomore prerequisites or consent of instructor required.

61:165 Clinical Laboratory Microbiology arr.
Fundamental, practical training in isolating identifying bacteria and fungi from clinical materials. Consent of instructor required. Prerequisite: 61:159.

61:166 Clinical Laboratory Virology arr.
Fundamental, practical training in viral isolation, laboratory diagnosis of viral infections. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:167 Advanced Immunology 3 s.h.
Integration of concepts in cellular and molecular immunology, with emphasis on analysis of original research; principles of experimental design, methods, data interpretation applied to advances in study of the immune system. Consent of instructor required. Prerequisite: 61:103 or 61:147.

61:168 Introduction to Animal Viruses 4 s.h.
Lecture and laboratory course designed for undergraduate students majoring in a biological science. Basic physical, chemical, physiological, genetic characteristics of animal viruses, their association with human disease; laboratory emphasis on methods in basic, clinical laboratory virology. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:169 Medical Mycology 4 s.h.
Same as 2:137.

61:170 Microbial Genetics 3 s.h.
Genetics of bacteria, bacteriophages; laboratory supplement in 61:175. Prerequisite: 61:157 with a grade of C or higher or consent of instructor.

61:171 Honors Microbiology arr.
Experimental research. Junior or senior standing and 3.20 grade-point average or above required.

61:172 Honors Microbiology arr.
Prerequisite: 61:171.

61:175 Microbial Genetics Laboratory 2 s.h.

61:179 Bacterial Diversity 4 s.h.
Isolation, cultivation of bacteria from a variety of habitats; physiological, genetic characteristics of bacterial groups. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:180 Microbial Physiology Laboratory 2 s.h.

61:207 Advanced Topics in Immunology 2 s.h.
Literature: skill in scientific presentation. Consent of instructor required. Prerequisites: 61:147 or equivalent.

61:215 Genetics seminar 0-2 s.h.

61:217 Immunology Research Seminar 1 s.h.
Current University of Iowa research.

61:218 Electron Microscopy Techniques 3 s.h.
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 immune EM, freeze fracture. Consent of instructor required. Prerequisite: one course in a biological science. Same as 2:218, 60:218.

Individual designed projects, library searches, seminar and workshop participation. Consent of instructor required. Prerequisites: completion of introductory EM course. Same as 2:220, 60:220.

61:250 Molecular Biology of Bacterial Pathogens 2 s.h.
Molecular mechanisms of virulence factors, including genetic regulation; genetic basis of bacterial disease production, control of virulence gene expression. Consent of instructor required. Prerequisite: 61:170 or 142:210 or a bacterial genetics course.

61:261 Research: Microbiology arr.
Open only to advanced degree candidates in microbiology. Consent of instructor required.

61:263 Graduate Student Research Seminar 1 s.h.
Presentation of thesis work in progress. Open only to microbiology graduate students.

61:268 Molecular Biology of Animal Viruses 3 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. Major in a biological science required. Prerequisite: 61:170 or equivalent, or a course in biochemistry.

61:275 Perspectives in Biochemical Genetics 1 s.h.

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**Molecular Biology**

**Chair:** Mark F. Stitski

Professors Arthur Arnome (Biochemistry), Mario Ascoli (Pharmacology), Steven Clegg (Microbiology), John E. Donelson (Biochemistry), Michael Feiss (Microbiology), George R. Gerde (Biochemistry), E. Peter Greenberg (Microbiology), Gary Gussin (Biological Sciences), Jim Jung-Ching Lin (Biological Sciences), Robert E. Malone (Biological Sciences), John R. Menninger (Biological Sciences), William M. Nauseef (Internal Medicine), Stanley Perlman (Pediatrics), Jeffrey E. Pessin (Physiology and Biochemistry), Bryce V. Plapp (Biochemistry), Peter A. Rubenstein (Biochemistry), Erich W. Six (Microbiology), David R. Soll (Biological Sciences), Michael Solursch (Biological Sciences), George V. Stauffer (Microbiology), Mark F. Stitski (Microbiology), C. Martin Stolfus (Microbiology), Joseph A. Walder (Biochemistry), Michael Welsh (Internal Medicine)

Associate professors: Charles T. Lutz (Pathology), Deborah Segaloff (Physiology and Biochemistry), Labonir P. Turek (Pathology), Daniel L. Weeks (Biochemistry)

Assistant professors: Gail Bishop (Microbiology), Charles T. Lutz (Pathology), Robert J. Deschuesnes (Biochemistry), Jan Fasse (Biological Sciences), Pamela Geyer (Biochemistry), Steven Green (Biological Sciences), Wayne A. Johnson (Physiology and Biochemistry), Gary Koretsky (Internal Medicine), W. Scott Moyer-Rowley (Physiology and Biochemistry), Rodney Nagoshi (Biological Sciences), David H. Price (Biochemistry), Andrew F. Russo (Physiology and Biochemistry), Ming-Chie Shih (Biological Sciences), Curt D. Sigmund (Internal Medicine), Mark S. Weld (Biochemistry)

Graduate degree: Ph.D. in Molecular Biology

**Graduate Program**

The Molecular Biology Ph.D. 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. The principal didactic component of the program is a sequence of core courses in prokaryotic and eukaryotic molecular biology. Students engage in laboratory research immediately upon enrollment and progress rapidly to original thesis projects that lead to the Ph.D. in molecular biology.

**Requirements**

The graduate 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.

**Curriculum**

The curriculum consists of a sequence of required and elective courses that provide didactic training in molecular biology and ensure a comprehensive exposure to the concepts and experimental methodologies of this field. Because of the diversity of biological research problems that can be pursued by employing molecular biological approaches, the program provides a variety of options for specialization in particular areas of interest.

The following courses are required of all students.

99:241 Biophysical Chemistry 1 4 s.h.
142:210 Molecular Biology I 3 s.h.
142:215 Molecular Biology II 3 s.h.
142:270 Ethics and the Responsible Conduct in Research 1 s.h.
142:305 Molecular Biology Research 1 sh (required of all students throughout the first and second years) 4 s.h.

In addition, all students are required to complete at least 10 semester hours in four or more approved elective courses.

After successful completion of the comprehensive examination, usually at the end of the second year of graduate study, students advance to candidacy for the Ph.D. degree, where they devote full-time effort to completing thesis research and writing the Ph.D. dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense in accordance with rules and regulations of the Graduate College, students are awarded the Ph.D. degree in molecular biology.

**Financial Aid**

Graduate students in the Molecular Biology Ph.D. Program receive stipends and tuition support from institutional and extramural sources, including training grants from the National Institutes of Health as well as University of Iowa fellowships and graduate research assistantships.

**Facilities**

Training is conducted primarily in laboratories and teaching facilities of the Departments of Biochemistry, Biological Sciences, Internal Medicine, Microbiology, Pathology, Pediatrics, and Physiology and Biophysics. Faculty laboratories and central research facilities available to students provide access to the most up-to-date research equipment.

**Admission**

Individuals seeking application materials and information about graduate training in molecular biology should contact the Molecular Biology Ph.D. Program.
Courses

142:210 Molecular Biology I  3 s.h.
Mechanism, regulation of RNA, DNA, protein biosynthesis in prokaryotic systems; emphasis on experimental methods for biochemical, genetic, recombinant DNA analysis of these processes. Perquisites: 2:128, and 99:130 or equivalent.

142:215 Molecular Biology II  3 s.h.

142:220 Cell Biology I  3 s.h.
Integration of concepts of cell biology, original research data concerning structure, chemistry, function of cellular organelles, 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. Perquisites: introductory biology course, an additional course in biology/cell biology, and 99:130 or equivalent. Same as 72:220.

142:225 Cell Biology II  3 s.h.

142:270 Ethics and Responsible Conduct in Research  1 s.h.
Cultural and reporting research, peer review, monitoring and laboratory supervision, human and animal subjects, misconduct, conflict of interest. Same as 127:270, 132:270, 148:270.

142:290 seminar in Molecular Biology  1 s.h.
Research findings in molecular biology. May be repeated. Open only to students in the Molecular Biology Ph.D. Program or to others with consent of instructor.

142:301 Directed Study in Molecular Biology  arr.
Consent of instructor required.

142:305 Molecular Biology Research  arr.
Open only to molecular biology graduate students. Consent of instructor required.

142:405 Thesis  Open only to advanced degree candidates in molecular biology

NEUROLOGY

Head: Antonio R. Damasio


Professor emeritus: Arthur L. Bem (Psychology)

Associate professors: Matthew Rizzo, Michael Wall (Anatomy), professors Sue Barcellos, Birgitte Yamada

Assistant research scientists: Steven W. Anderson, Joseph Barrash, R. Dallas Jones, Hisashi Ohta

Graduate assistant scientists: Steven W. Anderson, Birgitte Yamada

NEUROSCIENCE

Chair: Joe D. Coulier

Professors: Paul J. Abbin (Speech Pathology and Audiology), Nancy C. Andreasen (Psychiatry), Ranbir K. Bhamgar (Pharmacology), Kevin P. Campbell (Physiology and Biophysics), P. Michael Corm (Pharmacology), Joe D. Coulier (Anatomy), Monio Damasio (Neurology), Hanna Damasio (Neurology), Jeffrey L. Denburg (Biological Sciences), Gary R. Dutton (Pharmacology), Robert E. Fellows (Physiology and Biophysics, Bruce J. Gantz (Otolaryngology), Gerald F. Gehalt (Pharmacology), Carl V. Gisdi (Exercise Science/Physiology and Biophysics), Isidore Gormezano (Psychology), Michael N. Hart (Pathology), Donald D. Heistad (Internal Medicine), James V. Hinrichs (Psychology), Richard R. Hurtig (Speech Pathology and Audiology), Jean Y. Jew (Anatomy), Alan Kim Johnson (Psychology), Heli-Kristi Kultas-Hinsky (Anatomy), Ramon Lim (Neurology), John P. Long (Pharmacology), Erich S. Luschei (Speech Pathology and Audiology), Stanley Perlman (Pediatrics), William J. Rhead (Pediatrics), Philip G. Schmid (Internal Medicine), Eugene Spaziani (Biological Sciences), Barbara A. Stay (Biological Sciences), Gary W. Van Hoesen (Anatomy), Edward A. Wasserman (Psychology), Terence H. Williams (Anatomy), George Winokur (Psychiatry), Chuan-Fang Wu (Biological Sciences)

Associate professors: Martin D. Cassell (Anatomy), Robert B. Felder (Internal Medicine), Nicholas J. Pantazis (Anatomy), Matthew Rizzo (Neurology), Robert L. Schelper (Pathology), William Talman (Neurology), Daniel T. Tranell (Neurology), Rafig Waziri (Psychiatry)

Graduate assistant professors: Kelly J. Cole (Exercise Science), Steven H. Green (Biological Sciences), Rodrigo O. Kalijis (Neurology), Steven A. Moore (Pathology), Sean P. Murphy (Pharmacology), Andrew F. Russo (Physiology and Biophysics), Erwin F. Shibata (Physiology and Biophysics), Daniel T. Tranell (Neurology)

Graduate degree: Ph.D. in Neuroscience

Graduate Program

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 behavior. Because of its interdisciplinary nature and the diverse backgrounds of entering students, the program provides considerable flexibility in curriculum structure. The plan of study for each student is developed to provide appropriate background courses as well as a selection of elective courses appropriate to individual training objectives.

The curriculum of the neuroscience program is based on two primary considerations: to provide a sequence of required courses that ensure graduate students a broad and comprehensive exposure to the conceptual and experimental foundations of modern neuroscience; and to provide a flexible program of elective courses and advanced training that, while taking into account the multidisciplinary nature of neuroscience, permits in-depth study within any of its five subdivisions-molecular neuroscience, cellular neuroscience, developmental neuroscience, neural systems, and behavioral neuroscience.

Curriculum

BACKGROUND COURSES

Students are expected to complete at least 3 semester hours in each of four fields: biochemistry, general physiology, cell biology, and statistics. As necessary, these requirements may be fulfilled by an approved combination of existing courses at The University of Iowa. These background course requirements 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 prior to entering the neuroscience program.

NEUROSCIENCE COURSES

ELECTIVE COURSES

All students in the neuroscience program are required to take three or more advanced elective courses, for a total of at least 6 semester hours. These are selected from an approved list of courses offered by the Departments of Anatomy, Biological Sciences, Pharmacology, Physiology and Biophysics, Psychology, and other departments of the Graduate College and College of Medicine. Elective courses are to be taken from at least two of the five subdivisions of the neuroscience program. Students should select courses from the subdivision representing their area of specialization and at least one course from a related subdivision.

Financial Mod

Graduate students in the Neuroscience Ph.D. Program are eligible for stipends and tuition support, including training grants from the National Institutes of Health and the National Institute of Mental Health, and University fellowships and graduate research assistantships.

Facilities

Training is conducted primarily in the laboratories and teaching facilities of the graduate Departments of Anatomy, Biological Sciences, Biochemistry, Pharmacology, Physiology and Biophysics, Psychology, and Speech Pathology and Audiology, and the clinical Departments of Neurology and Psychiatry. 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; and behavioral genetics.

Admission

Information about predoctoral and postdoctoral training opportunities in the neuroscience is available from the Neuroscience Program Office.

COURSES

66:100 Obstetrics and Gynecology for Physician Assistant Students
66:997 Research
66:998 Special Studies on Campus
66:999 Special Studies off Campus

Ophthalmology

Head: Thomas A. Weingeist
Professors Emeriti: Frederick C. Blodi, Paul Boeder, Edward S. Perkins
Assistant professor: H. Culver Boldt, Paul M. Munden, Chitraranjan V. Reddy

Ophthalmology is a medical and surgical specialty concerned with research, diagnosis, and treatment of diseases of the eye and its adnexa, including correction of refractive errors. Several subspecialties are represented in the department: ocular pathology and physiology, pediatric ophthalmology, retinal disorders, glaucoma, neuro-ophthalmology, echography, cornea and external diseases, vascular diseases, plastic surgery, contact lens and refractive service, and medical ophthalmic photography.
The department prepares students for careers in teaching and research. Its teaching program trains medical students and resident physicians, with emphasis on a scientific approach to problem solving in diagnosis and treatment. The residency program lasts three years, culminating in qualification for the examination of the American Board of Ophthalmology.

Facilities
The department maintains research laboratories for tumor diagnosis, pathology, electrophysiology, pupillography, and vascular disease. Clinical facilities in ophthalmology are available at The University of Iowa Hospitals and Clinics and at the Veterans Affairs Medical Centers in Iowa City and in Des Moines. The department also manages an eye clinic at the Broadlawns Medical Center in Des Moines. Each month the department sponsors a statewide program of continuing education. It also holds an annual alumni meeting, which is attended by nationally and internationally recognized ophthalmologists and vision scientists.

Programs
Clinical Program
Trainees enter this program directly from medical school through the National Internship Matching Plan. The program consists of a one-year categorical diversified orthopedic internship and four years in orthopedic residency.

During the internship year, trainees gain experience not only in clinical orthopedics but also in medicine, pediatrics, neurology, surgical specialties, intensive care, anesthesiology, and other services.

During the following years, residents gain experience in trauma, children’s orthopedics, adult orthopedics, neuromuscular disorders, rehabilitation, prosthetics and orthotics, rheumatology, and basic science as related to orthopedics. They take specialized courses in anatomy, bone histology, biochemistry, physiology, and pathology.

A weekly seminar covers biomechanics, kinesiology, and selected clinical subjects.

Academic Orthopedics Program
In addition to the training described above under the clinical program, this program includes an additional one or two years of research in any field in which the resident is interested, provided it is related to the musculoskeletal system. It may be done in one of the orthopedic laboratories or in a basic science department.

Laboratories
The orthopedics laboratories deal with problems in these major subject areas.

Biochemistry: the biochemistry of mucopolysaccharides and collagen, both normal and those altered in epiphyseal dysplasia and scoliosis.

Biomechanics: problems of the upper extremity; biomechanics of the spine, hip, and gait; total joint replacements (in conjunction with the College of Engineering).

Cell biology and pathology: ultrastructural studies on normal bones, cartilage, tendons, and muscles, and on those altered by experiment and disease.


Facilities
The department is housed in the Roy J. Carver Pavilion of The University of Iowa Hospitals and Clinics and has an active service in the Veterans Affairs Medical Center.

Facilities include 75 beds, an outpatient clinic, an outpatient operating room, a specialty library, a specialty radiology unit, and physical therapy 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 155 patients per day. Approximately 2,500 major operations are performed each year under the auspices of the department.

The department provides consulting service to University Hospital School, Regional Child Health Specialty Clinics, and two state schools for the mentally retarded.

Courses
Courses numbered 201 through 999 are open only to senior medical students.

OTTOLARYNGOLOGY—HEAD AND NECK SURGERY
Interim head: Bruce J. Cantz
Clinical assistant professor: Peter L. Alt

Clinical instructors: Phillip C. Lee, Russell E. Schurtz
Research scientists: Jose Assouline, Carolyn Brown, Lorriane K. Schum, Sue Ann Thompson, Nancy S. Tye-Murray
The department provides one of the oldest and largest otolaryngology-head and neck surgery programs in the world. Currently it has a full-time faculty of 19, including several members from plastic surgery, audiology, speech pathology and audiology, and dentistry (orthodontics and prosthodontics). The department’s main objective is to provide a high-level instructional program in otolaryngology-head and neck surgery for medical students and residents. To maintain a teaching program, the department’s faculty and staff carry a large patient load in head and neck oncology, head and neck plastic reconstructive surgery, facial trauma, craniofacial congenital defects (such as cleft lip and palate), neurotology and skull base tumors, pediatric and geriatric hearing problems, voice problems, peroral endoscopy, surgery for deafness (including cochlear implant), and all the areas usually considered otolaryngologic.

There are eight divisions in the department that make this program comprehensive: otology/neurotology and skull base surgery, plastic and reconstructive surgery of the head and neck, oncologic surgery of the head and neck, rhinology, pediatric otolaryngology, craniofacial defects, speech pathology and audiology, and research.

Another major objective of the department is to foster research programs designed to yield new knowledge in the field and provide models for student and resident research training. There are several large-scale research programs within the department in vestibular neurophysiology, cleft palate and other craniofacial defects, head and neck oncology, cochlear implants, nasopharyngology, facial nerve conduction, microvascular reconstructive surgery, craniofacial trauma, temporal bone, neuroelectric audiometry, bone resorption in ear disease, electrophysiology of the inner ear, psychoacoustics, and molecular genetics.

Many of these research programs receive federal and private financial support.

Residency Program

The residency program in otolaryngology is in accord with the requirements of the American Board of Otolaryngology and ACGME Residency Review Committee on Otolaryngology-Head and Neck Surgery. It consists of a four-year course of basic and clinical science. The basic science lectures and laboratory studies are conducted during the first three and one-half months of residence.

After passing an oral or written examination, students enter the clinical phase of the course, which includes supervised clinical and operative work, clinical conferences, and seminars pertinent to the practice of otolaryngology and its related fields.

An alternative research and clinical track is also available. Following one year of general surgery, residents may elect to enter a two-year research training fellowship followed by a four-year clinical residency. The research training fellowship is funded by an NIH National Research Service Award.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester hours</th>
</tr>
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<tbody>
<tr>
<td>68:3</td>
<td>Clinical Otolaryngology</td>
<td>2</td>
</tr>
<tr>
<td>68:100</td>
<td>Clinical Internship in Otolaryngology</td>
<td>arr</td>
</tr>
<tr>
<td>68:101</td>
<td>Head and Neck Oncology</td>
<td>arr</td>
</tr>
<tr>
<td>68:104</td>
<td>Basic Principles of Facial Plastic and Reconstructive Surgery</td>
<td>4</td>
</tr>
<tr>
<td>68:106</td>
<td>Pediatric Otolaryngology</td>
<td>arr</td>
</tr>
<tr>
<td>68:108</td>
<td>Otolaryngology Elective for Physician Assistant Students</td>
<td>arr</td>
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</tbody>
</table>

Participation in patient care with a multidisciplinary specialty team from plastic surgery, audiology, speech pathology, dentistry, observation of surgical procedures, examination of patients with pathologic conditions, including head and neck oncology, plastic reconstructive surgery, facial trauma, craniofacial congenital defects, hearing difficulties, voice problems.

68:199 Basic Otolaryngologic Science

Descriptive anatomy and physiology, surgical anatomy of head and neck, embryology, microbiology, pathology, pharmacology, anesthesia, allergy, oral surgery, radiology, speech pathology and audiology, psychology, scientific method; laboratory focus on head and neck dissection, histology of ear, temporal bone surgery.

68:202 Advanced Anatomy for Head and Neck Surgery

68:400 Dental Treatment of Maxillofacial Deformities

Clinical orthodontics for patients with maxillofacial deformities. Open only to dental graduate students.

68:401 Seminar: Maxillofacial Rehabilitation

1 Semester hour

Facial deformities. Open only to medical and dental graduate students.

68:402 Fixed Prosthesis in Maxillofacial Rehabilitation

Appliances. Open only to dental graduate students.

68:403 Restorative Dentistry in Maxillofacial Rehabilitation

Routine dental care in maxillofacial patient, how it differs from care in general population. Open only to dental graduate students.

68:404 Dental Management in Irradiated Patients

Diagnosis, treatment planning, radiation, surgical treatment of head and neck cancer. Open only to dental graduate students.

68:430 Maxillofacial Prosthesis

Clinical prosthetic treatment for patients requiring intra or extra oral prosthesis, including facial, body prostheses. Open only to prosthetic dentistry graduate students.

68:998 Special Studies on Campus

Adjunct associate: Thomas Persoon

Lecturers: Ruthanne Hyduke, Marian Schwabauer

Adjunct lecturer: John Abadi

Graduate degree: M.S. in Pathology

The department offers basic pathology courses to health science students; a clinical training program in medical technology; a master’s degree program; residency training programs leading to American Board of Pathology certification in anatomic pathology, clinical pathology, and neuropathology; a postdoctoral training program in clinical chemistry; fellowship training in pathology subspecialties; and postdoctoral research training in cellular and molecular pathology.

Programs

Clinical Education in Medical Technology

See “Division of Associated Medical Sciences” in this section of the Catalog.

Master of Science

The M.S. program in pathology is open to students with various educational backgrounds. The department particularly encourages applications from students with Bachelor of Science degrees in chemistry, biochemistry, biology, zoology, and medical technology, and from students with medical and dental degrees.

The M.S. program is flexible, but the department emphasizes two tracks, one to provide a research background for academically oriented resident physicians and for medical and dental students, the other for medical technologists who want to advance their training, usually by subspecialization in an area of laboratory medicine.

M.S. students participate in teaching, patient care, and research through the instructional laboratories of the department and The University of Iowa Hospitals and Clinics, and faculty members’ research laboratories.

Admission to the M.S. program requires a 3.00 grade-point average in science courses, a Graduate Record Examination (GRE) General Test combined verbal and quantitative score above 1200, and a personal interview. A brochure describing departmental course requirements and giving examples of the major academic tracks is available on request.

Residency Program

The department is approved for 20 residency positions in pathology, covering a training span of up to five years. The programs are designed to utilize the patient population of The University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center.

There is systematic rotation through the various laboratory services, including surgical pathology, autopsy pathology, cytology, clinical chemistry, clinical microbiology, hematology, immunopathology, and transfusion medicine. There also is opportunity for one to three years of additional fellowship training in most pathology subspecialties.
The department also offers a postdoctoral training program in clinical chemistry for biochemists and chemists, which is approved by the American Board of Clinical Chemistry.

In addition, the department provides six 12-month medical student fellowships and a variable 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 five are primarily in anatomic pathology.

**Postdoctoral Training**

The Department of Pathology offers postdoctoral programs in hematologyopathology, immunopathology, transfusion medicine, laboratory microbiology, cytopathology, neuropathology, and surgical pathology for physicians who have completed at least two years of residency training in pathology. These fellowships consist of one year of diagnostic work and up to two years of laboratory research.

The department also provides postdoctoral research training in immunology, neuropathology, biochemistry of hemostasis, cancer biology, and clinical microbiology, as well as in other areas of cellular and molecular pathology. These positions are open to individuals with either Ph.D. or M.D. degrees.

**Facilities**

The Department of Pathology is well-equipped to carry out the sophisticated technology of modern cellular and molecular pathology. It administers the 40,000 square feet of clinical laboratories of The University of Iowa Hospitals and Clinics and has individual research and core facility laboratories for cellular and molecular pathology research in the Medical Research Center, Medical Laboratories, and at the Veterans Affairs Medical Center. Also available are the College of Medicine Core Laboratories for nucleic acid chemistry, hybridoma production, flow cytometry, ultrastructural studies, protein structure, image analysis, electron spin resonance, mass spectrometry, nuclear magnetic resonance, and laboratory animal care.

**Courses**

69:000 Cooperative Education Internship 0 s.h.

Work experience in a hospital, research, environmental, or industrial laboratory setting. Open only to medical technology students.

69:104 Principles of Human Pathology 1 s.h.

Terms, mechanisms, principles of disease, ability to communicate these in simple terms. Open only to nutrition graduate students. Offered fall semesters.

69:119 Instrumentation in Clinical Laboratory Science 3 s.h.

Theory, practice of instrumentation used in clinical laboratories. Offered spring semesters.

69:120 Clinical Microscopy for Medical Technologists 1 s.h.

Theoretical and practical study of clinical laboratory science as used in study of body fluids; basic laboratory techniques.

69:121 Immunology for Medical Technologists 2 s.h.

Theory, practice of clinical immunology; methodology.

69:122 Clinical Chemistry for Medical Technologists 5 s.h.

Theory, practice of analytical biochemistry applied to disease states; methodology, automation, reagent preparation.

69:123 Immunohematology for Medical Technologists 3 s.h.

Theory, practice of coagulation, blood banking; donor services.

69:124 Clinical Hematology for Medical Technologists 5 s.h.

Theory, practice of laboratory hematology as applied to pathologic states; methodology, automation.

69:125 Microbiology for Medical Technologists 5 s.h.

Theory, practice of laboratory microbiology applied to pathologic microorganisms, including bacteria, parasites, fungi, viruses.

69:126 Clinical Chemistry for Medical Technologists 5 s.h.

Clinical rotation through University Hospitals and Clinics, Veterans Affairs Medical Center, other clinical laboratories. Open only to medical technology students.

69:127 Clinical Immunohematology for Medical Technologists 2 s.h.

Clinical rotation through University Hospitals and Clinics, Veterans Affairs Medical Center, other clinical Laboratories. Open only to medical technology students.

69:128 Clinical Microbiology for Medical Technologists 5 s.h.

Clinical rotation through University Hospitals and Clinics, Veterans Affairs Medical Center, other clinical laboratories. Open only to medical technology students.

69:129 Clinical Hematology for Medical Technologists 3 s.h.

Clinical rotation through University Hospitals and Clinics, Veterans Affairs Medical Center, or other hematology laboratories. Open only to medical technology students.

69:130 Clinical Pathology for Physician Assistant Students arr.

Theory, practice of selected clinical laboratory techniques, procedures; emphasis on effective use of clinical laboratory in the diagnosis, management of disease. Open only to physician assistant students.

69:131 Clinical Laboratory Science Seminar 1-2 s.h.

Open only to senior medical technology students.

69:132 Paralysis for Medical Technologists 1 s.h.

Theory, practice in Identification of pathogenic parasites.

69:133 Introduction to Human Pathology arr.

Human disease; basic disease processes, organ related and multisystem diseases. Offered fall semesters.

69:134 Clinical Research for Medical Technologists arr.

Open only to medical technology biotechnology track students.

69:135 Individual Study in Clinical Laboratory Science arr.

Management, education, or research theory and practice.

69:136 Independent Study in Immunology 1 s.h.

Open only to medical technology students.

69:137 Independent Study in Clinical Laboratory Instrumentation arr.

Open only to medical technology students.

69:150 Medical Cytogenetics 3 s.h.

Human chromosome structure, morphology; methods, mechanisms of preparative techniques; nature, mechanisms of chromosome abnormalities; cytogenetics of prenatal, cancer, toxicity testing. Same as 70:150.

69:151 Medical Cytogenetics Laboratory 2 s.h.

Methods, mechanisms of cytogenetics laboratory procedures, including short and long term cultures; chromosome banding special staining methods; photomicroscopy; case analysis, interpretation. Same as 70:151.

69:152 Medical cytogenetics seminar 1 s.h.

Same as 70:152.

69:155 Clinical Medical Cytogenetics arr.

Open only to medical technology cytogenetics track students. Same as 70:155.

69:175 Selected Biomedical Research Techniques arr.

Open only to medical technology students or to others with consent of program director.

69:201 General Pathology for Medical Students 3 s.h.

Infectious agents, response of that to injury; causes and pathogenic mechanisms of disease; use of laboratories in medicine; morphologic analysis of basic disease processes. Open only to first year medical students or to graduate students with consent of instructor. Offered spring semesters.

69:202 Systemic Pathology for Medical Students 10 s.h.

Human disease by organ systems, case problems through morphology, clinical laboratory observations. Open only to second year medical students or to graduate students with consent of instructor.

69:211 Research in Pathology arr.

Basic services of pathology or clinical patient material; emphasis on experimental design, methods, literature review, obtaining formal answers to specific questions. Open only to medical students or to graduate students with consent of instructor.

69:231 Special Topics in Pathology arr.

Open only to medical students or to graduate students with consent of instructor.

69:241 Autopsy Pathology clerkship arr.

69:245 Hematopathology Clerkship arr.

69:246 Surgical Pathology Clerkship arr.


69:249 Clinical Immunology and Immunopathology: Laboratory and Clinical Correlations 4 s.h.

Experience in Immunopathology lab, allergy immunology clinic; conferences, follow up of lab requests, abnormalities. Open only to fourth year medical students. Same as 78:253.

69:250 Cardiac Pathology Clerkship 4 s.h.

69:2BB Cellular and Molecular Biology of Neoplasia 3 s.h.

Biological features, population characteristics; cell biology, molecular mechanisms; chemical, viral carcinogenicity; immunology of neoplasia, with emphasis on indepth analysis, supporting literature. Consent of instructor required. Prerequisite: strong basic science background.

69:290 Medical Student Fellowships in Pathology arr.

First-hand experience in autopsies, surgical and clinical pathology, teaching, and research to further understanding of disease mechanisms, normal and pathologic anatomy, and laboratory use.

69:291 Emory D. Warner Student Fellowship in Experimental Pathology arr.

One-year, full-time membership in established research laboratory in the Department of Pathology or collaborating laboratory. Open only to medical students.

69:W8 Special Studies on Campus arr.

69:999 Special Studies Off Campus arr.

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**PEDIATRICS**

Head: Frank H. Morriss, Jr.


Professors emeriti: Lloyd J. Filer, Samuel J. Fomon, John C. MacQueen, Charles H. Read, Vinton N. Rowley, Theodore Scurfield, Gerald Solomon

Associate professors: Richard C. Ahrens, Randell C. Alexander, Diannie L. Atkins, Patricia Donohoe, Lois B. Duslieker, Scott D. Lindgren, Jody R. Murphy, Charles Rebeuoch (Human Nutrition), Val C. Sheffield, Raymond Tannous, Eva Tsalikian, Don C. Van Dyke, Douglas N. Weismann, Jerold C. Woodhead

Associate professor emerita: Dorothy A. Ehrke

Adjunct associate professor: Gary Sasso (Special Education)
The Department of Pediatrics is responsible for all facets of the pediatric section of 50.111 Introduction to Clinical Medicine. Didactic lectures and simulated physical examination of the newborn and toddler provide students with their initial pediatric patient contact. This experience includes taking a history, performing a physical, appraisal of growth and development, nutrition and symptomatology of the newborn, toddler, and adolescent.

The junior and senior medical student, the inpatient service provides an opportunity for training in the complex problems of disease and critical illness. There are daily rounds involving general pediatrics and all subspecialties. Challenging and interesting cases are presented to the staff for discussion of diagnosis and treatment.

Outpatient experience, available in senior electives, stresses principles and practices required for the maintenance of health in children, treatment of common general pediatric disorders, and the diagnosis and treatment of subspecialty ambulatory patients.

Graduate Program

The department offers an approved three-year residency program designed to prepare each trainee for a professional career in the broad field of pediatrics. The program meets the eligibility requirements of the American Board of Pediatrics (ABP).

Fellowships are available in all ABP-approved subspecialties as well as in the major subdivisions of pediatrics. The programs are research and clinically oriented, encouraging development of knowledge and skill in the chosen discipline. Upon satisfactory completion of the program, fellows meet the eligibility requirements of the ABP in the subspecialty.

Facilities
The Department of Pediatrics is located in The University of Iowa Hospitals and Clinics, with inpatient and outpatient areas immediately adjacent to faculty offices and the pediatric library.

The inpatient service comprises more than 140 beds, and more than 25,000 patients are seen each year in the general, specialty, continuity care, and field clinics, and the Emergency Treatment Center.

Laboratories performing both clinical and research studies are maintained in the department.

The University Hospital School is available for children with developmental disabilities, cerebral palsy, or mental retardation.

Courses

70:2 Clinical Pediatrics 6 s.h.
- Principles, practices of health maintenance and treatment of acute, chronic illnesses in children; emphasis on diagnostic and evaluation, nutrition, behavior problems, disorders affecting children; patient care, daily rounds, ward work. open only to third-year medical students.
- 70:3 Introduction to Medical Genetics 2 s.h.
- 70:12 Nutrition, Growth Care, and Developmental G 2 s.h.
- 70:15 Community Pediatrics: Iowa Methodist Hospital, Des Moines: Work m a community based hospital; care of patients in daily practice and in special problems referred to children's hospital.
- 70:16 Pediatric Hematology 1 s.h.
- 70:17 Pediatric Neurology 1 s.h.
- 70:19 Pediatric Cardiology 1 s.h.
- 70:20 The Physically Impaired Child and Young Adult 4 s.h.
- 70:22 Child Abuse 4 s.h.
- 70:23 Infant and Child Development Normal developmental sequence of gestation and early childhood, impact of environmental influences; antecedents of developmental disabilities; methods to detect cognitive, motor delays in preschool child; long-term consequences of developmental disabilities for children, their families; interdisciplinary teamwork, its advantages.
- 70:24 Clinical Management of Developmental Disabilities Management of disorders such as cerebral palsy, myelodysplasia, attention deficit hyperactivity by diagnosis workshops, management; exposure to interdisciplinary team; long-term consequences of chronic disorders, developmental disabilities.
- 70:27 Intermediate Neonatal intensive Care Unit Nursery 1 s.h.
- 70:74 Pediatric Inpatient Care 1 s.h.
- 70:104 Pediatric Elective (Bone Marrow Transplant) for physician Assistant Students 1 s.h.
- 70:106 Pediatric Elective (Cardiology) for physician Assistant Students 1 s.h.
- 70:150 Medical Cytogenetics 3 s.h.
- 70:50 Pediatric Bone Marrow Transplant Service 4 s.h.
- 70:53 Outpatient Subspecialty Rotation 4 s.h.
- 70:54 Alaska Native Health Service Pediatric Work on infant ward and in pediatric clinic.
- 70:55 General Pediatric Outpatient Clinic 4 s.h.
- 70:57 Pediatrics Elective for Physician Assistant Students 1 s.h.

Graduate Program

The department offers an approved three-year residency program designed to prepare each trainee for a professional career in the broad field of pediatrics. The program meets the
Head: P. Michael Corn


Associate professors: Rory Fisher, Howard Knapp, Sean Murphy

Assistant professors: Frank Faraci, Raymond Hohl, Barry Kasson, John Koland, Stephen Lewis

Graduate degrees: M.S., Ph.D. in Pharmacology

Pharmacology

The department provides professional training in pharmacology for health science students, offers a Master of Science program in clinical pharmacology for students with the M.D. degree, and offers a doctoral program of didactic and research experience.

For qualified graduate students, research and training programs are available in one of four research/training tracks: cellular and molecular pharmacology, integrative cardiovascular and autonomic pharmacology, chemical metabolism and toxicology, and cellular and integrative neuropharmacology.

The department participates with other departments in educational and research activities such as the Dental Scientist Training Program, the Medical Scientist Training Program, the Physician Scientist Program, the Molecular Biology Program, the Neuroscience Program, the Core Center: Diabetes and Endocrinology, the Cancer Center, and the Cardiovascular Research Center.

The department pioneered the offering of pharmacology to undergraduate students with little or no science background. The lecture and discussion sessions in 71:120 Drugs: Their Nature, Action, and Use emphasize the mechanisms of drug action and give students a background for rational decisions concerning use of drugs.

The department offers research training in all areas of pharmacology and toxicology at the predoctoral and postdoctoral levels to prepare students for career opportunities in academia, government, and industry.

Prerequisites for graduate study include undergraduate background in chemistry, biology, and mathematics. The level of performance in undergraduate courses must be in the top quartile.

Programs

Graduate Programs

Master of Science

In cooperation with clinical departments in the College of Medicine, the Department of Pharmacology offers a Master of Science program in clinical pharmacology to applicants who already hold the Doctor of Medicine degree. The specific objective of this program is to provide increased emphasis on and training in the science of clinical pharmacology for residents in the various clinical specialties.

Completion of the M.S. program requires a minimum of two years. Satisfactory completion of the following core courses is mandatory unless specifically waived by the Department of Pharmacology faculty. Any of these course requirements may be waived at the request of the trainee if his or her adviser and the departmental faculty agree that the trainee has met them satisfactorily at a prior time.

Eligibility for the M.S. in pharmacology requires demonstrated proficiency in basic research, satisfactory performance on the qualifying examination (written and oral), and satisfactory preparation and defense of a research thesis.

Doctor of Philosophy

The following are core course requirements for the Ph.D. in pharmacology.

71:100 Chemobiodynamics 1 s.h.
71:135 Principles of Drug Action 2 s.h.
71:140 Statistics for Pharmacology 3 s.h.
71:201 Pharmacology for Graduate Students 6 s.h.
71:203 Pharmacology Research 71:204 Pharmacology Seminar 1 s.h.
71:209 Receptors and Signal Transduction 3 s.h.
72:212 Medical Pharmacology 4 s.h.
99:120 Biochemistry and Molecular Biology I 4 s.h.
99:130 Biochemistry and Molecular Biology II 4 s.h.

The student also must take additional courses in the research/training track selected (e.g., 71:207 Neurupharmacology). Individual faculty research advisers may require additional courses.

There is no departmental foreign language requirement.

Students are expected to obtain maximum laboratory research experience during the first two years. As prerequisites for the comprehensive examination and in lieu of a preliminary examination, students must submit to the director of graduate studies a manuscript or progress report detailing research accomplished during the first two years of study. After reviewing this report with a committee of the faculty, the students begin or continue their Ph.D. thesis research. The Ph.D. comprehensive examination (written and oral) is given at the end of the fifth semester. Satisfactory preparation and oral defense of the thesis complete the program.

Financial Aid

Financial support is available for all predoctoral students in pharmacology.

Courses

71:100 Chemobiodynamics 1 s.h.
71:135 Principles of Drug Action 2 s.h.
71:140 Statistics for Pharmacology 3 s.h.
71:201 Pharmacology for Graduate Students 6 s.h.
71:203 Pharmacology Research 71:204 Pharmacology Seminar 1 s.h.
71:209 Receptors and Signal Transduction 3 s.h.
72:212 Medical Pharmacology 4 s.h.
99:120 Biochemistry and Molecular Biology I 4 s.h.
99:130 Biochemistry and Molecular Biology II 4 s.h.

The trainee must audit 71:201 Pharmacology for Graduate Students and take additional courses in the research training track selected and appropriate to his or her program.
71:105 Pharmacology for Health Sciences: Medicine 5 s.h. Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Consent of instructor required. Prerequisites: 72:212 and 99:165, or equivalent.

71:111 Pharmacology for Health Sciences: Dental 5 s.h. Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered spring semesters. Prerequisites: 72:152 and 99:161, or consent of instructor.

71:115 Undergraduate Research Independent Study 1-2 S.h. Research on drugs, chemicals that influence biological systems. Offered fall semesters. Consent of instructor required.

71:122 Drugs: Their Nature, Action, and Use 2 s.h. Principles of drug action, toxicity, antibiotics, oral contraceptives, sedatives, stimulants, hallucinogens, narcotics. Open only to non-health science students. Offered spring semesters.

71:125 Pharmacology for Health Sciences: Physician Assistant Students 6 s.h. Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Consent of instructor. Prerequisites: 99:164 and 72:150, or consent of instructor.

71:130 Intermediate Pharmacology 3 s.h. Principles of pharmacology, pharmacologic actions of drugs, congulation with therapeutic uses. Offered fall semesters. Consent of instructor required. Prerequisites: undergraduate biochemistry and physiology, or consent of instructor.

71:132 Intermediate Pharmacology 3 s.h. Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered spring semesters. Consent of instructor required.


71:140 Statistics for Pharmacology 3 s.h. Analysis, interpretation of data, focus on experimental design, appropriate tests for data analysis, data collection and statistical analyses using the computer. Offered summer session.

71:201 Pharmacology for Graduate Students 6 s.h. Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Consent of instructor required. Prerequisites: graduate background in biochemistry and physiology.

71:203 Pharmacology Research 1 S.h. Consent of department head required.

71:204 Pharmacology Seminar 1 s.h. Consent of department head required.

71:207 Neuropharmacology 3 s.h. Pharmacological mechanisms that modify neuroeffector function; action at the synapse, receptors, membrane excitability, neurotransmitter synthesis and degradation, integrated neuronal activity. Offered fall semesters. Consent of instructor required. Prerequisite: medical physiology background.

71:209 Receptors and Signal Transduction 3 s.h. Major receptor families: G-protein coupled receptors, ligand-regulated transmembrane enzymes, ligand-regulated ion channels, the receptor superfamily, emphasis on description, interpretation of specific experiments, experimental strategies underlying current research. Offered spring semesters. Same as 72:209.

71:210 Special Topics in Pharmacology 1-3 S.h. Consent of department head required.

71:215 Topics in Neuropharmacology 1 s.h. Recent advances in neuropharmacology, developmental neurobiology, neuroendocrinology, related neuroscience. Consent of instructor required.

71:225 Topics in Molecular Pharmacology 1 s.h. Recent advances in drug receptor research. Consent of instructor required.

71:235 Topics in Pain and Analgesia 1 s.h. Recent advances in pain research, therapy. Consent of instructor required.

71:244 Behavioral Neuroscience 2 s.h. Principles of molecular, developmental, behavioral neuroscience. Offered fall semesters. Consent of course director required. Same as 31:244, 132:244.

71:255 Topics in Cardiovascular Pharmacology 0-4 s.h. Recent advances in cardiovascular pharmacology, including hypertension and central control of the circulation. Offered fall and spring semesters. Consent of instructor required.

71:272 Seminar in Cellular and Molecular Biology 1 s.h. Research reports; information transfer and regulation, assembly and developmental processes, membranes, transport. May be repeated. Open only to cellular and molecular biology research training program students or to others with consent of instructor. Same as 80:272, 72:272, 99:272.

71:380 Clinical Pharmacology and Therapeutics Lecture Series 2 s.h. Pharmacologic approaches to treatment of disease in human disease. Open only to fourth-year medical students or to others with consent of instructor. Offered spring semesters. Same as 78:380.

71:545 Topics in Free Radical Biology Medicine 1 s.h. Recent advances in free radical chemistry, antioxidation, photodynamic therapy, lipid peroxidation, nitric oxide, metal catalysis, role of radicals in inflammation, reperfusion injury, DNA damage and mutation. Consent of instructor required. Same as 77:545.

**PHYSICAL THERAPY**

See "Division of Associated Medical Sciences."

**PHYSICIAN ASSISTANT PROGRAM**

See "Division of Associated Medical Sciences."

**PHYSIOLOGY AND BIOPHYSICS**

Head: Robert E. Fellows

Professors: Francois M. Abboud (Internal Medicine), Kevin P. Campbell, Robert E. Fellows, Carl V. Gisolfi (Exercise Science), Jeffrey Pessin, Michael J. Welsh (Internal Medicine), Charles C. Wunder

Associate professors: Eric Hoffman (Radiology), Gary Koretsky (Internal Medicine), Andrew Russo, Thomas J. Schmidt, Deborah Segaloff, Erwin F. Shihata

Assistant professors: Charles J. Imig, Gordon W. Searle

Graduate degree: Ph.D. in Physiology and Biophysics

The Department of Physiology and Biophysics offers graduate study leading to the Doctor of Philosophy; provides instruction in physiology and biophysics for medical, dental, pharmacy, nursing, and other health professional students; and participates in the Medical Scientist Training Program, a combined M.D.-Ph.D. program conducted under the auspices of the Graduate College and the College of Medicine.

**Graduate Program**

The graduate program in physiology and biophysics provides students with fundamental knowledge of physiological life processes at molecular, cellular, and integrative levels of physiology and biophysics. It also imparts knowledge of modern research skills applicable to contemporary problems.

Principle areas of study represented in the department are endocrinology, neurobiology, and membrane physiology and biophysics, with the unifying theme of understanding mechanisms of signal transduction involved in regulating function at the cellular and molecular levels.

Entering students are advised by the director of graduate studies, who provides guidance in the planning of required course work and an introduction to research activities of departmental faculty. The core curriculum includes two semesters of cell biology, two semesters of either molecular biology or neurophysiology, and one semester of medical physiology. The department also offers advanced, specialized courses in membrane physiology, endocrine physiology, environmental and exercise physiology, and neuropharmacology. Students elect courses in other departments appropriate to their educational and research objectives.

After satisfying the course and comprehensive examination requirements, students devote their full time to thesis research, which culminates in the preparation of a doctoral dissertation and its defense in a final oral examination.

All degree candidates have experience as classroom instructors, under faculty supervision, as part of their training.

**Admission**

Applicants for graduate admission must complete undergraduate studies in an accredited institution prior to matriculation with at least a 3.00 overall science grade-point average, coupled with a combined verbal and quantitative score higher than 1200 on the Graduate Record Examination (GRE) General Test. The appropriate background for graduate study in cellular and molecular physiology and biophysics includes an undergraduate major in one of the biological, chemical, physical, or engineering sciences with one or more years of course work in biology, physics, biochemistry, and calculus.

**Financial Aid**

All full-time doctoral students receive financial aid in the form of tuition and stipend support from the Department of Physiology and Biophysics. Support is renewed annually based on satisfactory progress in meeting requirements for the Ph.D. degree.

**Research**

The department’s general research interests 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.
Facilities
Two floors of the Bowen Science Building are devoted to research and teaching in the Department of Physiology and Biophysics. The department also occupies laboratory facilities in the Eckstein Medical Research Building. In addition to specialized equipment in faculty research laboratories, the department has an extensive microcomputer network with direct access to a University mainframe, the global Internet multimedia design and education facility, and a computer imaging facility. The department also provides equipment for fluorescence microscopy and isotopic analysis for cell culture and molecular biology. Graduate students have study space near the departmental library, which supplements resources available at the Hardin Library for the Health Sciences.

Courses
72:130 Systemic Physiology 3 s.h.
General mammalian physiology. Open only to preprofessional and professional students or others with consent of course director. Prerequisites: grade of C or higher in 2:4, 4:7, and 4:8.

72:150 Intermediate Physiology 4 s.h.
Principles, organ system, cell function. Offered spring semesters. Consent of course director required. Prerequisites: grade of C or higher in 4:121, 4:122, and 2:10.

72:152 Mammalian Physiology 4 s.h.
Principles, organ system, cell function. Open only to dental students. Offered spring semesters. Consent of course director required. Prerequisites: grade of C or higher in 4:121, 4:122, and 2:10.

72:154 Biomedical Engineering Physiology 4 s.h.
Principles, organ system, cell function. Open only to biomedical engineering students. Offered spring semesters. Consent of course director required. Prerequisites: grade of C or higher in 4:13, 4:14, and 2:10.

72:164 Human Physiology for Physician Assistant 4 s.h.
Principles, organ system, cell function. Open only to physician assistant students. Offered summer sessions.

Open to students who are not advanced degree candidates in physiology and biophysics, Consent of instructor required.

72:203 Molecular Endocrinology 2 s.h.
Mechanisms of hormonal action, including cyclic AMP function, transcription, translation, transport; molecular processes from hormone receptor interactions to biochemical, biological responses. Consent of course director required.

72:209 Receptors and Signal Transduction 3 s.h.
Major receptor functions; 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. Consent of course director required. Prerequisite: 72:212 or equivalent. Same as 71:209.

72:212 Medical Physiology 4 s.h.
Principles of human physiology; organ system, cell function. Open only to medical or graduate students. Consent of course director required.

72:220 Cell Biology I 3 s.h.
Organization and function of the eukaryotic cell. Offered fall semesters. Consent of course director required. Same as 142:220.

72:222 Cellular Neurophysiology 2 s.h.
Cellular basis of nervous system function; properties of nerve cells-mechanisms of transmission, translation, integration. Consent of course director required.

72:225 (XI Biology 11 3 s.h.
Organization, function of the eukaryotic cell. Offered spring semesters. Consent of course director required.

72:234 Medical Neuroscience 4 s.h.
Principles of neurophysiology, neumatomy, with emphasis on the human central nervous system; laboratory work on anatomical study of spinal cord, brain. Offered spring semesters. Consent of course director required. Same as 50:234, 60:234, 132:234.

72:241 Structure and Function of Biological Membranes 2 s.h.
Cellular and molecular levels: lipidprotein interaction, membrane synthesis, endocytosis and fusion, active and coupled transport, membrane asymmetry and fluidity, hormone receptors. Offered even years. Consent of course director required.

72:243 Biophysics of Excitable Membranes 2 s.h.
Basic excitability as found in nerve and muscle cells, including generation of resting and action potentials, synaptic transmission, propagation of action potentials, properties of cardiac cell membranes. Offered odd years. Consent of course director required.

72:262 Environmental Physiology 2 s.h.
Physiological responses, including acclimatization of mammals to extreme heat, cold, light, high and low pressure, space, smoke, laboratory emphasis on telemetry, meteorological measurements, activity recording. Consent of course director required.

72:265 Neuroscience Seminar O-1 s.h.

72:272 Seminar in Cellular and Molecular Biology 1 S.h.
Research and literature in cell, molecular biology; information transfer and regulation, assembly and development processes, membranes, transport. Consent of course director required. Same as 60:272, 71:272.

72:274 Exercise Physiology Seminar 2 s.h.
Acute, chronic effects of exercise on biological systems. Offered spring semesters. Consent of course director required. Prerequisites: 72:212 or 72:150, and 99:130. Same as 27:274.

72:290 Special Topics arr.
Consent of director of graduate studies required.

72:302 Research Physiology and Biophysics arr.
Open only to advanced degree candidates in physiology and biophysics.

72:342 Graduate Physiology Seminar 1 s.h.
Open only to advanced degree candidates in physiology and biophysics.

Open only to advanced degree candidates in physiology and biophysics.

Preventive medicine is a central discipline that focuses on improving the health of individuals and populations through disease prevention and activities that promote health. It brings the skills and knowledge of the biological, social, mathematical, environmental, and public health sciences to prevent or delay important health problems, in both the clinic and the community. It also is concerned with providing the skill necessary for effective economic improvement of the quality of health services to communities.

Graduate Programs
The department offers M.S. and Ph.D. degrees. Applicants who meet the requirements for the M.S. or Ph.D. programs but who do not want to work toward an advanced degree may be admitted on “professional improvement” status. Application deadlines are listed under “Admission,” later in this section.
Master of Science

Students in the master’s program may earn a degree with emphasis in biostatistics, epidemiology, occupational and environmental health, or community health. Admission to the community health track is limited to applicants who already are health professionals.

Students may choose the thesis or the nonthesis option. The master’s thesis is a formal research paper. The research often expands upon or explores from a different perspective a previously studied subject area.

All four M.S. subprograms require that students complete an in-depth preceptorship under the direction of a departmental faculty member and a minimum of 38 semester hours of course work. In addition, students must maintain a minimum 3.0 grade-point average. Students who receive 7 or more semester hours of C may be dismissed from the program.

Students must complete the core courses listed under the appropriate subprogram heading. They also must complete the departmental courses listed as “additional requirements.” Fulfillment of the minimum 38 semester hours degree requirement includes approved electives chosen from departmental and nondepartmental courses. Departmental courses are listed at the end of this section.

Biostatistics

Students are trained in design and analysis of experiments and sample surveys and in analysis of data related to biomedical or public health problems. Mathematical, statistical, and computer methods for dealing with quantitative information are emphasized, and opportunities exist for students to gain statistical consulting experience on a variety of problems.

PREREQUISITES

Biological sciences: a minimum of one survey course on the principles of biology

Computer science: ability to program in at least one computer language, preferably Fortran, Pascal, or C

Mathematical sciences: training in methods and techniques of single-variable and multi-variable differential and integral calculus; and vector algebra

CORE COURSES

63:158 Principles of Epidemiology 3 s.h.
63:176 Biostatistical Methods I 4 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

69:133 Introduction to Human Pathology 3 s.h.
96:120 Pathology 4 s.h.

22:153 Mathematical Statistics I 3 s.h.
22:154 Mathematical Statistics II 3 s.h.

63:163 Introduction to the Design of Sample Surveys 3 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health 4 s.h.
63:276 Biostatistical Methods II 4 s.h.

Students must select at least 7 additional semester hours from the following.

22 S:161 Application of Multivariate Statistical Techniques 4 s.h.
22 S:255 Linear Models 4 s.h.
63:173 Intermediate Design of Sample Surveys 2 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:242 Statistical Methods in Epidemiology II 3 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
63:261 Survival Data Analysis 3 s.h.
63:262 Analysis of Categorical Data 3 s.h.
63:273 Research Data Management 3 s.h.

Epidemiology

This program is designed to prepare graduate level students for professional career opportunities in which specialized knowledge of epidemiologic methods and analytical techniques are useful. Placement possibilities include employment in local, state, or federal health agencies; academic departments within schools of public health or colleges of health sciences; or private enterprise.

PREREQUISITES

A baccalaureate degree, a minimum of two semesters of biological sciences, and mathematics through calculus

CORE COURSES

63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

63:15 Computer Skills for Preventive Medicine and Environmental Health 1 s.h.
63:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health arr.

63:203 must involve a quantitative research or evaluation project in epidemiology; this course is not required for students who select the thesis option.

63:241 Statistical Methods in Epidemiology I 3 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
69:133 Introduction to Human Pathology 3 s.h.
96:120 Pathology 4 s.h.

Students must select two courses totaling at least 5 additional semester hours from the following divisional courses.

63:111 International Health 1,3 s.h.
63:250 Health Behavior and Promotion 3 s.h.
63:251 Injury Epidemiology 3 s.h.
63:254 Genetics and Epidemiology 3 s.h.
63:255 Psychiatric Epidemiology 3 s.h.
63:256 Hospital Epidemiology 2 s.h.
63:257 Epidemiology of Infectious Diseases 4 s.h.
63:259 Chronic Disease Epidemiology 4 s.h.
63:269 Cardiovascular Disease Epidemiology 3 s.h.
63:279 Cancer Epidemiology and Control 3 s.h.
63:291 Pharmacoepidemiology 3 s.h.

Occupational and Environmental Health

The objective of this program is to prepare graduate students for professional careers in occupational and environmental health. Career opportunities include local, state, or federal health agencies; departments of industrial health and safety in commercial enterprises; and academic institutions.

PREREQUISITES

A baccalaureate degree is required, as well as at least two semesters of chemistry, one semester of physics, and mathematics through calculus. Course work in the biological sciences, microbiology, and computer programming is desirable, particularly for students interested in some specialty areas.

CORE COURSES

63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

69:133 Introduction to Human Pathology arr.
96:120 Pathology 4 s.h.
63:191 Occupational Health 3 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health 3 s.h.
63:260 Environmental Toxicology 3 s.h.
63:280 Occupational and Environmental Health Seminar 01 s.h.

General Track with Emphasis in Community Health

This program is intended to provide broad training in community health and epidemiology for persons who already are health professionals.

CORE COURSES

63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

69:133 Introduction to Human Pathology arr.
96:120 Pathology 4 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health arr.

Students must select courses from at least two divisions from the following list.

Biostatistics

63:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
63:163 Introduction to Sample Surveys 3 s.h.
63:241 Statistical Methods in Epidemiology I 3 s.h.
63:273 Research Data Management 3 s.h.
Occupational and Environmental Health
63:191 Occupational Health 3 s.h.
63:209 Rural Health and Agricultural Medicine 3 s.h.
63:260 Environmental Toxicology 3 s.h.

Epidemiology
63:257 Epidemiology of Infectious Diseases 4 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
63:259 Chronic Disease Epidemiology 4 s.h.

Joint Master's Degrees
A joint master's option exists between the Joint Master's Degrees Graduate Program in Urban and Regional Planning and the Department of Preventive Medicine and Environmental Health, in the College of Medicine. With this option, students may earn an M.A. in Urban and Regional Planning and an M.S. in Preventive Medicine and Environmental Health. Students must gain separate admission to each academic unit.

The combined graduate-level course of study between the Physician Assistant Program and the Department of Preventive Medicine and Environmental Health provides a broad foundation in preventive medicine. This three-year, integrated curriculum consists of 26 semester hours of graduate courses in epidemiology, environmental health, biostatistics, and preventive medicine, and 95 semester hours of courses from the standard core curriculum of the Physician Assistant Program. Electives may be selected from a wide range of courses offered by the Department of Preventive Medicine and Environmental Health and by other departments in the College of Medicine. Upon completing the program, students earn an M.A. degree in the Physician Assistant Program, from the College of Medicine, and an M.S. degree in Preventive Medicine from the Graduate College. Consult the Physician Assistant Program for information about the combined degree.

Doctor of Philosophy
The Ph.D. program is available with emphases in biostatistics, epidemiology, and occupational and environmental health. Semester-hour requirements for the Ph.D. subprograms are 75 to 85 semester hours for biostatistics, 73 for epidemiology, and 72 for occupational and environmental health. All students must complete a preceptorship in their specialty, except for students in the epidemiology doctoral program. They also must successfully complete a qualifying examination and comprehensive examination.

All Ph.D. students must complete a dissertation—a substantial scholarly treatise of the student's creative thoughts and original research. Topic and content, which vary depending on the program of study, must be approved in advance by the student's thesis committee.

While pursuing a degree in the program, each student is expected to maintain a minimum 3.00 grade-point average. Students who earn a grade of C for 7 or more semester hours may be dismissed from the program. Fulfillment of the degree requirements includes approved electives chosen from departmental and external courses. Departmental courses are listed at the end of this section.

Biostatistics
The biostatistics Ph.D. program is designed to prepare students for professional and academic careers in biostatistics. Graduates will be able to assume positions in academic or research settings that emphasize developing and applying statistical methodology to solve important biological and public health problems.

PREREQUISITES
A baccalaureate degree is required. Although enrollment directly into the Ph.D. program is possible, completion of the M.S. program generally is required as a first step. Requirements for admission to the M.S. program include at least one course in principles of biology; an introductory course in computer science, Calculus I, II and III; and a course in linear algebra.

DEPARTMENTAL CORE-PART A
63:158 Principles of Epidemiology 3 s.h.
63:176 Biostatistical Methods I 4 s.h.
63:202 Environmental Health 3 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.

69:133 Introduction to Human Pathology arr.
or
69:120 Pathology 4 s.h.

DEPARTMENTAL CORE-PART B
Students must choose 6 semester hours of courses outside his or her division, from the following list.

Environmental Health
63:191 Occupational Health 3 s.h.
63:209 Rural Health and Agricultural Medicine 3 s.h.
63:252 Theories of Environmental Policy and Assessment 3 s.h.
63:260 Environmental Toxicology 3 s.h.

Epidemiology
63:250 Health Behavior and Promotion 3 s.h.
63:251 Injury Epidemiology 3 s.h.
63:254 Genetics and Epidemiology 3 s.h.
63:255 Psychiatric Epidemiology 3 s.h.
63:256 Hospital Epidemiology 2 s.h.
63:257 Epidemiology of Infectious Diseases 4 s.h.
63:259 Chronic Disease Epidemiology 4 s.h.
63:269 Cardiovascular Disease Epidemiology 3 s.h.
63:279 Cancer Epidemiology and Control 3 s.h.
63:291 Pharmacoepidemiology 3 s.h.

ADDITIONAL DIVISIONAL REQUIREMENTS
22 S:153 Mathematical Statistics I 3 s.h.
22 S:154 Mathematical Statistics I 3 s.h.
22 S:255 Linear Models 4 s.h.
22 S:256 Application of Multivariate Statistical Techniques 4 s.h.
22 S:257 Multivariate Analysis 4 s.h.
63:163 Introduction to the Design of Sample Surveys 3 s.h.
63:173 Intermediate Design of Sample Surveys 2 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health 3 s.h.
63:261 Survival Data Analysis 3 %.
63:262 Analysis of Categorical Data 3 s.h.
63:276 Biostatistical Methods II 4 s.h.

Students must select at least 9 additional semester hours from the following list.
22 S:167 Introduction to Stochastic Processes 3 s.h.
22 S:230 Introduction to the Theory of Nonparametric Statistics 3 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health arr.
63:221 Theory of Biostatistics I 4 s.h.
63:222 Theory of Biostatistics II 4 s.h.
63:243 Cohort Data Analysis 1 s.h.
63:264 Longitudinal Data Analysis 3 s.h.
63:273 Research Data Management 3 s.h.

THESIS
63:300 Thesis 10-18 s.h.

Epidemiology
The primary goal of this program is to prepare graduates for professional careers as scientists, teachers, and practitioners of epidemiological methods. Career opportunities in epidemiology exist in academic institutions; local, state and federal health agencies; and in commercial enterprise.

PREREQUISITES
A baccalaureate degree is required. Although it is possible to enroll directly in the Ph.D. program, it is recommended that students complete the M.S. program as a first step. Course work in the biological, physical, and mathematical sciences provides important background and is also highly recommended.

DEPARTMENTAL REQUIREMENTS

63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.
69:133 Introduction to Human Pathology arr.
or
69:120 Pathology 4 s.h.

DIVISIONAL REQUIREMENTS

Departmental Courses
63:115 Computer W for Preventive Medicine and Environmental Health 1 s.h.
63:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
63:163 Introduction to the Design of Sample Surveys 3 s.h.
63:172 Independent Study and Research in Preventive Medicine 3 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:242 Statistical Methods in Epidemiology 3 s.h.
63:254 Genetics and Epidemiology 3 s.h.
63:257 Epidemiology of Infectious Diseases 4 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
63:259 Chronic Disease Epidemiology 4 s.h.
or
63:269 Cardiovascular Disease Epidemiology 3 s.h.
or
63:279 Cancer Epidemiology and Control 3 s.h.
63:273 Research Data Management 3 s.h.
Nondepartmental Courses
22:C:100 Introduction to Computing with FORTRAN 2 s.h.
or
22:C: 106 Introduction to Programming with PASCAL 3 s.h.
72:130 Systemic Physiology 3 s.h.
or
72:150 Intermediate Physiology 4 s.h.
THESS
63:300 Thesis 10-18 s.h.

Occupational and Environmental Health

This program prepares students to assume responsibility for development and basic administration of occupational and environmental health programs, and to qualify for beginning faculty positions in academic environmental health departments.

PREREQUISITES
A baccalaureate degree is required. Although enrollment directly into the Ph.D. program is possible, completion of the M.S. program is recommended as a first step toward the Ph.D. degree. Undergraduate preparation must have included at least two semesters of chemistry, one semester of physics, and mathematics through calculus. Course work in biological science, microbiology, and computer programming are highly desirable, particularly for students interested in some specialized areas.

DEPARTMENTAL REQUIREMENTS
63: 158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.
69:133 Introduction to Human Pathology arr.
or
96:120 Pathology 4 s.h.

SPECIALTY AREA REQUIREMENTS
Students must choose at least two additional courses from the following areas.

Biostatistics
63:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
63:163 Introduction to the Design of Sample Surveys 3 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:242 Statistical Methods in Epidemiology 3 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
63:259 Chronic Disease Epidemiology 4 s.h.

The following courses, preceptorship, seminars, and thesis are required for the Ph.D. in the occupational environmental health track.

63:191 Occupational Health 3 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health arr.
63:252 Theories of Environmental Policy and Assessment 3 s.h.
63:260 Environmental Toxicology 3 s.h.
63:280 Occupational and Environmental Health Seminar 0-1 s.h.
63:300 Thesis arr.

OTHER REQUIREMENTS

The department offers residency training in occupational medicine in affiliation with the University of Iowa Hospitals and Clinics. For more information, contact the director of the Occupational Medicine Residency Training Program at the Department of Preventive Medicine and Environmental Health.

Medical Residency Training Program

The department offers residency training in occupational medicine in affiliation with the University of Iowa Hospitals and Clinics. For more information, contact the director of the Occupational Medicine Residency Training Program at the Department of Preventive Medicine and Environmental Health.

Admission

Minimum grade-point average requirements for admission are 3.00 for the Ph.D. program and 3.00 for the Ph.D. program. Applicants must have taken the Graduate Record Examination (CRE) General Test. The recommended score for most students is a combined verbal and quantitative score of 1050. Also, non-U.S. citizens may be required by the University’s foreign admissions office to take the Test of English as a Foreign Language (TOEFL); a minimum score of 600 is considered acceptable for most students. Remedial English courses are required for foreign students whose TOEFL score is between 550 and 600. Students who score 549 or lower are not considered for admission. All applicants and continuing students are required to have strong written and oral communication skills. Students may be required to take specific courses to overcome communication deficiencies.

Applicants are required to specify on the application form the program (track) to which they are applying. They also must forward three letters of recommendation, submit a short description of their professional goals describing why they want to earn the degree, and submit a current resume.

ADMISSION DEADLINES FOR M.S. PROGRAMS

Biostatistics: January 15 (early) and March 15 (late) for fall; October 1 for spring; entering enrollment for spring is not encouraged.

Epidemiology: July 15 for fall; December 1 for spring; May 1 for summer; non-U.S. citizens must comply with earlier deadlines as established by the University’s foreign admissions office.

General Track with Emphasis in Community Health: July 15 for fall; December 1 for spring; May 1 for summer; non-U.S. citizens must comply with earlier deadlines as established by the University’s foreign admissions office.

Financial Aid

A limited number of research assistantships, traineeships, and tuition grants are available within the department.

Postdoctoral Fellowships

A variety of funded postdoctoral fellowships are available for further scientific training in disciplines represented in the department. Funded programs exist in mental health, aging, pharmacoeconomics, and injury epidemiology.

Facilities

Examples of ongoing departmental resources and activities include the State Health Registry of Iowa, which records data on all cases of cancer that occur in residents of Iowa; the Aging Project, which examines health problems and needs of a representative sample of Iowa’s elderly; the Preventive Intervention Center; the University Occupational Health Service; WORKSAFE Iowa; the Biostatistical Consulting Service; the Center for the Health Effects of Environmental Contamination; and the Clinical
63:109 Preventive Medicine 3 s.h.
Introduction to epidemiology, clinical preventive medicine, occupational health, organization and delivery of health services, environmental and public health; emphasis on application of skills to disease control and clinical prevention. Open only to Physician Assistant Program students. Offered fall semesters. Same as 117:105.

63:111 International Health 1.5 s.h.
Structure, delivery of personal and public health services, their evaluation in developing countries in political, cultural, economic contexts. Offered fall semesters of odd years. Open only to second-year medical students. Offered fall semesters.

63:110 Concepts in Biostatistics 1 s.h.
Development of skills to read and critique the medical literature; descriptive and inferential statistical methodology and terminology introduced through journal articles. Open only to first-year medical students. Offered fall semesters.

63:112 Laboratory in Medical Anthropology 1 s.h.
Assessment of contemporary cross-cultural issues in health and illness, an anthropological perspective. Offered fall semesters of even years. Open only to second-year medical students. Offered fall semesters.

63:118 Methodology in Environmental Epidemiology 3 s.h.
Methods of comparing directly standardized rates and standardized mortality ratios; Poisson regression for cohort data; understanding of rationale behind methods used for cohort data analysis; independence in carrying out procedures on real data using computer. Offered spring semesters of odd years. Prerequisites: 63:115, 63:158, and 63:161. Recommended: 63:162.

63:196 Analytical Toxicology Laboratory 3 s.h.
Hand-on laboratory experience in applying advanced analytical methods to separate and identify toxic chemical components in biological and environmental samples; use of state-of-the-art equipment, quality control; quality assurance protocols, interpretation of data obtained from analytical instruments. Offered spring semesters. Prerequisite: 63:191.

63:200 Introduction to Health Care Organization 3 s.h.
Basic organizational arrangements of medical services in the United States; determinants of utilization; amount and type of health resources available; financing methods; government regulation; social, political, economic forces that determine future of health service. Offered fall semesters. Same as 80:200.

63:201 Research in Preventive Medicine and Environmental Health 1 s.h.
For students engaged in research that may lead to a dissertation. Offered fall semesters. Prerequisite: 63:191.

63:253 Epidemiology of Occupational Injuries 3 s.h.
In-depth review of epidemiologic literature regarding injuries, their prevention. Offered spring semesters of even years. Prerequisite: 63:158 or consent of instructor. Offered spring semesters of even years.

63:254 Genetics and Epidemiology 3 s.h.
Fundamental genetic concepts; epidemiologic approaches to familial aggregation, including linkage and segregation analysis. Offered spring semesters of odd years. Prerequisites: introductory biology, biostatistics, and epidemiology; or consent of instructor. 

63:255 Psychiatric Epidemiology 3 s.h.
Epidemiology of mental disorders; special problems in reliability, validity; diagnostic classification; epidemiology of specific diseases, including dementia, schizophrenia, manic-depression, anxiety neurosis, alcoholism, personality disorder. Offered fall semesters. Prerequisite: 63:188 or consent of instructor. Recommended: 63:258 or 63:259 or two years of resident training in psychiatry. Same as 73:255.

63:315 Computer Skills for Preventive Medicine and Environmental Health 1 s.h.
Basic understanding of personal and mainframe computers; computer skills required for biostatistics, quantitative epidemiology courses, and for thesis research. Offered fall and spring semesters.

63:358 Principles of Epidemiology 3 s.h.
Epidemiologic concepts and methods, including design and analysis of descriptive and analytic studies, such as aggregate, case series, cross-sectional, case-control, cohort studies. Offered fall semesters.

63:361 Introduction to Biostatistics 3 s.h.
Graphs and tables; descriptive statistics; probability; binomial, Poisson, and normal distributions; sampling distributions; tests of significance for one-, two-, and k-sample problems; confidence intervals; frequency data analysis; linear regression and correlation; nonparametric tests; elementary analysis of variance. Prerequisite: college algebra.

63:362 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
Linear, polynomial, multiple regression; correlation analysis; regression diagnostics; model-building analysis of covariance; one- and two-way analysis of variance; randomized block designs; factorial designs; multiple comparison procedures; orthogonal contrasts; use of computer for data analysis. Offered spring semesters.

63:163 Introduction to the Design of Sample Surveys 3 s.h.
Techniques for design, analysis of sample surveys, including general methods of estimation, properties of estimators; simple random sampling; stratified sampling; systematic sampling; cluster sampling; nonresponse; randomized response; survey economics. Offered fall semesters. Prerequisite: 63:161 or equivalent.

63:171 Problems in Preventive Medicine 3 s.h.
Articulation of general preventive practice not organized as a formal course; may include natural history, faculty directed independent work (e.g., literature search project, short research project).

63:172 Independent Study and Research in Preventive Medicine 3 s.h.
In-depth pursuit of an area of special interest in preventive medicine requiring substantial creativity, independence.

63:173 Intermediate Design of Sample Surveys 2 s.h.
Construction and number of strata; unbiased ratio estimators; systematic sampling; multistage sampling; double sampling; sampling frame construction; panel studies; modes of data collection; questionnaire construction. Offered spring semesters of odd years. Prerequisite: 63:165.

63:176 Biostatistical Methods I 4 s.h.
Problem-oriented distribution, moments, estimation, parametric and nonparametric inference for one-sample and two-sample problems, analysis of frequency data, linear regression, correlation analysis, hypothesis on use of computer. Offered fall semesters. Consent of instructor required.

63:195 Analytical Toxicology Lecture 3 s.h.
Separation, identification, quantitative determination of toxic chemicals and their metabolites in biological, environmental matrices; basic principles of instrumental methods of analysis, chemical separation, concentration techniques, quality control, good laboratory practice. Offered fall semesters. Consent of instructor required.

63:196 Analytical Toxicology Laboratory 3 s.h.
Hand-on laboratory experience in applying advanced analytical methods to separate and identify toxic chemical components in biological and environmental samples; use of state-of-the-art equipment. Basic principles of instrumental methods of analysis, chemical separation, concentration techniques, quality control, good laboratory practice. Offered fall semesters. Consent of instructor required.

63:160 Theory of Biostatistics I 4 s.h.
Intermediate-level study of sufficiency, exponential families, methods of estimation, uniform minimum variance unbiasedness, information, likelihood theory, confidence intervals, Neyman-Pearson lemma, asymptotic theory and its applications. Offered fall semesters of even years. Prerequisites: 225:153 and 225:154.

63:222 Theory of Biostatistics II 4 s.h.
Nonparametric, generalized linear models, robust procedures, computer-intensive methods; application of theory of 63:221 to classical and new methods in biostatistics. Offered spring semesters of odd years. Prerequisites: 225:153, 225:154, and 63:221.

63:231 Industrial Hygiene I 3 s.h.
Principles, with emphasis on recognition of chemical hazards, physical health hazards at work. Offered fall semesters. Prerequisite: 63:191.

63:232 Industrial Hygiene II (Evaluation) 3 s.h.
Theory, methods of air sampling for evaluation of occupational, environmental exposures to chemical, physical, biological agents. Offered spring semesters. Prerequisite: 63:191.

63:233 Industrial Hygiene III 3 s.h.
Principles, practice of industrial hygiene controls of occupational hazards from gases, vapors, aerosols, management aspects of applied programs. Offered spring semesters. Prerequisites: 63:191 or 62:31 or consent of instructor.

63:241 Statistical Methods in Epidemiology I 3 s.h.

63:242 Statistical Methods in Epidemiology II 3 s.h.
Nonparametric, semiparametric methods for survival data; methods of comparing directly standardized rates and standardized mortality ratios; Poisson regression for cohort data. Offered spring semesters of odd years. Prerequisites: 63:162 and 63:241.

63:243 Cohort Data Analysis 1 s.h.
Methods of computing directly standardized rates and standardized mortality ratios and Poisson regression for cohort data; understanding of rationale behind methods used for cohort data analysis; independence in carrying out procedures on real data using computer. Offered spring semesters of odd years. Prerequisites: 63:115, 63:158, and 63:241.

63:250 Health Behavior and Promotion 3 s.h.
Health behavior and attitudes, definitions in health and illness, clinical-patient interactions, sociobehavioral correlates of disease development, adherence/compliance behavior, health promotion/modification programs, logical targeting, medical ethics; focus on social marketing strategies in public and private health sectors related to medical management, outcome research. Offered spring semesters of even years. Graduate standing required. Same as 80:211.

63:251 Injury Epidemiology 3 s.h.
How epidemiology can be applied to injury prevention: epidemiology literature, specific methodologic problems involved in epidemiology of injuries, critical evaluation of research articles. Offered spring semesters of odd years. Prerequisite: 63:158 or consent of instructor.

63:252 Theories of Environmental Policy and Assessment 3 s.h.
Major concerns relating to environment and human health, basis on which legislation has been enacted to deal with these concerns; emphasis on contemporary legislation having major effects on environmental policy. Offered spring semesters. Prerequisite: 63:202 or consent of instructor. Same as 55:204.

63:253 Epidemiology of Occupational Injuries 3 s.h.
In-depth review of epidemiologic literature regarding injuries, their prevention. Offered spring semesters of even years. Graduate standing required. Same as 55:204.

63:165 Genetic Epidemiology 3 s.h.
Fundamental genetic concepts; epidemiologic approaches to familial aggregation, including linkage and segregation analysis. Offered spring semesters of odd years. Prerequisites: introductory biology, biostatistics, and epidemiology; or consent of instructor.

63:255 Psychiatric Epidemiology 3 s.h.
Epidemiology of mental disorders; special problems in reliability, validity; diagnostic classification; epidemiology of specific diseases, including dementia, schizophrenia, manic-depression, anxiety neurosis, alcoholism, personality disorder. Offered fall semesters. Prerequisite: 63:188 or consent of instructor. Recommended: 63:258 or 63:259 or two years of resident training in psychiatry. Same as 73:255.
63:256 Hospital Epidemiology 2 s.h. 
Epidemiological methods applied to positive, negative features of hospitalized patient's care; classic use of epidemiologic concepts in description, investigation, control of hospital risks (infections, drug reactions, accident excesses); collection, use of hospital data for patient care evaluations in context of current regulatory efforts. Offered spring semesters of odd years. Prerequisite: 63: 158 or equivalent.

63:257 Epidemiology of Infectious Diseases 4 s.h. 
Underlying epidemiological concepts of infection and disease, causation, methods of transmission, surveillance, sero-epidemiology, and control of infectious diseases, including venereal disease, congenital disease, respiratory diseases, enteric diseases, vectorborne diseases; relationship to cancer. Offered fall semesters of even years. Prerequisite: 63: 158 or equivalent.

63:258 Advanced Field Methods in Epidemiology 3 s.h. 
Epidemiological study design, analysis; bias, confounding, effect modification; matching; vital statistics; descriptive studies; Case-control studies; cohort studies; intervention studies; measurement principles; data sources, questionnaire design, conditional surveys, relation to disease classification; examples from acute, chronic, cyanotic, chronic, and genetic diseases, as well as medical care organization and delivery. Offered spring semesters. Prerequisites: 63: 158 and 63: 161.

63:259 Chronic Disease Epidemiology 4 s.h. 
Statistical epidemiological methodology applied systematically to current problems of cancer, cardiovascular disease, respiratory disease, other major chronic diseases. Offered fall semesters of even years. Prerequisites: 63: 158 and 63: 161, or consent of instructor.

63:260 Environmental Toxicology 3 s.h. 
Sources, routes of absorption, and effects of environmental toxicants affecting man; pathophysiology of toxic actions, including those of air and water pollutants, metals, pesticides, solvents, mycotoxins, food toxicants, other chemicals. Offered spring semesters. Prerequisite: chemistry, physiology, or biochemistry.

63:261 Survival Data Analysis 3 s.h. 
Product limit estimators; life table methods; parametric likelihood function using exponential, Weibull, lognormal, generalized gamma models with and without censoring; nonparametric methods; Cox relative risk regression with stratification and time dependent covariates. Offered fall semesters of odd years. Prerequisites: 22S: 153, 22S: 155, and 22S: 194; or consent of instructor. Same as 22S: 225.

63:262 Analysis of Categorical Data 3 s.h. 
Loglinear models as basis for study of categorical data; models for discrete data, distribution theory, maximum likelihood, and weighted least squares estimation for cross classified tables, test of fit, model selection. Offered spring semesters. Prerequisites: 21S: 151, 22S: 155, and 22S: 194; or consent of instructor. Same as 22S: 220.

63:263 Longitudinal Data Analysis 3 s.h. 
Statistical methodology for analyzing data from observational, experimental studies in which response variable from each subject is measured repeatedly; topics include classical and recent parametric (normal theory) methods, extensions of generalized linear methodology for binary and Poisson responses, logit and mean score models for repeated categorical data, nonparametric methods; emphasis on use of statistical software packages for mainframe, personal computer. Offered spring semesters of odd years. Prerequisites: 22S:154 and 63:276.

63:269 Cardiovascular Disease Epidemiology 3 s.h. 
Natural history of atherosclerotic disease in humans, factors affecting its development: atherosclerotic disease in different populations (global), different ages of men and women, clinical trials to delay onset, reduce incidence, impose outcome of cardiovascular disease. Offered fall semesters of even years. Prerequisites: 63: 158 and 63: 161.

63:270 Special Topics in Toxicology 2 s.h. 
Advanced topics chosen according to faculty, student interest, may include human, animal, environmental toxicology research methods, current issues. Offered spring semesters of odd years. Prerequisite: 63:260 or 71:103 or consent of instructor.

63:273 Research Data Management 
Skills in computer use, especially large databases; Java design, data editing, system utilities, data management concepts, statistical packages. Offered fall semesters. Prerequisites: 63:115 and FORTRAN, Pascal, or C programming capability.

63:276 Biostatistical Methods II 4 s.h. 
Continuation of 63: 176, which is prerequisite: correlation, multiple linear regression, multiple factor experiments, multiple comparisons, orthogonal contrasts, analysis of covariance, life tables, rate adjustment, analysis of odds ratios; parametric and nonparametric methods; emphasis on use of computer. Offered spring semesters.

63:279 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. Prerequisites: 63:109 or 63: 158, 63: 161; and 69: 133 or 96: 120.

63:280 Occupational and Environmental Health Seminar 0-1 s.h. 
Contemporary Topics in occupational health, agricultural and comparative medicine, environmental health.

63:291 Pharmaceutical Epidemiology 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 pharmaceutical outcomes. Offered fall semesters. Prerequisites: 63: 158, and 73: 101 or 73: 105 or equivalent; or consent of instructor.

63:300 Thesis arr. 
Master's thesis or doctoral dissertation.

63:396 Occupation Medicine arr. 
Experience in a variety of settings, including heavy industry, community occupational clinics, environmental project, agriculture; four weeks developed to match students' interests, goals; on campus time at Institute of Agricultural Medicine. Offered spring semesters. Off campus locations include industrial, community hospital sites in Iowa, Open only to medical students.

63:997 Alternative Medicine 1 s.h. 
Lectures, discussion, dialogue with nontraditional healers and consumers; evolution and cultural contexts of what constitutes disease, role of the healer, relationship between traditional and alternative medicine; with focus on problems, compatibilities, potential for the future. Open only to medical students.

63:998 Special Studies on Campus arr. 
On campus clerkship in community services in primary care practice; how public health and community health agencies operate as part of the total health care service system. Open only to medical students.

63:999 Special Studies off Campus arr. 
Rotations in community health or preventive medicine activities includes international assignments in developing countries, clerkships in community health programs on Indian reservations or in Appalachian or urban center, assignment to governmental agencies or legislative bodies. Open only to medical students.

The Department of Psychiatry teaches medical students and trains resident physicians for academic and clinical careers in psychiatry. It offers no degree program.

It instructs medical students principally during their third year, in the course of a six-week clerkship.

The department maintains a four-year training program approved by the Residency Review Committee of the American Medical Association. Training experiences are available at The University of Iowa Hospitals and Clinics and at the Veterans Affairs Medical Center. Additional experiences are available at affiliated institutions: Broadlawns Medical Center in Des Moines, the Iowa Security Medical Facility at Oakdale, the Mid-Eastern Iowa Community Mental Health Center in Iowa City, and the Mental Health Institute at Independence.

The department offers an approved two-year residency in child psychiatry.

The department's staff is actively involved in genetic and family studies of psychiatric disorders and in research in genetic and biological psychiatry, neurochemistry, 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 group psychotherapy also offer opportunities to a limited number of students for research and further study.

**Courses**

73: 100 Psychiatry for Physician Assistant Students arr.

73:101 Psychiatry Elective for Physician Assistant Students arr.

73:107 Psychosocial Interventions in Psychiatry arr.

Experience, training in psychosocial treatment for psychiatric disorders (e.g., depression, anxiety, eating disorders, insomnia, chronic pain, outpatient psychotherapy); emphasis on short term interventions in group or individual format.

73:230 Research in Psychiatry arr.

Biological and psychological problems related to psychiatry. Open to medical students, graduate students, and physicians with training in scientific methodology.

73:231 Problems in Psychiatry arr.

73:255 Psychiatric Epidemiology 3 s.h. 
Epidemiology of mental disorder; problems in psychiatric epidemiology; reliability, validity; diagnostic classification: epidemiology of specific diseases, including dementia, schizophrenia, mania - depression, anxiety neurosis, alcoholism, personality disorder. Same as 63:255.

**Courses Open Only to Medical Students**

73:5 Clinical Psychiatry 6 s.h. 
Open only to junior medical students.

73:31 General Hospital Psychiatry arr.

Psychiatric Consultation Service, University Hospitals and Clinics.

73:33 Adult Psychiatry, Pappajohn Pavilion arr.

73:34 Hospital Psychiatry, Veterans Administration Hospital, Iowa City arr.
Radiation Biology

Director: James W. Osborne
Professors: Richard L. DeGoWin, James C. Elhardt, David H. Hussey, Larry W. Oberley, James W. Osborne
Professors emeriti: Frank Hsieh-Fu Cheng, Edgar F. Riley, Jr.
Associate professors: Richard D. Hichwa, Michael E. C. Robbins
Adjunct associate professor: Carrey R. Buettner
Assistant professor: Frederick E. Domann, Jr.
Graduate degrees: M.S., Ph.D. in Radiation Biology

The radiation biology program provides in-depth training and research experience in the study of the physical, chemical, and biological effects of radiation and the theory and widespread application of radioisotope methodology. It stresses the importance of these areas to scientific research, clinical medicine, and the general public. Another focus of the program is free radical biology. Free radicals, which are generated in great number by radiation, play a role in normal and tumor biology that is of great interest to basic researchers and clinicians.

Undergraduate Study

Two courses, 77:103 Introduction to Radioisotopes and Radiobiology and 77:106 Environmental and Radiological Health Physics, are open to undergraduate students in liberal arts or professional colleges. 77:103 is especially appropriate for those who want an overview of radiation’s biological effects and its uses in our society. These courses also are of interest to students who plan to enter medicine, nuclear medicine technology, environmental health, or similar programs.

Graduate Programs

The M.S. program in radiation biology emphasizes technical aspects and provides a good background for those who choose to pursue a Ph.D. degree in radiation biology or related field.

The Ph.D. program is open to graduate students who plan to enter medicine, nuclear medicine technology, or related field. The Ph.D. is required for admission to the Ph.D. program, but consideration is given to other methods of qualifying.

After completing the introductory course, students may emphasize a particular aspect of the field. The details of the program are built around previous training, interests, abilities, and career objectives. Some students elect to emphasize training in physical aspects, such as radiological physics or health physics; others major in biological aspects.

In addition to formal lectures, radiation biology programs involve small-group conferences and discussions. Laboratory exercises are emphasized, and students have the opportunity to become familiar with many types of instruments and techniques. Students must have at least one semester of experience as teaching assistants and at least one as research assistants. No registration is required and no academic credit is given for the assistantships.

Special Programs

Postdoctoral training is available by arrangement with the program chair and individual faculty members.

Financial Aid

Graduate students are supported as research assistants from funds available through research grants and contracts, or as teaching assistants from departmental funds. Individual postdoctoral awards also may be available and are applied for jointly by the candidate and his or her faculty sponsor.

Facilities

The Radiation Research Laboratory has X-ray generators and other radiation sources, including a 10,000 Curie CS-137 irradiator. Students and staff also have access to other radiation sources, such as the CO-60 gamma source and the linear accelerators in the Department of Radiology.

The Radiation Research Laboratory has a variety of radiation detectors and counters, including gamma and liquid scintillation counters and a small animal whole-body counter. The laboratory also has ultraviolet/visible spectrophotometers; various types of equipment for chromatography and electrophoresis; an automatic cell counter and particle sizer; tissue culture facilities; and facilities for preparing histological sections of tissues–fixed or frozen–and autoradiographs.

Courses

77:103 Introduction to Radionuclides and Radiobiology 4 s.h.
Characteristics, biological effects of ionizing radiation; properties, uses of radioisotopes, medical applications, biological bases for protection procedures. Offered fall semesters. Consent of instructor required.

77:106 Environmental and Radiological Health Physics 4 s.h.
Radiation hazards, control regulations, problems of design and use of radiation facilities in medical, academic, industrial situations; exposure, dose measurements in radiation environments. Offered fall semesters of odd years. Prerequisite: 77:103 or consent of instructor.

77:107 Special Topics: Advanced Undergraduates 4 s.h.
Readings and/or laboratory experience. Offered fall semesters. Consent of instructor required.

77:108 Special Topics: Advanced Undergraduates arr.
Readings and/or laboratory experience. Offered spring semesters. Consent of instructor required.

77:207 Seminar: Radiation Research 1 s.h.
Offered fall semesters.

77:208 Seminar: Radiation Research 1 s.h.
Offered spring semesters.

77:211 Physics of Radiobiology I 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 fall semesters of even years. Prerequisite: 4 semester hours of physics or 77:106 or consent of instructor.

77:220 Human and Mammalian Radiation Biology 4 s.h.
Radiation effects on organ systems in humans, other mammals; spleen, bone-marrow transplantation; agents that modify radiation response; radiation carcinogenesis. Offered spring semesters of odd years. Prerequisite: 77:105 or consent of instructor.

77:222 Free Radicals in Biology and Medicine 3 S.h.
Chemistry of free radicals, antioxidants, enzyme-structure function, regulation; targets of free radical-lipids, proteins, DNA; free radicals in health and disease. Prerequisite: 4:121 or 99:120.

77:223 Cellular Radiobiology 4 s.h.
Radiation and cell growth, multiplication, differentiation, function; modification of radiation effects; effects on immunity; cell kinetics of tumor, host tissue. Offered spring semesters of even years. Prerequisite: 77:103 or consent of instructor.

77:224 Radiotopes in Biological Research arr.
Uses of radioisotopes in biological systems; emphasis on beta assay, especially liquid scintillation counting and on assay of gamma emitters. Offered spring semesters of even years. Consent of instructor required.

77:305 Research: Radiobiology arr.

77:306 Research: Radiobiology arr.

77:307 Special Topics arr.

77:308 Special Topics arr.

77:309 Thesis arr.

77:310 Thesis arr.

77:545 Topics in Free Radical Biology and Medicine 1 s.h.
New Literature in area of free radicals. Consent of instructor required. Same as 77:545.

Radiology

Interim head: Wilbur L. Smith


Adjunct professor: Kevin Berbaum

Associate professors: Thomas Barlow, Garry Buettner, David Bushnell, Fred Doombros, Jeffrey Galvin, Maleah Grover-McKay, Richard D. Hichwa, Eric Hoffman, Simon Kao, Mary H. Kathol, Mark T. Madsen, Karim Rezai, Michael Robbins, James Seabold, Venkat Ratana Tharathorn, B-Chen Wen

Adjunct associate professor: Garry R. Buettner

Assistant professors: Eric Brandser, Bruce P. Brown, Paul Chang, Daniel Crosby, Frederic Domann, William E. Erkoren, Kurt Harris, Daniel Kahn, Nina Mayr, David Mellenberg, Retta Pelsang, Tereasa Simonson, Brad H. Thompson, Niall Warnock, Donald C. Young

Associate instructors: William J. Sickels, G. Leonard Watkins

Assistant research scientist: Laura Ponto

Assistant research scientist: Laura Ponto
The Department of Radiology teaching program is designed to meet the needs and interests of fourth-year medical students in diagnostic radiology, nuclear medicine, and radiation therapy.

Rotations through the subdivisions of diagnostic radiology—including ultrasound, magnetic resonance, computerized tomography, nuclear medicine, and radiation therapy—are designed according to the student’s area of interest.

**Courses**

74:1 Clinical Radiology
arr.
Clinical rotation in diagnostic radiology, nuclear medicine techniques; aims, techniques of radiation therapy.

74:2 Introduction to Radiation Therapy
4 s.h.
Radiator oncology and cancer management, with emphasis on interaction of radiation therapy, chemotherapy, surgery; experience with patient care, management.

74:3 Vascular and Interventional Radiology
arr.

74:5 Radiology Elective for Physician Assistant Students
arr.

74:100 Independent Study in the Radiologic Sciences
arr.
Didactic, clinical, or research. Consent of instructor required.

74:101 Principles of Nuclear Medicine I
0.6 s.h.
Didactic, laboratory work in radiopharmacy, patient care, radiation protection, math and statistics, radiation physics, anatomy and physiology, radiopharmacy and tracer techniques, medical terminology, computer applications. Open only to nuclear medicine technology students.

74:102 Introductory Clinical Nuclear Medicine 0.6 s.h.
Experience in preparing radiopharmaceuticals, performing routine nuclear imaging and in vitro procedures; work with clinical instructors. Open only to nuclear medicine technology students.

74:103 Principles of Nuclear Medicine II
0.3 s.h.
Didactic, laboratory work in nuclear medicine instrumentation, radiology, radiopharmacy, and radiopharmacy administration and management, film processing, radiopharmacy laboratory introduction. Open only to nuclear medicine technology students.

74:104 Intermediate Clinical Nuclear Medicine 0.9 s.h.
Progressive responsibility in radiopharmacy, nuclear imaging, radiopharmacy procedures; rotations in magnetic resonance imaging, other related imaging areas. Open only to nuclear medicine technology students.

74:105 Advanced Clinical Nuclear Medicine 0.6 s.h.
Proficiency in performance, quality control of all radiopharmacy and nuclear medicine procedures; opportunities for independent study, research. Open only to nuclear medicine technology students.

74:901 Clinical Radiology in Private Practice
arr.
Off-campus rotations at community hospital radiology department; experience in clinical activities.

74:998 Special Studies on Campus
Prerequisite: 74:1 or 74:901.

74:999 Specialist Studies off Campus
arr.

**Surgery**

Interim head: Robert T. Soper


Clinical associate professors: Romeo S. Berardi, Luke C. Faber, Alfred J. Heritzka, James M. Levett, Donald W. Mooman, Samuel D. Porter, Louis D. Rodgers


Clinical assistant: Yousin Wu

Clinical associate: Sue BeckWich

Clinical lecturer: Wendell K. Downing

Courses in surgery provide a unique combination of experience oriented toward patient care with basic surgical research designed to promote students’ awareness of the place of surgery among the physician’s skills. These courses are available only to medical students and qualified students in associated health sciences.

Students of surgery develop awareness of surgical therapy’s place in the treatment of disease. Emphasis is placed on basic emergency techniques, traumatology, oncology, burns, gastrointestinal and biliary tract disease, endocrine disease, transplantation, plastic surgery and reconstruction, peripheral vascular surgery, thoracic and cardiovascular surgery, and neurosurgery.

A majority of the courses involve patient-centered discussions and practical exercises interspersed with operating room experience. Lectures and conferences are scheduled regularly on specific topics.

Special courses in selected topics of surgical research, independent study, and clinical experiences are available to individual fourth-year students by special arrangement with the faculty.

**Faculty**

Special faculty strengths are centered in the fields of pathophysiology and problems of severe burns, organ transplantation, surgical control of morbid obesity, inflammatory bowel disease, biliary tract disease, pediatric surgery, and plastic surgery. The thoracic-cardiovascular and neurological surgeons have particular expertise in clinical management of the spectrum of diseases in their specialties.

**Laboratories**

The department has more than adequate numbers of patients with a wide variety of surgical diseases for teaching. Special areas include the only burn unit of its kind in the state, providing adequate patient material for both clinical and basic science research.

Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. These laboratories include animal surgery, tissue culture, gastroenterology, microbiology, peripheral vascular surgery, transplantation, organ preservation, cardiovascular surgery, neurosurgery, and oncology.

**Courses**

75:5 Clinical Surgery
6 s.h.
Experience as active member of surgical team; work on wards, in clinics and operating room: assistance m elective, emergency care.

75:100 Emergency Room Elective for Physician Assistant Students
arr.

75:109 Surgery Elective for Physician Assistant Students
arr.

75:111 Surgery Elective for Physician Assistant Students (Transplant/Organ Retrieval)
arr.

Experience in care of patient with end-stage organ failure; participation in evaluation of potential transplant candidates and in surgical procedures of University transplant service.

75:112 Surgery Elective for Physician Assistant Students (Burn Unit)
arr.

Burn care on unit and in the operating room; debridement, grafting techniques, skin preservation, dressing changes and sub baths, physical therapy procedures.

75:160 Introduction to Perfusion Technology
3 s.h.

75:161 Instrumentation in Perfusion Technology
3 s.h.

75:162 Pathophysiology of Perfusion Technology
3 s.h.

75:163 Clinical Experience I
2 s.h.

Perfusion in operating room: patient workup, observation, and reporting on extracorporeal setup, surgical procedure. Open only to perfusion technology students. Prerequisites: 75:160, biochemistry, and physiology.

75:164 Clinical Experience II
3 s.h.


75:165 Clinical Experience III
12 s.h.

Continuation of 75:164; management of cardiopulmonary bypass system. Prerequisites: 71:130, 75:164, 75:170, 75:171, and 75:164.

75:166 Clinical Experience IV
12 s.h.

Continuation of 75:165; emphasis on support maintenance, perfusion departmental management. Prerequisite: 75:165.

75:167 Perfusion Seminar
arr.

75:168 Research in Perfusion
arr.

From topic selection to manuscript. Open only to perfusion technology students.

75:169 Clinical Experience V
12 s.h.

Continuation of 75:166, which is prerequisite.

75:170 Principle and Practice of Perfusion Technology
6 s.h.

75:171 Devices in Perfusion Technology
3 s.h.

75:172 Advanced Clinical Surgery
4 s.h.

Responsibility for patient care on wards, m operating rooms on a surgical service. Consent of instructor required. Prerequisite: 75:5.
### UROLOGY

**Head:** Richard D. Williams  
**Professors:** Bernard Fallon, Charles E. Hawtrey, Stefan Loening, David M. Luboroff, Richard D. Williams  
**Associate professors:** William W. Bonney, Michael B. Cohen, James F. Donovan, Jr., Karl J. Kreder, William A. See, Howard N. Winfield  
**Assistant professors:** Robert Dreicer, Amy E.T. Sparks

In addition to the areas of urinary tract stone and infections, diagnostic urology, and results of urinary tract obstruction, urology also includes urological nephrology, urologic oncology, urologic endocrinology, male reproductive physiology, neurourology, and pediatric urology.

The Department of Urology of The University of Iowa College of Medicine offers courses in all these fields at undergraduate and graduate levels and in continuing education for the delivery of urologic care.

In the first year of the M.D. program, the department participates with several of the basic science departments in teaching how urology relates to the basic sciences. The department participates with the Department of Microbiology in teaching and research in immunology as it relates to transplantation and cancer.

The Department of Urology participates actively in 50:111 Introduction to Clinical Medicine, which involves the entire second semester of second-year medicine. The department offers illustrative lectures and demonstrations concerning the diagnosis and treatment of diseases involving the genitourinary tract in the male and the urinary tract in the female and child.

In the third and fourth years of the curriculum in medicine, the department offers courses in diagnostic urology, urological oncology, and the entire field of urology. In the required third-year clerkship, the department offers the basics of this material, and in the fourth year it offers advanced elective courses of intensive study in these areas.

The department offers continuing education 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, and prostatic diseases.

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 continent intestinal reservoir dialysis.

### COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>79:104</td>
<td>Clinical Urology</td>
<td>2 s.h.</td>
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<tr>
<td>79:108</td>
<td>Advanced Clerkship in Urology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>79:109</td>
<td>Advanced Clerkship in Pediatric Urology</td>
<td>4 s.h.</td>
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<tr>
<td>79:115</td>
<td>Urological Oncology</td>
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<tr>
<td>79:119</td>
<td>Urology</td>
<td>4 s.h.</td>
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<tr>
<td>79:999</td>
<td>Special Study off campus</td>
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### 50:111 Introduction to Clinical Medicine

*Work in urology unit; clinic; responsibility for patient care; working with residents.*

**Prerequisites:** 75:5, 75:555 General Surgery for Physician Assistant Students.

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<tr>
<th>Course Code</th>
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<th>Credit Hours</th>
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<tr>
<td>75:111</td>
<td>General Surgery: Iowa Methodist Medical</td>
<td>4 s.h.</td>
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<tr>
<td>75:104</td>
<td>Urology</td>
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<td>75:998</td>
<td>Special Study on Campus</td>
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<tr>
<td>75:999</td>
<td>Special Studies off Campus</td>
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</tbody>
</table>
Dean: Geraldene Felton
Associate dean, undergraduate studies and community affairs: Eleanor McClelland
Director, continuing nursing education: Kathleen Kelly
Director, nursing research development and utilization: Toni Tripp-Reimer
Associate director, nursing research development and utilization: Kathleen Buck-Walter
Director, student services: Laraine Carmichael
Professors: Kathleen Buck-Walter, M. Patricia Donahue, Geraldene Felton, Meridean L. Maas, Joanne McCloskey, Barbara Thomas, Toni Tripp-Reimer
Professors emeritae: Myrtle Aydelotte, Eva Erickson, Rosemary McKeghe, Hope Solomon
Associate professors: Mary Blegen, Gloria Bulechek, Toni Clew, Martha Craft-Rosenberg, Connie Delaney, Joanna Eland, Rita Frantz, Rose Marie Friedrich, Mary Hardy, Laura Hart, Keela Herr, Diane Huber, Marion Johnson, Jean I-Akin, Leslie Marshall, Eleanor McClelland, Paula Mobily, Sandra Powell, Jean Reese, Elizabeth Swanson
Associate professors emeritae: Geraldine Busse, Phyllis Franck, Mildred Freels, Marjorie Gould, Nancy Jordan, Marjorie Lyford, Anna E. Overland, Etta H. Rasmussen

Assistant professors: Martha Carpenter, Mary Kathleen Clark, Perle Slavik Cowen, Carolyn Crowell, Janice Duney, Michele Ellis, Orpha Glick, Kathleen Keely, Louise Kruse, Sonja Lively, Arm Mane McCarthy, Frances Miles, Sue Moorhead, Imonne Ruth, Beverly Saboe, Annette Scheffel, Mary Stewart, Dement, Kay Weiler, Janet Williams
Assistant professors emeritae: Joelia Antes, Merle Heick, Mary Rock
Lecturers: Mary Aquiline, Pam Ballard, Teresa Boese, Veronica Brightin, Marilyn Bushnell, Lily Chen, Patricia Clinton, Ken Cuip, Karen Griffith, Mary Harrison, Anne Hartson, Phyllis Heffron, Vicky Hertig, Deborah Jensen, Jane Johnson, Lisa Skemp Kelley, Jean King, Nicollet Markovetz, Sheryl Miller, Patricia Nelson, Anita Nicholson, Margaret Rankin, Joyce Roberson, Michelle Ruhlmann, Joanne Tiggs, Connie Trowbridge, Pamela Willard

Undergraduate degree: B.S.N.
Graduate degrees: M.A., Ph.D. in Nursing
The College of Nursing is an integral part of The University of Iowa Health Center, sharing in and contributing to teaching, research, and patient care resources that have earned international recognition. The University health center provides an unusually fine setting for nursing preparation because the educational and clinical resources that are needed to educate nurses are available on or near the campus. Faculty and students participate fully in University life and contribute their time, interest, and abilities to the many general and special activities of a major research university.

Both the baccalaureate and master’s programs of the college are accredited by the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing, the professional accrediting agency for college and university programs of nursing education. The baccalaureate program is approved by the Iowa Board of Nursing, and graduates of the program qualify to take the licensure examination required for practice as registered nurses.

**Undergraduate Program**

The Baccalaureate of Science in Nursing (B. S. N.) at The University of Iowa is designed to provide preparation for careers in the hospital care of patients and in community agencies such as public health services, schools, homes, and industries. It also serves as the 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 be prepared for a career but to be able to achieve a life of thought and action informed by knowledge, introspection, and contemplation.

The program prepares professional nurses to be primary health care providers who are able to engage in a broad range of health promotion and teaching activities and to coordinate care in any sector of the health care system.

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 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.

The 128-semester-hour course of study consists of 75 semester hours of liberal arts General Education Requirement courses and supportive prenursing courses, and 53 semester hours of course work in the nursing major. Students can expect to complete the program in four or four and one-half academic years. An R. N.-B.S.N. progression option is available for diploma and ADN registered nurses who wish to complete the B.S.N. For these students, a one-year plan of study is available for the completion of requirements for baccalaureate nursing courses upon satisfaction of all required prerequisite and general education courses and admission to the College of Nursing. At the time of admission, all R. N.-B.S.N. students declare one of the four options available within the Iowa Articulation Plan for Nursing Education: R.N. to baccalaureate.

Nursing courses are based on the concepts of health, deviations from health, and nursing intervention and are presented at progressive levels of 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 the hospital. Students have clinical experiences that are selected from more than sixty agencies in the state. Basic baccalaureate graduates are eligible to take the licensure examination required for practice as a registered nurse.

**Approaches to the College of Nursing**

Students may complete their entire program at Iowa, enrolling during their first year and one-half to two years in the College of Liberal Arts. Or they may transfer from an institution that offers a two-year sequence of 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, Calmar, Carroll, Cedar Rapids, Clarinda, Clinton, Davenport, Des Moines, Estherville, Fort Dodge, Marshalltown, Mason City, Muscatine, Ottumwa, Sheldon, 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.

**Cooperative Education Summer Clinical Internship**

High-achieving undergraduates have the opportunity to develop clinical skills through placement in a summer employment setting. Internships are available in hospitals, community health settings, and occupational health services in Iowa and surrounding states. This program affords undergraduates the opportunity to work closely with a preceptor while being employed, and with a faculty member in pre- and post-internship seminars.

Internships are available to qualified undergraduate students who have completed three semesters of clinical nursing courses and have maintained a nursing grade-point average of 3.00 or higher. Interested students should contact the College of Nursing coordinator of the Cooperative Education Summer Clinical Nursing Internship Program, or the Office of Cooperative Education, for specific information about the program.

**Aging Studies**

Students in the College of Nursing may participate in the Aging Studies Program, which is designed to provide undergraduate students a multidisciplinary approach to gerontology.

Students plan their course of study with their academic adviser in close cooperation with the Aging Studies Program coordinator. Nursing students who successfully complete the first 15 semester hours of acceptable course work in aging studies are awarded a certificate of completion by the University registrar. Nursing students also have the option of completing a minor in aging studies by taking 15 semester hours outside of the major in courses approved by the program. For further information, see “Aging Studies Program” in the College of Liberal Arts section of the Catalog.

**Honors**

The University of Iowa College of Nursing Baccalaureate Honors Program provides seminars and independent study experience for qualified students. To be eligible, students must have completed the first clinical nursing course and must maintain a 3.25 cumulative grade-point average and a 3.50 nursing major grade-point average. The honors program enables students to explore subject matter based on individual interests, needs, and goals. It provides opportunities for self-initiative 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.

**Pregraduation Assessment Test**

All students are encouraged to take a pregraduation assessment test during the final semester of their senior year. The test is designed to assess nursing students’ essential nursing knowledge and application in clinical situations; to identify students’ specific strengths and weaknesses, providing a sense of direction for further study and a means for setting priorities; and to help students choose effective and efficient plans for further study and review before they take the National Council on Licensure Examination for Registered Nurses.

The examination score is not computed in the course grade. Students receive a detailed printout of the results of their examination and are given recommendations for self-directed study.
Registered Nurses

The R. N.-B.S.N. program offers registered nurses the opportunity to build on their nursing knowledge and experience base. The nursing major sequence is designed specifically for registered nurses, with a focus on nursing process and health assessment; community health care clinical settings; leadership, management, and research opportunities; nursing professionalism; and computer expertise. Each R. N.-B.S.N. student is assigned to a College of Nursing faculty member for continued academic advising and curriculum planning.

The College of Nursing participates as a receiving institution in the Iowa Statewide Articulation Plan for Nursing Education: R. N. to baccalaureate. At the time of admission to the College of Nursing, students declare one of the four options available within the plan. Plans of study are developed and credit is awarded according to the option the student declares.

Students may transfer previous course work completed at another college or university to satisfy some prerequisites to the nursing major. They may complete the balance of prerequisites at The University of Iowa and at many other colleges and universities in Iowa. In addition, they may take specific challenge examinations. Once prerequisites are met, students may complete the R. N.-B.S.N. nursing major sequence in one calendar year or three semesters in a sequence that includes three clinical and two nonclinical nursing courses. R.N.’s may study on campus and in designated satellite sites. Registered nurses planning to enter the baccalaureate program should obtain special information and advising from the College of Nursing.

Faculty Advisers

Advisers from the Undergraduate Academic Advising Center advise prenursing students. After admission to the College of Nursing, each student is assigned a College of Nursing faculty adviser.

Student Organizations

College of Nursing undergraduate students have their own organization, The University of Iowa Association of Nursing Students (LHANS). LHANS provides opportunities for professional growth and development in nursing. Its representatives are members of The University of Iowa Student Association (USIA), and there is a LHANS representative on the Academic Council of the College of Nursing.

College of Nursing graduate students also have an organization, the Association of Graduate Nursing Students (AGNS). AGNS provides opportunities for professional growth, sharing of research, and representation on various college and University committees.

Expenses

Students pay the general University fees throughout the 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, professional liability insurance, and transportation once they are enrolled in clinical nursing courses.

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.

Financial Aid

In addition to general assistance available to University students, there are assistance programs specifically for nursing students. Information about financial assistance is available from the University’s Office of Student Financial Aid.

Admission

High School Background

The College of Nursing strongly recommends four years of English, three years of social science, three years of mathematics, two years of one foreign language, and one year each of biology, chemistry, and physics, plus other college preparatory courses selected with the help of the high school counselor.

College Background

APPLICATION AND ADMISSION REQUIREMENTS

To apply for admission to the undergraduate program in nursing, each student must qualify for admission to The University of Iowa and meet these requirements:

- completion of all prerequisites (or current enrollment in any remaining prerequisites);
- a minimum grade-point average of 2.50 on a 4.00 scale.

Applicants whose first language is not English are required to present a minimum score of 550 on the Test of English as a Foreign Language (TOEFL). Registered nurses educated outside of the United States are required to present verification of having passed the CGFNS examination and specified ACT/PEP baccalaureate nursing examinations.

Preclinical Background

Students must satisfy the following requirements, in addition to the biological and behavioral science courses required for admission to the college, before beginning clinical nursing course work.

- Rhetoric-8 semester hours (may be satisfied by testing for advanced standing); a student who has earned 6 semester hours of credit in English composition may complete the speech component after admission.
- Mathematics-three years of high school math or a score greater than or equal to 26 on the mathematics battery of the ACT, or completion of a college course in mathematics comparable to or more advanced than intermediate algebra (22M:2).
- Physics—one-half year of high school physics or equivalent; if physics is completed at the college level, it may be included in the 28 semester hours required for admission.
- The following course work:
  - Inorganic chemistry 3 s.h.
  - Organic biochemistry 3 s.h.
  - Animal biology 4 s.h.
  - Microbiology 4 s.h.
  - Human anatomy 4 s.h.
  - Human physiology 3 s.h.
  - Nutrition 3 s.h.
  - Psychology 3 s.h.
  - Sociology 3 s.h.
  - Anthropology 3 s.h.

STANDARDS

To be considered for admission to the College of Nursing, the applicant must have satisfactorily completed all prerequisites.

American College Tests

All entering freshmen and undergraduate transfer students who present fewer than 24 semester hours 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 the American College Testing Program, Box 451, Iowa City, Iowa 52243.

selection Factors

The college’s admission committee recommends to the dean the applicants who appear to be best qualified. However, 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 Student Health Service ten days prior to the opening of classes for the first clinical nursing course.

Application Deadlines

- Fall semester—March 1
- Summer session for registered nurse students only—March 1
- Spring semester—October 1

Graduate Programs

Master of Arts

The University of Iowa M.A. program in nursing is accredited by the National League for Nursing (NLN). The curriculum is designed to build on
general and professional baccalaureate study in which nursing is an upper-division offering. Graduation from an NLN-approved baccalaureate degree program is one of the admission requirements. Options are available for registered nurse applicants with a non-NLN-accredited B.S.N., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country.

The curriculum consists of a core component and areas of specialization and role preparation enhanced by supporting course work in a related discipline. Forty two semester hours are required for graduation.

Core courses are taken by all students in the program. Students select an area of nursing specialization in child health nursing, adult health nursing, community health nursing, or gerontological nursing, and a role preparation area in clinical specialization, administration, or teaching. Students may choose a pediatric nurse practitioner option in the child health specialization area, a nurse manager option in the nursing administration role preparation area, or a rural health gerontological nurse practitioner option in the gerontological health specialization area. Genetics counseling is also available. Students also may choose an M.B.A./M.A. in nursing.

Four to five supporting courses related to either the nursing specialization or role preparation areas are taken in the social, behavioral, or biological sciences or in business administration, law, hospital and health administration, or computer science.

Degree Requirements

The curriculum ordinarily requires four semesters of full-time study for completion. Part-time and evening study options are available. The M.B.A./M.A. in nursing program requires a minimum of six semesters of full-time study. Students must maintain a 2.50 minimum grade-point average and must successfully complete a master's thesis or master's project.

The master's curriculum consists of five components.

Advanced Nursing Core

The core consists of 15 semester hours of course work in leadership in nursing (3 semester hours), theory and methods of nursing research (3 semester hours), health policy and economics (3 semester hours), and nursing informatics and technology (3 semester hours).

Nursing Specialization

The specialization requires 8 semester hours of course work with practicums; it allows students to build a special area of knowledge and practice that extends beyond the advanced nursing core. Specialization may be in the broad areas of child health nursing, adult health nursing, gerontological nursing, or community health nursing. Students may develop their areas of specialization through their choices of course work and fieldwork experiences. For example, students who select adult health nursing as their area of specialization may choose practicum experiences with patients in a long-term care facility, a mental health clinic, or a cardiac care unit. Students with unique career goals have the option of further modifying their plans of study under the direction of their academic advisers.

Role Development

Students may select administration, advanced clinical practice, or education as a role preparation area. The role preparation requires 6 semester hours of course work with practicums. Students who elect to prepare for careers in clinical practice, for example, enroll for 6 semester hours of advanced clinical practice in addition to courses required for the nursing specialization component. In fulfilling the practicum requirements of these courses, students may select particular settings and/or preceptors compatible with their own career goals. Students who select community health are encouraged, but not required, to choose the nursing administration role option.

Supporting Courses

Students must complete 11-14 semester hours; they may choose their supporting course work in areas related to their nursing specialization or role preparation interests. Community health nursing students must enroll in 63:158 Principles of Epidemiology.

Thesis/Master's Project

All master's students at the University must take a final examination. Students in the College of Nursing satisfy this requirement by completing either a thesis or a master's project. Students, with their advisers, select the option that best maximizes their individual career objectives.

The 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 Graduate College. Students earn a total of 5 semester hours of credit 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 a previous course assignment. Students earn 2 semester hours for the master's project and complete 3 additional semester hours in supporting course work.

Plan of Study

The plan of study described below is designed for full-time students. Those who want to study on a part-time basis progress through courses in approximately the same way, but over a longer period of time. Taking one or two courses per semester, for example, extends the time of study to three to five years. Any course work taken ten years or more prior to the final examination must be updated, according to University policy.

FIRST YEAR

Fall Semester

96:203 Theory Development and Research Methods 3 s.h.
96:204 Leadership in Nursing: Theory and Application 3 s.h.
96:263 Introduction to Nursing Informatics and Technology 3 s.h.
Supporting course 3 s.h.
Total 9 s.h.

Spring Semester

96:205 Methods and Utilization of Nursing Research 3 s.h.
Supporting course (master's project) 3 s.h.
96:212 Health Care Economics and Public Policy 3 s.h.
One of these:
96:222 Nursing of Children: Health Promotion 4 s.h.
96:226 Nursing of Adults: Health Promotion 4 s.h.
96:231 Nursing of Older Adults: Response to Illness 4 s.h.
96:234 Foundations: Advanced Community Health in Nursing Practice 4 s.h.
Total 10-13 s.h.

SECOND YEAR

Fall Semester

Supporting course 3 s.h.
One of these:
96:298 Master's Project 1 s.h.
96:299 Thesis 2 s.h.
One of these:
96:223 Nursing of Children: Responses to Illness 4 s.h.
96:227 Nursing of Adults: Responses to Illness 4 s.h.
96:230 Nursing of Older Adults: Health Promotion 4 s.h.
96:235 Advanced Community Health in Nursing Practice 4 s.h.
One of these:
96:246 Nursing Education: Process, Roles, and Strategies 3 s.h.
96:260 Nursing Administration: Process, Roles, and Strategies 3 s.h.
96:268 Advanced Clinical Practice I 3 s.h.
Total 11-12 s.h.

Spring Semester

Two supporting courses 5 s.h.
One of these:
96:247 Curriculum Development in Nursing Education 3 s.h.
96:261 Nursing Administration: Process, Roles, and Strategies II 3 s.h.
96:269 Advanced Clinical Practice II 3 s.h.
One of these:
96:298 Master's Project 1 s.h.
96:299 Thesis 3 s.h.
Total 9-11 s.h.

Joint Master's Program with Business Administration

A joint M.B.A./M.A. in nursing is available. The program is designed for students with previous clinical and administrative experience. Applicants to this program need to be accepted for graduate study in both programs. The joint program requires a total of 69 semester hours. For more information, contact the Office of Student Services.
Admission

Students should seek admission to the master’s program in nursing through direct application to The University of Iowa Graduate College.

Minimum requirements for admission to the Graduate College include a completed application; official transcripts from other institutions attended; Graduate Record Examination (GRE) General Test scores; a passing score on the Test of English as a Foreign Language (TOEFL), when appropriate; and a 2.50 minimum grade-point average for regular admission or 2.30 for conditional admission.

In addition to the general requirements for admission to the Graduate College, the College of Nursing requires that the applicant:

- possess a bachelor’s degree with a major in nursing from a program accredited by the National League for Nursing. Options are available for registered nurse applicants with a non-NLN-accredited B.S.N. or B.S. or a B.S.N. from a foreign country;
- fulfill the legal requirements for the practice of nursing in Iowa;
- have an undergraduate grade-point average of 2.70 or higher, or a demonstrated ability to do graduate work for regular admission; or have an undergraduate grade-point average of 2.50 or higher for conditional admission;
- have current written recommendations from three persons familiar with the applicant’s competence in the practice of nursing and potential for leadership and scholarship; and
- have successfully completed a graduate-level (or equivalent) statistics course prior to admission.

Foreign students must earn a score of at least 550 on the Test of English as a Foreign Language (TOEFL).

Applications for admission to the master’s degree program are reviewed on a continuing basis. For review, the applicant’s file must be complete, with all relevant materials submitted. Deadline for summer and fall admission is May 1. The spring semester admission deadline is December 1. Initial course enrollment may begin any term.

All regulations of the Graduate College pertaining to academic standing, probation, and dismissal are applicable to graduate students in nursing. Transfer credits applicable to the master’s degree program are limited and must be approved by the dean for the graduate program in nursing and by the student’s adviser.

Degree Requirements

All candidates must take the following courses.

- 96:300 Classics in the Social Evolution of Modern American Nursing 3 s.h.
- 96:340-341 Nursing Theory Construction 1-1 6 s.h.
- 96:310 Nursing and Health Information Systems 3 s.h.
- 96:320 Economics of Health Care and Nursing 3 s.h.
- 96:330 Nursing’s Role in Health Care Policy 3 s.h.
- 96:380 Doctoral Orientation in Nursing Research 9 s.h.
- 96:420 Geriatric Mental Health 3 s.h.
- 96:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.
- 96:440 Research Utilization in the Elderly 3 s.h.
- 96:451 Research Seminar in Nursing 3 s.h.
- 96:460 Innovations in Nursing Management 3 s.h.
- 96:470 Residency in Nursing Service Administration 3 s.h.
- 96:480 Residency in Nursing Service Administration 3 s.h.
- 96:490-491 Research Practicums O s.h.

Admission Requirements

Students applying to the Ph.D. program must fulfill the following requirements:

- completion of an NLN-accredited basic nursing program;
- completion of a master’s degree program;
- current R.N. licensure to practice nursing;
- GRE General Test, preferably within the past five years;
- for students whose first language is not English, a minimum score of 550 on the Test of English as a Foreign Language (TOEFL);
- a minimum of one graduate-level, 3-semester-hour course in research and inferential statistics;
- a two- to three-page statement describing educational objectives and identifying a focal area for doctoral study;
- three recommendations from professionals in the field; and
- a current curriculum vitae.

One year of nursing experience is preferred.

Professional Improvement

Some registered nurses may wish to take course work at the University to fulfill the objective of professional or personal improvement. Such individuals may request admission in the professional improvement (P. I.) category. This admission status allows students to take some graduate courses at the University without commitment 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 must be submitted to fulfill the University requirement before the end of first semester registration. Deadlines are July 15 for admission in the fall semester, December 1 for admission in the spring semester, and May 1 for admission in the summer session.

Since acceptance as a professional improvement student has no direct bearing on acceptance as a master’s or doctoral candidate, P.L. students are required to follow the application procedure described in the preceding section if they want to seek admission as master’s or doctoral degree candidates. Only 3 semester hours, or one required nursing core course, taken under professional improvement status may be used to fulfill the M.A. requirements. P.L. students may not enroll in doctoral courses.

Continuing Education

Through its Office of Continuing Nursing Education, the college offers nonacademic, short-term programs for registered nurses. Programs are scheduled on campus and at community sites throughout Iowa. Self-study programs and learner-designed nursing continuing education modules also are available. Continuing education units (CEUS) are awarded for each program on the basis of one unit per 10 clock hours of instruction. The Office of Continuing Nursing Education 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 Colleges of Medicine, Pharmacy, and Dentistry and The 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 conference and study rooms, student lounges, and meeting rooms. Research and computer facilities in the building provide access to the Weeg Computing Center and to college-owned microcomputers.

Courses

Primarily for Undergraduates

96:000 Cooperative Clinical Internship 0 s.h.
Seminar for students selected for clinical nursing internships.

96:30 Human Development and Behavior 3 s.h.
Developmental stages of the human organism from conception through senescence; physiological, intellectual, emotional, social factors. Prerequisite: 31:1 or 31:3.

96:31 Adult Development and Aging 1 s.h.
Physical, cognitive, personality development in the adult; emphasis on the aging process. Prerequisite: a course in general or introductory psychology and one in child/adolescent development.

96:80 Macintosh Computer Application for Clinical Nursing Practice 3 s.h.
Preparation for using selected computer software to create professional manuscripts and group presentations, and to manage data from clinical projects; includes Microsoft Word, SuperPaint, Alden, Persuasion, End Note, Hypercard, Microphone, 4th Dimension. Open only to College of Nursing students, registered nurses or others with consent of instructor.

96:90 Professional Nursing: An Overview 3 s.h.
Practice of nursing and the values, norms, perceptions of the discipline of nursing as a career development process. Prerequisite: competence in computer use.

96:120 Pathology 4 s.h.
Common physiological, psychological disorders of humans; emphasis on changes that occur in the human organism during illness and the methods used to correct these changes. Prerequisite: completion of all corequisites prior to 96:121.

96:121 Foundations of Nursing Practice 4.7 s.h.
Components of professional-client relationship; dimensions of health, professional nursing practice; application of the nursing process with emphasis on assessment. Prerequisite for 96:121: admission to College of Nursing; for 96:120: admission to College of Nursing. R.N. license in Iowa. 96:30, 96:120, and requirements of declared articulation option. Prerequisite for 96:120: completion of all pre- and corequisites prior to 96:121.

96:122 Clinical and Technological Nursing Skills 2 s.h.
Scientific principles, applications of basic clinical and technological nursing skills. Open only to College of Nursing students. Corequisite: 120:1.

96:123 Clinical and Technological Nursing Skills II 2 s.h.
Scientific principles, applications of complex clinical and technological nursing skills. Prerequisites: 121:1 and 96:121 with a grade of C or higher. Corequisite: 123:12.

96:132 Nursing Practice in Acute Illness 7 s.h.
Physiological and psychosocial concepts and interventions of the acutely ill hospitalized patient; provides the opportunity to practice the professional nurse role in this setting. Prerequisites: 96:90, 96:31, and 96:121.

96:133 Nursing Practice in Chronic Illness 7 s.h.
Physiological and psychosocial concepts and interventions for individuals and families with long-term health problems; opportunity to practice the professional nurse role in long-term care settings. Prerequisite: 31:12. Pre or corequisite: 71:132.

96:142 Integrated Approach to Professional Nursing Practice 4 s.h.

96:144 Nursing Practice in Health Promotion 7 s.h.
Theories, concepts of disease prevention, health promotion; opportunity to practice the professional nurse role in the organizations that provide programs and services for individuals, families, groups, communities. Prerequisites: 96:133 and 71:132.

96:145 Leadership, Management and Research in Nursing Practice 1-3, 5-7, 8 s.h.

96:146 Historical philosophical, and Social Foundations of Nursing 3 s.h.
Relationship of professional values, ethics, historical and legal factors in current nursing and health care issues, trends. Prerequisite: 96:144 or consent of instructor. Pre- or corequisite for R.N. students: 96:142.

Primarily for Graduates

Courses are offered only if minimum enrollments are maintained.

96:203 Theory Development and Research Methods 3 s.h.
Evolution of nursing knowledge and research; concepts, theories from nursing and related disciplines; contributions of taxonomy development to nursing science. Prerequisite: graduate level statistics course.

96:204 leadership in Nursing: Theory and Application 3 s.h.
Concepts, theories, research findings related to leadership, behavioral characteristics of groups, organizations; interactive variables, functional relationships of leadership, characteristics of leaders, followers; applications to nursing, health care situations.

96:205 Methods and Utilization of Nursing Research 3 s.h.
Remainder of the research process, utilization of nursing research, obtaining support for research. Prerequisite: 96:203.

96:212 Health Care Economics and Public Policy 3 s.h.
Principles of macroeconomic theory applied to analysis of health care system components; clinicians' and nursing administrators' concerns addressed within an economic framework; public policy making process applied to health care.

96:220 Concepts of primary Care in Nursing 3 s.h.
Application of nursing process in delivery of primary health care to a target population; physiopsychosocial, life-span perspective, multidisciplinary focus on development refinement of physical assessment and data collection skills, primary health care concepts, ambulatory health care systems, management of selected health concerns. Prerequisites: 96:203, 96:204, one child health specialization course, and at least six months' clinical experience as an R.N.

96:222 Nursing of Children: Health Promotion 4 s.h.
Expansion of knowledge, skills in assessing health; formulation of nursing diagnoses related to health; planning, implementing and evaluating nursing interventions designed to promote health of children, their families. Prerequisite: 96:203.

96:223 Nursing of Children: Responses to Illness 4 s.h.
Expansion of knowledge, skills in assessment, diagnosis, intervention, evacuation of responses to illness. Prerequisite: 96:203.

96:224 Applications of Primary Health Care Concepts in Children and Adolescents 3 s.h.
Development of knowledge, skills in health promotion, maintenance in clinical settings; participation in delivery of primary health care. Prerequisite: 96:202. Same as 70:201.

96:226 Nursing of Adults: Health Promotion 4 s.h.
Expansion of knowledge, skills in assessing health; formulating nursing diagnoses; planning implementing nursing interventions to maintain, promote, optimize health of older adults; developmental framework applied to analysis of major health concepts, interventions. Prerequisite: 96:203.

96:231 Nursing of Older Adults: Response to Illness 4 s.h.
Assessment, diagnosis, intervention, evaluation of older adult clients' responses to illness; major illness concepts, interventions arising from actual or potential alterations within illness. Prerequisite: 96:230.

96:234 Foundations: Advanced Community Health and Nursing Practice 4 s.h.
Community health nursing and public health conceptual models that promote aggregate, population-focused practice; health promotion, disease prevention concepts. Prerequisite: 96:203.

96:235 Advanced Community Health in Nursing Practice 4 s.h.
Continuation of 96:234 through development, testing of nursing interventions, outcomes for aggregates, communities; framework of health promotion and disease prevention concepts, national health policy documents. Prerequisite: 96:234 or consent of instructor.

96:246 Nursing Education: Process, Roles, and Strategies 3 s.h.
Role of nurse educator through study, application of teaching/learningJorks; learning tasks of students in nursing education programs. Offered fall semesters of even years. Prerequisite: 96:203. Pre- or corequisite: 96:204.

96:247 Curriculum Development in Nursing Education 3 s.h.
Societal, educational, professional factors in undergraduate curriculum design; evaluation of components in basic nursing education programs. Offered fall semesters of even years. Prerequisite: 96:246.

96:260 Nursing Administration: Process, Roles, and Strategies 2-3 s.h.
Functions, responsibilities of nurse administrator; emphasis on hospital setting. Prerequisites: 96:203 and 96:204.

96:261 Nursing Administration: Process, Roles, and Strategies II 3 s.h.
Analysis of functions, responsibilities of nurse administrator. Prerequisite: 96:260.

96:262 Nursing Administration Seminar 2 s.h.
Current issues, applications; focus on emerging administrative concerns, including product-line management, information systems, policy concerns. Open only to nurse manager students. Prerequisite: b.s. of support courses in administration. Pre- or corequisite: 96:261.

96:263 Introduction to Nursing Information and Technology 3 s.h.
Effective, efficient use of technological innovations, including computerized information, for making practice decisions in advanced nursing roles.

96:266 Advanced Clinical Practice I 3 s.h.
Analysis of nurses' roles, provision of care to clients in students' clinical interest area. Prerequisites: 96:204 and a specialization course.

96:269 Advanced Clinical Practice II 3 s.h.
Continuation of 96:268. Prerequisites: 96:268 and two specialization courses.


For Doctoral Candidates

Open only to doctoral students, except 96:440, 96:490, 96:491.

96:300 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.

96:310 Nursing and Health Information Systems 3 s.h.
Computers in nursing tools to assess computer resources; computer information systems, systems theory and analysis, nursing applications.

96:320 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.

96:330 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.

96:340 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.

96:341 Nursing Theory Construction II 3 s.h.
Generation, testing, reformulation of theory for professional practice; focus on legal, ethical, political forces that shape and influence research, scholarship; how research and scholarship contribute to society.

96:410 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.

96:420 Geriatric Mental Health Research 3 s.h.
Analysis, evaluation; emphasis on program evaluation, geriatric mental health services research, methodological issues.

96:430 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.

96:440 Research Utilization in Residence Care of the Elderly 3 s.h.
Project based on relevant gerontological nursing research. Prerequisites: two from 96:410, 96:420, 96:430.

96:450 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.

96:451 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: 96:450 or consent of instructor.

96:460 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.

96:480 Residency in Nursing Service Administration 3 s.h.
Participation in on-going investigative team as nursing manager followed by 96:491. Consent of adviser required.

96:491 Research Practicum 0 s.h.
Continuation of 96:490. Consent of adviser required.

96:497 Dissertation Research Seminar Research Application and Advanced Design 0 s.h.

96:499 Dissertation Research arr.

Electives

The current Schedule of Courses lists nursing electives being offered. Courses vary from semester to semester.

96:12 Human Sexuality 1-3 s.h.
Physiological, psychological aspects. same as 42:112, 7C:112.

96:116 Loss and Death in Clinical Nursing Practice 3 s.h.
Prerequisite: 96:144.

96:129 Introduction to Gerontology 2-3 s.h.
Concept of aging: emphasis on theories, resources, challenges of aging implications for nursing practice; interdisciplinary approach; senior standing or consent of instructor required.

96:130 Normative and Psychopathological Aspects of Aging 3 s.h.
Geriatric mental health; focus on normative, psychopathological aspects of adult aging

96:131 Psychological and Biological Aspects Of Aging 3 s.h.
Common problems of aging in context of biological, psychological function in later life; emphasis on differentiating between normal, disease-related changes; common adaptive and maladaptive coping, compensatory mechanisms. Prerequisites: introductory course in biology and psychology or consent of instructor; and 34:130 or 42:184 or 96:129.

96:137 Nursing Care of the Patient in Pain 3 s.h.
Focus on assessment pharmacological and non-pharmacological nursing intervention, evaluation of acute, chronic-benign, chronic-malignant pain. Prerequisite: 96:132 or R.N. student status.

96:148 Summer Clinical Internship 1-3 s.h.
Opportunity for high-achieving undergraduates to enhance clinical skills, work closely with faculty member and preceptor. Prerequisite: three semesters of clinical nursing comes and 3.0 grade-point average in clinical nursing.

96:149 Undergraduate Compensatory independent Study 0 s.h.
Additional skill building for undergraduates.

96:150 independent Study arr.
Study and/or clinical practice.

96:151 Honors independent Study 1-3 s.h.
Project or experience related to the course objectives of a required nursing course. May be repeated. Open only to students in undergraduate honors program.

96:152 Honors Seminars 1-3 s.h.
Seminars in humanities, social and biological sciences topics related to nursing; contemporary issues that affect nursing practice. May be repeated. Open only to students in undergraduate honors program.

Human tissues, cells, subcellular organelles, their identification and functions; processes common to normal human cells; necessary components of human, gill environment; cellular defense mechanisms. Offered fall semesters of odd years. Prerequisite: 96:121 or consent of instructor.

96:162 Human Structure and Function-A Systemic Approach 4 s.h.
Structure, function, organization of human neural, hormonal control and communication systems; relationships between functions, structures (gross, microscopic) of organs; mechanisms for regulation of organ functions. Offered fall semesters of even years. Prerequisite: 96:121 or consent of instructor.

96:165 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. Pre- or corequisite: 96:144 or R.N. student status or consent of instructor.

96:172 Health and Cultural Diversity 3 s.h.
Health, illness in cross-cultural perspective. Offered spring semesters of even years; prerequisite: 113:03 or 113:101 or 96:132 or consent of instructor. Same as 113:108.

96:174 Transcultural Mental Health 3 s.h.
Cross-cultural perspectives on mental health, illness; expected behavioral patterns for developmental ages in various cultures, deviations from these patterns. Offered spring semesters of odd years. Prerequisite: 96:132 or junior standing in anthropology or consent of instructor. Same as 113:107.

96:175 Issues in International Nursing and Health Care 3 s.h.
Seminar provides American and international students opportunity to investigate and compare issues in nursing.

96:182 Financial Management for the Nurse Manager 3 s.h.
Basic concepts; projecting and monitoring budgets, statistics used in formulating and supporting budgets, writing proposals using statistical and financial data.

96:183 Community Health Nursing as a Field of Practice 3 s.h.
The field of practice in community health from viewpoint of public health science and nursing; concepts of epidemiology, client advocacy, prevention, holistic health in relation to individuals, families, aggregates; legal authority and social policy issues pertaining to community health care. Open only to R.N. license holders.

96:184 Management and Supervision in Community Health Nursing 3 s.h.
Management concepts of organization, power, change, conflict, authority, accountability; organization, communication management leadership theories applied to the role of manager in community health nursing; decision-making strategies incorporated in planning implementing evaluating programs of care in community health nursing. Open only to R.N. license holders.

96:185 Nursing Practice in the Workplace 3 s.h.
Scope of occupational health nursing, focus on concepts of epidemiology; health promotion, prevention of health hazards in workplace; legal, ethical, social issues of occupational environment.

96:186 Seminar in Oncology Nursing 3 s.h.
Care of clients living with cancer diagnostic; nursing process, expanded content of pathophysiology, care of clients in acute and chronic phases; oncologic emergencies, issues, trends; care of the care giver; advanced concepts based on the oncology Nursing Society standards of care. Open only to R.N.’s currently practicing or experienced in care of cancer clients, or to other with consent of instructor.

96:187 Technology and Clinical Application for Nursing 3 s.h.
Current evolution of technology; societal, professional expectations compared to professional nursing practice, usefulness of devices. Prerequisite: 96:132 or R.N. license or consent of instructor.

96:188 Advanced Technological Nursing Applications 3 s.h.
Content and application of clinical, technological nursing skills; physiological concepts related to critically ill patient, with focus on complex multi-system involvement, implications for nursing care. Prerequisite: 96:132 or registered nurse or consent of instructor.

96:216 Group leadership in Human Sexuality 0.5 s.h.
Emphasis on role of group leader, method of teaching-didactic presentation, discussion, group experience, practice application. same as 7C:216, 42:216.

96:2% Independent Study arr.
Supervised study and/or clinical practice adjusted to needs of master’s degree students. Open only to master’s students.

96:496 Independent Study arr.
Supervised study adjusted to needs of doctoral degree students. Open only to doctoral students.

96:499 Dissertation Research arr.
Dean: Gilbert S. Banker
Associate dean, professional programs: Lloyd E. Matheson
Director, pharmaceutical service: Rotland I. Poust
Director, Iowa Drug information Service: Hazel H. Seaba
Head, medicinal and natural products chemistry: John P. Rosazza
Head, pharmaceutics: Ronald D. Schoenwald
Head, clinical and administrative pharmacy: Joseph M. Scavone


Professors emeriti: David P. Carew, Dale E. Worster
Clinical professor: James A. Ponto
Associate professors: Mary J. Berg, Ting-Fong Chin, Douglas R. Flanagan, Jr., Lloyd E. Matheson, Gary Milavetz, Bernard A. Sorofman, Thomas N. Taylor, Dale E. Worster

Adjunct associate professors: Karen A. Baker, Robert W. Dick, Mark E. Jones, Alan H. Mutnick

Clinical associate professors: Bruce Alexander, Hazel M. Seaba

Assistant professors: Harold J. Black, Stephen R. Campion, Maureen D. Donovan, Douglas R. Geraets, Randall A. McCoy, David I. Min, Saleem E. Noormohamed, Mary E. Teresi, Jean M.B. Woodward


Clinical assistant professors: Ruth Ann Calloway, Jay D. Currie, Sandra J. Johnson, Vijay Kumar, Jan C. Wenger

Adjunct instructors: David H. Bernhard, Randy W. Burden, Charles S. Dayton, Carl E. Hensley, Warren A. Knarr, Mary J. Stamy


Degrees: B. S.Ph.; Pharm.D.; M.S., Ph.D. in Pharmacy
Pharmacists are specialists in the science of drugs. They must understand drug composition, biochemical, biological, chemical, physical properties; manufacture and use; and activity in normal individuals as well as ill patients. They must be familiar with tests for strength, purity, and efficacy of drug products. Pharmacists compound and dispense prescriptions written by health practitioners, who rely on pharmacists for information about the availability, activity, toxicity, and contraindications of various drugs. Pharmacists also communicate knowledge of drugs to patients and to other health professionals and, in general, serve the community as a prime source of information on health topics.

Nearly everyone is familiar with the community pharmacist and the pharmacy in which he or she practices. The size and type of practice may vary—community pharmacies may be large or small, operated by individuals or by corporations. The pharmacists who staff these pharmacies make up the majority of practitioners. More than 125,000 men and women practice in community pharmacies. Approximately 45,000 pharmacists are employed in hospital pharmacy practice. In this setting, they work closely with other members of the health care professions. Some work in government agencies such as the U.S. Public Health Service, Veterans Affairs, Food and Drug Administration, and the armed forces. Pharmacists serve as commissioned officers in the military services as well as the U.S. Public Health Service.

Many pharmacists assume administrative positions in industry, including manufacturing, research and development, control, marketing, and advertising. Many are employed in pharmaceutical sales as medical service representatives. Pharmacy training is especially valuable to these men and women, who are responsible for acquainting physicians, dentists, veterinarians, and other pharmacists with drug products. The educational background of pharmacists provides an opportunity for employment in many fields not commonly associated with pharmacy.

In the United States, more people are in need of health care than ever before, and the demand for pharmacists continues to expand. Young pharmacists will face new challenges, expanded responsibilities, and an ever-increasing growth in opportunities.

**Doctor of Pharmacy (Pharm.D.)**

Students enroll in pharmacy in the Doctor of Pharmacy program. They receive professional education in a number of areas, including pharmaceutical technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical socioeconomic, and clinical and hospital pharmacy. Aspects of biotechnology are a common part of pharmacy education.

The Colleges of Liberal Arts, Business Administration, Dentistry, and Medicine contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, the humanities, and social sciences.

The Doctor of Pharmacy program in pharmacy consists of one year of prepharmacy study, taken in the College of Liberal Arts at The University of Iowa or at any accredited community or liberal arts college, and five years of pharmacy studies in the College of Pharmacy. The University of Iowa College of Pharmacy is accredited by the American Council on Pharmaceutical Education. Graduates of the college are qualified to take the national licensure examination given by the Iowa Board of Pharmacy Examiners.

Graduation from the Doctor of Pharmacy program in pharmacy requires satisfactory completion of the required courses, 20 semester hours of general education electives, and a pharmacy grade-point average and a total cumulative grade-point average of at least 2.00.

Rules and regulations concerning academic probation, pass/no-pass, 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 in the current Schedule of Courses and the Handbook for Pharmacy Students.

**Honors**

The honors program gives students an opportunity to interact as part of a small group with leading professors and scientists from all areas of the University. In their P3 year, students in the upper 20 percent of their class may enroll in the Honors Seminar, a series of weekly discussions on topics from the humanities, the sciences, law, and the social sciences.

Honors students may elect to prepare a major paper or carry out a research project of limited scope during their P4 year. Satisfactory completion of the project certifies them as having completed the College of Pharmacy Honors Program.

**Admission**

The college-level course work outlined below is the minimum academic requirement for admission to the College of Pharmacy. Fulfillment of these requirements does not ensure admission to the college. The college admission committee selects the best qualified applicants. Questions concerning satisfaction of degree requirements should be directed to the associate dean for professional programs.

**Preprofessional Course Work**

Rhetoric: 8 semester hours, or 6 semester hours of transfer credit in English composition and rhetoric, and 2 semester hours in speech.

General biology: the first 4 semester hour course (2:10) of a two semester sequence.

General chemistry: 8 semester hours.

Mathematics: 3-4 semester hours of a satisfactory differential and integral calculus course.

Physics: may be satisfied with one year of high school physics.

General education electives: at least 6 semester hours. Each student must complete 20 semester hours of general education courses to meet graduation requirements. These elected courses should be in the behavioral, social, and humanistic areas of knowledge. Some courses in the College of Business Administration also may satisfy General Education Requirements.

**Transfer Students**

Students who plan to obtain their prepharmacy education at another college or university before transferring to The University of Iowa should consult the associate dean for professional programs before beginning the prepharmacy year. It is imperative that transfer students have completed an approved two-semester biology course.

Students who want to satisfy required or elective credit at other institutions must have consent of the associate dean for professional programs before enrolling in such courses. A minimum grade of C is required for work applied for transfer toward the pharmacy degree.

**Professional Curriculum**

Undergraduates must be enrolled in the College of Pharmacy before they may take College of Pharmacy courses. Graduate students in other majors may take College of Pharmacy courses with consent of the associate dean for professional programs.

**In addition to the required courses in the curriculum, students must complete 20 semester hours of general education courses. These elected courses should be in the behavioral, social, and humanistic areas of knowledge.**

**FIRST YEAR**

**First Semester**

2:11 Principles of Biology II 4 s.h.
4:121 Organic Chemistry I 3 s.h.
46:49 Introduction to Pharmaceutical Care 2 s.h.
60:1 Principles of Human Anatomy 3 s.h.
Communications course 3 s.h.
**General education elective** 3 s.h.

**Second Semester**

4:122 Organic Chemistry II 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.
46:22 Pharmaceutical Socioeconomics: Health Care Systems 4 s.h.
46:50 Introduction to Pharmaceutical Sciences 3 s.h.
**General education electives** 5 s.h.

**SECOND YEAR**

**First Semester**

46:35 Pharmaceutical Socioeconomics: Pharmacy Practice Management 3 s.h.
46:70 Pharmacy Math 3 s.h.
46:123 Pharmaceutical Technology: Solids 4 s.h.
61:1 12 Health Sciences Microbiology 4 s.h.
99:162 Biochemistry for Pharmacy Students 4 s.h.

The building also houses the Learning Resource Center (LRC), with current texts and periodicals available to students and provides on-line computer searches for pharmacy students and faculty. The Pharmaceutical Service Division of the college serves as a teaching unit as well as a service division. Here, undergraduate and graduate students learn methods of large-scale pharmaceutical product development and production. The division’s state-of-the-art equipment and its licensure by the U.S. Food and Drug Administration make it an outstanding facility.

The Iowa Drug Information Service (IDIS) also is a service division of the college. IDIS serves as a central repository and distribution center of specialized information related to drugs and drug therapy. IDIS not only reaches subscribers throughout the world but plays an important educational role for undergraduate and graduate pharmacy students as well.

In the clinical pharmacy program, students work with other health professionals and have the opportunity to monitor drug therapy in hospitalized and nonhospitalized patients under the supervision of clinical instructors in pharmacy, medicine, and dentistry. The various clerkships/externships in which students are enrolled include many areas of The University of Iowa Hospitals and Clinics, the College of Dentistry; the Veterans Affairs Medical Center; the family practice centers at Iowa City, Cedar Rapids, and Davenport; Iowa City Mercy
Hospital; Mercy and St. Luke’s hospitals in Cedar Rapids; Covenant Medical Center in Waterloo; the Burlington Medical Center in Burlington; St. Joseph’s Mercy Hospital in Mason City; the Marian Health Center and St. Luke’s Hospital in Sioux City; Mary Greeley Hospital in Ames; St. Luke’s and Mercy hospitals in Davenport; Mercy Health Center in Dubuque; Ottumwa Regional Health Center in Ottumwa; the Indian Health Service hospitals in Arizona and New Mexico; St. Mary’s Hospital in Streator, Illinois; some pharmaceutical companies; and numerous selected community pharmacies.

Courses

For Doctor of Pharmacy Students

Pharmaceutics

46:50 Introduction to Pharmaceutical Sciences 3 s.h.
Basic problem solving; dosage forms; equilibrium, kinetic processes of pharmaceutical systems, influence of chemical structure on these properties. Open only to first-year pharmacy students.

46:55 Career Options 1 s.h.
Practice and non-practice opportunities available to pharmacy graduates.

46:56 Non-Prescription Drugs 2 s.h.
Consumer-oriented information about nonprescription drugs and other pharmacologically active substances. Not open to nonpharmacy freshmen.

46:70 Pharmacy Math 3 s.h.
Application of systems of weights and measures and mathematical calculations involved in pharmaceutical procedures and practices; statistics, its application to pharmaceutical problems.

46:123 Pharmaceutical Technology: Solids 4 s.h.
Properties of solids; formulation, preparation, evaluation of solid dosage forms. Prerequisite: 46:122.

46:124 Pharmaceutical Technology: Solutions 4 s.h.
Application of physical, chemical laws to formulation, preparation of liquid dosage forms, including solution, colloids, emulsions. Prerequisites: 46:122 and 46:123.

46:138 Introduction to Pharmacokinetics 3 s.h.
Qualitative, descriptive statement of kinetics of drug absorption, distribution, elimination, including physiological factors that influence each process; adjustment of dosing regimen to optimize therapeutic drug levels in the body. Prerequisites: 46:124 and 46:101.

46:143 Professional Practice 4 s.h.
Extemporaneous compounding, dispensing of medications, use of computers, intravenous admixture, development of communication skills necessary for delivery of pharmaceutical care.

46:145 Therapeutic and Diagnostic Systems 2 s.h.
Design, selection, use of a traditional and novel dosage forms; applications of physical pharmacy and biopharmaceutical principles to dosage form performance; diagnostics and mechanical delivery systems. Corequisite: 46:143 or consent of instructor.

46:128 Medicinal and Natural Products Chemistry I: Biotechnology and Chemistry 5 s.h.
First of a three-semester sequence; lectures on organic and inorganic medicinal and therapeutic agents of natural and synthetic origin; physical, chemical, biological, and biochemical properties; chemistry of fuel and intermediates; chemical reactions; mechanics; functional group chemistry; nomenclature; chemistry of radiodiagnostic and therapeutic agents; introduction to biopharmaceutical analysis. Prerequisites: 46:122, 99:162, or equivalent; and 61:112 or equivalent.

46:131 Medicinal and Natural Products Chemistry II: Pharmacodynamic Agents 5 s.h.
Continuation of 46:128, which is prerequisite.

46:132 Medicinal and Natural Products Chemistry III: Medicinal Neurochemistry 5 s.h.
Continuation of 46:131, which is prerequisite.

46:135 Perspectives in MCNP Research 1 s.h.
Contemporary research in medicinal chemistry and natural products.

Clinical and Administrative Pharmacy

46:22 Pharmaceutical Economics: Health Care Systems 4 s.h.
Practicum: overview of the U.S. health care delivery system, with emphasis on socioeconomic and political factors affecting health care delivery; the role of pharmacy and the pharmaceutical industry.

46:35 Pharmaceutical Economics: Pharmacy Management 3 s.h.
Practicum necessary for good management of human and financial resources in pharmaceutical organizations; case study approach permits student to apply principles to real life situations.

46:49 Intro to Pharmaceutical Care 2 s.h.
Patient, center care, patient communication, information retrieval and analysis, clinical problem-solving skills. Open only to first-year Pharmacy students.

46:59 Hospital Pharmacy Externship 4 s.h.
Instruction and practicum experience in various components of hospital pharmacy; numerous sites available; emphasis on hospital organization, inlet and outpatient services, IV additives, unit dose, clinical services. P4 standing and consent of instructor required.

46:60 Community Pharmacy Externship 4 s.h.
Practicum conducted primarily in community pharmacies; emphasis on communication skills with practice and didactic education in nonprescription drug use. P4 standing and consent of instructor required.

46:61 Drug Information 3 s.h.
Application of relevant information resources and drug literature evaluation. Pre- or corequisite: 46:111.

46:80 Medicine Clerkship 4 s.h.
Application of therapeutic skills necessary for the pharmaceutic management of patients in general medicine or the subspecialties. P4 standing and consent of instructor required.

46:81 Family practice Clerkship 4 s.h.
Primary care therapeutics; lectures and clinical practice experience in family practice offices. P4 standing and consent of instructor required.

46:82 Pediatrics Clerkship 4 s.h.
Clinical experience in Pediatrics; emphasis on the subspecialties of allergy or clinical pharmacology. P4 standing and consent of instructor required.

46:83 Pharmacoeconomic Clerkship 4 s.h.
Instruction in the clinical application of pharmacoeconomics using an institutionalized pharmacoeconomics service. P4 standing and consent of instructor required.

46:84 Psychiatry Clerkship 4 s.h.
Lecture and laboratory course on rational use of psychiatric medications in the treatment of psychiatric disorders. P4 standing and consent of instructor required.

46:85 Neurology Clerkship 4 s.h.
Instruction in the clinical application of neuropharmacology using an institutionalized neuropharmacology service. P4 standing and consent of instructor required.

46:86 Surgery clerkship 4 s.h.
Lectures and clinical practice experience in pharmacotherapy on a general surgery unit. P4 standing and consent of instructor required.

46:87 Clinical Nuclear Pharmacy clerkship 4 s.h.
Pharmaceutical basis for design, chemistry, preparation, quality control, and clinical application of radiopharmaceuticals. P4 standing and consent of instructor required.

46:88 Dental College Clerkship 4 s.h.
Frequent patient contact in specialty areas, including periodontics, oral pathology, and the frail elderly clinic; readings and lectures on antimicrobial, clinical microbiology, lab tests, oral control, anesthesia. P4 standing and consent of instructor required.

46:89 Elective Clerkship 4 s.h.
Selected rotations in health care facilities. Maybe repeated. P4 standing and consent of instructor required.

46:102 Pharmacy Honors Seminar 1 s.h.
Scientific, philosophical, economic, ethical issues of importance to the practice of pharmacy.

46:109 Computer Applications in Pharmacy 2 s.h.

46:111 Therapeutics II 4 s.h.

46:120 Pharmaceutical Care Systems 3 s.h.
Principles of social and administrative pharmacy applied to systems of drug use evaluation, cost-effectiveness analyses, patient behavior.

46:125 Pharmacotherapy I 4 s.h.

46:126 Pharmacotherapy II 4 s.h.
Continuation of 46:125, which is prerequisite.

46:136 Physical Assessment 1 s.h.
Skills in assessment of health. Prerequisite: 46:126.

46:141 Jurisprudence 2 s.h.
Overview of legal systems in the United States, with emphasis on contracts, torts, related areas of civil law; in depth study of federal food, drug, and cosmetic law, and of federal laws regulating narcotics and other dangerous drugs; discussion of state and federal laws regulating pharmacy practice and drug distribution.

46:147 Introduction to Research Methods 3 s.h.
Scientific inquiry, experimental design, data collection, statistical methods used in the study of health sciences and clinical investigations; focus on understanding the research process and evaluating published studies. Preference given to students who have had introductory statistics. Consent of instructor required.

46:154 Communications Skills for Pharmacists 3 s.h.
Elective; basic concepts and processes for effective communication between pharmacies and patients. P3 standing and consent of instructor required.

46:160 Advanced Problems in Pharmaceutical Economics 1-4 s.h.
Independent study of problems in pharmaceutical economics, under supervision of a faculty member; data collection and literature review.

46:161 Drug Information Clerkship arr.
Drug information knowledge applied to service and research projects. Pharm.D. standing and consent of instructor required.

46:165 Pharmacotherapy III 4 s.h.
Continuation of 46:126, which is prerequisite.

46:166 Pharmacotherapy IV 5 s.h.
Continuation of 46:165, which is prerequisite.

46:179 Community Pharmacy Clerkship 4 s.h.
Delivery of pharmaceutical care in ambulatory primary care environment. Prerequisite: all required didactic courses.

46:195 Clinical Professional skills 1-2 s.h.
Topics vary.

For Graduate Students

Pharmaceutics

46:101 Pharmacy Projects 1-3 s.h.
Basic and applied research problems of pharmaceutical interest.

46:105 Industrial pharmacy Survey 2-3 s.h.
Organization and unit operations as production of pharmaceuticals. Prerequisite: 46:124.

46:148 Pharmacokinetics and Biopharmaceutics 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.

46:157 Quantitative Research Methods in Pharmacy 3 s.h.
Lecture and laboratory; collection and interpretation of analytical data; instrumental analysis as applied to pharmaceutical quality control; separation techniques.

46:202 Pharmacy: Selected Topics 1-4 s.h.
Recent advances and contemporary research in pharmaceutics. May be repeated.
46:206 Stability of Pharmaceuticals 3 s.h.
Mechanisms of degradation of pharmaceuticals; prediction of shelf life of pharmaceuticals, stabilization. Prerequisite: 4: 132.

46:207 Polymers in Pharmaceuticals 3 s.h.
Polymer science, its implications in pharmaceuticals; polymers used as excipients in design of controlled and/or sustained release products.

46:225 Product Development 3 s.h.
Application of physico-chemical principles to formulation and design of pharmaceutical dosage forms.

46:226 Product Development Continuation of 46:225 3 s.h.
Advanced treatment of selected topics in pharmacochemistry and biopharmaceutics, including nonlinear curve fittings. Prerequisite: 46:148.

46:231 Pharmacy Seminar I-2 s.h.
May be repeated.

46:232 Drug Delivery: Principles and Applications 3 s.h.
Design, development of drug delivery systems; mathematical analysis of drug release form; applications of advanced technology in emerging systems. Prerequisites: 46:145 and 46:237, or consent of instructor.

46:233 Pharmacy Research arr.

46:235 Equilibria processes 3 s.h.
Equilibria pertaining to ionic systems, complexation, partitioning and solubility. Prerequisite: 4: 131.

46:236 Surface Phenomena 3 s.h.
Behavior of matter in phase boundaries, especially adsorptive processes at liquid-solid and vapor solid interfaces. Prerequisite: 4: 131.

46:237 Transport Phenomena 3 S.h.
Diffusion and mass transport phenomena related to pharmaceutical systems. Prerequisite: 4: 131.

Medicinal and Natural Products Chemistry
46:137 Enzymatic Basis of Drug Metabolism 2 S.h.
Current literature on catalytic and physical properties, distribution, and substrate specificity of enzymes involved in mammalian drug metabolism. Prerequisites: 4:122 and W: 162, or consent of instructor.

46:150 Synthetic Strategy in Medicinal Chemistry 3 s.h.
Lectures, assigned readings, and discussion of special relevance to medicinal chemistry and drug design. Prerequisites: 4:122 and 46: 132.

46:151 Peptide and Peptidomimetic Drug Design 2 s.h.
Chemical nature, conformation, synthesis of peptides; inhibition of specific enzymes of medical importance; computational methods of inhibitor design, examples from current literature; stability of peptides. Prerequisite: 46:132 (MCNP III: Medicinal Neurochemistry) or consent of instructor.

46:155 Molecular Modeling Techniques I 2 s.h.
Model building, conformational optimization, biopolymer building, conformational analysis techniques; preparation for using molecular modeling techniques as part of research project. Consent of instructor required. Same as 50:150.

46:156 Molecular Modeling Techniques II 2 S.h.
Advanced UNIX, SYBYL Programming Language (SPL), advanced topics in molecular modeling; emphasis on individual projects. Prerequisite: 50:150 or consent of instructor, same as 50:151.

46:205 Stereochemistry and Conformational Analysis 2 s.h.
Basic concepts of conformational analysis; selected recent references; application of this science to design and synthesis of biologically active molecules. Prerequisite: 4: 172.

46:206 Medicinal Chemistry of Nucleosides 2 s.h.
Nucleosides and nucleotides, including history, biochemical and chemical synthesis, chemical transformations, mechanism of action, resistance, uses. Consent of instructor required.

46:209 Biopolymeric Drugs 3 s.h.
Drug applications for naturally occurring polymers such as polysaccharides, enzymes, hormones, antibodies, nucleic acids, polysaccharides; topics include synthesis, formation, delivery, pharmacochemistry, metabolism. Prerequisites: 4: 122 and W: 162, or consent of instructor.

46:211 Heterocycles 3 s.h.
Selected heterecyclic ring systems of medicinal importance; special reference to synthesis, mechanisms, and stereochemistry as related to biopharmaceutical effects; primarily from current literature. Prerequisites: 46:205 and 4:172.

46:212 Aspects of Drug Design 3 s.h.
Use of modern concepts of structural chemistry in the rational design and creation of new therapeutic agents; applications of chemical principles to investigation and understanding of molecular level interactions of endogenous and exogenous organic molecules with receptor sites on macromolecules. Consent of instructor required. Prerequisites: 46:205 or 46: 132 or equivalent; 71: 101 or equivalent; and biochemistry.

46:215 Medicinal Chemistry: Survey 3 s.h.
Current literature on modern theoretical organic chemistry applied to study and understanding of biological phenomena; chemical and stereochemical aspects of autonomic nervous system and the chemical agents that influence it. Prerequisites: 46: 132 and 75: 191, or consent of instructor.

46:217 Medicinal and Natural Products Chemistry Research arr.

46:219 Separation Methods in Medicinal and Natural products Chemistry 3 s.h.
Occurrence, distribution, isolation of primary and secondary natural products; techniques of handling and storing biological materials; emphasis on methods of isolation and purification, including solvent extraction, chromatography, electrophoresis, and centrifugation.

46:222 Biogenesis of Natural Products 3 s.h.
Biogenesis of acrericines, alkaloids, aromatic compounds, terpenes by plant and microbial systems; important groups of natural products surveyed according to bioactive origin; isotopic labeling methods and principles of biocatalytic chemistry. Consent of instructor required.

46:223 Reaction Mechanisms of Biological Molecules 3 s.h.
Mechanistic approach to enzyme catalyzed biological processes, emphasis on drawing detailed mechanisms of a variety of biochemical reactions and how this approach helps in designing and understanding drugs. Prerequisites: 4: 122 and W: 110, or consent of instructor.

46:224 Biocatalysis in Natural Products Chemistry 3 s.h.
Microbial systems, fermentation conditions, principles of biocatalysis; applications include biocatalyst as reagents in organic synthesis, microbial models of mammalian metabolism, microbial/enzymatic transformations in natural products chemistry and biochemistry.

46:227 Medicinal and Natural Products Chemistry Seminar I-2 s.h.

46:230 selected Topics in Medicinal and Natural products Chemistry 1-3 s.h.

46:250 Synthetic Strategy in Medicinal Chemistry II 3 s.h.
Knowledge of chemical reactions and structure activity relations used to design new families of complex molecules; includes retrosynthetic analysis, generation of chirality, remote synthesis of medicinal agents. Prerequisite: 46: 150 or equivalent.

46:275 Perspectives in Biocatalysis 1 S.h.

Clinical and Administration Pharmacy
46: 114 Advanced Clinical Pharmacy arr.
Application of principles of pharmacology and pharmaceutics to the treatment of hospitalized patients; students participate in ward rounds and conferences with the medical staff and monitor patients on various types of drug therapy; emphasis on drug selection, adverse effects of drugs, disease modification, therapeutic and toxic responses. Consent of instructor required.

46:115 Clinical Pharmacy: Drug Literature Review and Evaluation 2 s.h.
Literature of hospital pharmacy practice, including clinical aspects; emphasis on techniques of evaluating biomedical literature; randomization, stratification, controls, blinding; requires an understanding of statistics. Consent of instructor required.

46:121 Drug Development and Marketing 3 s.h.
Problems inherent in developing and marketing drug products; focus on application of marketing theory and methods to the pharmaceutical industry.

46:122 Pharmaceutical Economics 4 s.h.
Economic environments of the pharmaceutical industry, all levels of the chain of drug distribution, relevant sectors of the health care system; use of economic theory, methods, models in studying these environments.

46:190 Medications in International Perspective 2 s.h.
Role of drugs in health care systems from socioeconomic perspective: geographic, cultural, technological diversity.

46:213 Pharmaceutical Socioeconomics: Seminar 1-2 s.h.
Assigning readings and discussion of recent research in pharmacy administration. May be repeated.

46:243 Clinical-Hospital Pharmacy: Research arr.

46:245 Clinical-Hospital Pharmacy: Seminar 1.2 s.h.
Topics of current interest in the specialty of clinical and hospital pharmacy. May be repeated.


46:253 Pharmaceutical Socioeconomics: Research Methods 3 s.h.
Scientific approaches to the solution of problems in pharmacy administration; emphasis on research problems and design and their relationship. Prerequisite: 225: 102 or equivalent.

46:255 Social Pharmacy 3 s.h.
Behavioral and social aspects of drug use process in society; emphasis on therapeutic uses of medications, pharmaceutical care systems, pharmacy related health behaviors.

topics related to pharmacy administration, social and behavioral pharmacy, pharmacy education.

For Postbaccalaureate Pharm.D. Students
Pharm.D. starting and consent of instructor are required for all courses, except 46: 170, which does not require Pharm.D. standing.

46:170 Clinical Pharmacokinetics 3 s.h.
Application of pharmacokinetics to the clinical setting.

46:171 Advanced Therapeutics I 3 s.h.
In-depth analysis of selected major disease states and pharmaceutical care.

46:172 Advanced Therapeutics II 3 s.h.
Continuation of 46:171.

46:173 Drug-Induced Diseases 2 S.h.
Drug-induced diseases according to affected organ systems.

46:174 Fluid and Electrolyte Therapy 2 s.h.
Theory and application of contemporary fluid and electrolyte metabolism.

46:175 Clinical Investigation I-3 s.h.
Student participation in clinical investigations under the direction of clinical pharmacy faculty. Maybe repeated.

46:176 Advanced Therapeutics III 3 s.h.
Continuation of 46:171 and 46:172.

46:180 Medicine Clerkship arr.
Advanced application of therapeutic skills necessary for the pharmacotherapeutic management of patients in general medicine or other subspecialties.

46:181 Family Practice Clerkship 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.

Advanced application of clinical pharmacology/toxicology principles to optimize disease management in the infant and outpatient pediatric population.

46:183 Pharmacoethics Clerkship arr.
Instruction and praxieum experience in clinical pharmacokinetics using an institutional pharmacoethics service.
46:184 Psychiatry Clerkship
Advanced application of clinical pharmacotherapeutics and pharmacokinetic psychopharmacology to the care of inpatient and outpatient psychiatric patients using a consultant role model.

46:185 Neurology Clerkship
Lecture and advanced clinical practice of pharmacotherapeutics related to neurological diseases.

46:186 Surgery Clerkship
Advanced application of therapeutic skills necessary for the pharmacotherapeutic management of general surgery patients.

46:187 Clinical Nuclear Pharmacy Clerkship
Advanced clinical instruction in the uses of radiopharmaceuticals, radiopharmaceutical drug interactions, pharmacological intervention in nuclear medicine studies, radiopharmaceutical drug information.

46:188 Dental College Clerkship
Advanced clinical experience involving general and local anesthesia, conscious sedation and pain control, rational antibiotic therapy, participation in management of medically compromised patients.

44:189 Pharm.D. Elective Clerkship
Advanced clinical experience in a nontraditional setting.
Continuing Education

Dean: Emmett J. Vaughan

The Division of Continuing Education was established by special legislation of the General Assembly of Iowa to “render a larger service to the Commonwealth and to the people of Iowa by carrying out to every part of the State the knowledge, the thought, the ideals, and the spirit of several departments and colleges of the University and by bringing the University generally into direct contact with the citizens.”

The division’s organization and services include the following.

Audiovisual Center

Director: William Oglesby

The Audiovisual Center provides consultation, planning, design, production, and marketing of instructional audiovisual materials. Its media production units are the University’s major manufacturers of a broad range of graphic, photographic, and audio materials.

- Graphics Unit: graphs, charts, maps, titles, layouts, posters, illustrations, models, exhibits, and overhead transparencies
- Photographic Service: black-and-white and color photographs, negatives, two-inch slides, filmstrips, portraits, macrophotographs, many types of specialized photography, and still photographic laboratory services
- Audio Unit: original audiotape recording (studio and location), tape duplication (open reel and cassette), sound editing, equalizing, mixing, and transfer
- Multi-image Unit: design and production of single- and multiple-screen slide programs, one to twelve projectors, manual and programmed control, open-reel and cassette sync/sound track

The Audiovisual Center also markets and distributes audiovisual products originated at the University. Nominal royalties are paid to sponsoring University departments and authors.

The center charges most University departments for materials only. For requests funded by grants, charges are made for materials and labor.

Media Services

Director: James Smith

The University Media Library provides at no charge a major collection of 16-mm instructional films and videotapes for on-campus instruction and curriculum-related activities; there is a rental fee for off-campus use. Smaller collections of audiotapes, filmstrips, and slides plus facilities for student or faculty use also are available. Catalogs of these collections are available on request. The library also maintains a reference collection of materials from other sources.

Equipment Services provides the following, for instructional use at no charge: projectors for films, slides, filmstrips, and videos; opaque and overhead projectors; portable projection screens; audiotape recorders; record players; videocassette recorders/players; portable public-address systems; and display devices (exhibits, easels, boards). Repair service is available for audiovisual equipment.

Center for Conferences and Institutes

Acting director: George J. Lopos

The Center for Conferences and Institutes is the University’s principal agency for developing, coordinating, and conducting noncredit continuing education programs for nonresidential adults and for administering the Continuing Education Unit (CEU) program. The center’s primary goal is to enhance the University as a center of learning and to provide educational opportunities for people who are not full-time students but who seek new knowledge related to their work or special interests.

Each year more than 20,000 adults participate in the center’s varied programs, which are cooperative endeavors with colleges, departments, and service units of the University. As stated in the University Operations Manual faculty and staff members who plan University conferences must seek approval for those programs from the director of conferences and institutes. The center uses conference facilities, dining services, and lodging accommodations at the Iowa Memorial Union when these facilities are available and appropriate. It also uses facilities in Iowa City and Coralville as well as those located state- and nation-wide. Some programs are presented by satellite television.

The center also manages national and international programs for faculty and departments.

Center for Credit Programs

Director: Von V. Pittman

The Center for Credit Programs is responsible for delivering University of Iowa credit courses to part-time students in Iowa City and throughout the state. In cooperation with the University’s colleges and academic departments, the center offers courses through several formats and delivery systems.

Correspondence Courses

More than 180 Guided Correspondence Study courses are available in the Colleges of Liberal Arts, Business Administration, Education, Engineering, Medicine, and Nursing. These courses represent 42 University departments.

Students may enroll at any time, and they have nine months in which to complete a course. A catalog of course listings, procedures, and enrollment forms is available from the Guided Correspondence Study office.

Off-Campus Classes

The Center for Credit Programs offers University courses off campus. Classes are scheduled where they best serve off-campus students, at the request of public school officials, and/or where professional, industrial, or other qualified groups express a need for instruction. The center also offers courses through audioconferencing and interactive television. In addition, it provides a variety of telecourses in cooperation with Iowa Public Television.

Enrollment in each course must be sufficient to meet the cost of offering the course. Information is available from the Center for Credit Programs.

Saturday and Evening Classes

The Center for Credit Programs offers University courses on campus at times convenient for nontraditional students. Enrollment in each course must be sufficient to meet the cost of offering the course. A bulletin describing Saturday and evening classes is available from the Center for Credit Programs.

Bachelor of Liberal Studies Degree

The Bachelor of Liberal Studies (B. L. S.) degree is offered by each of the three State Board of Regents 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 has no residence requirement.

Credit applicable toward the degree may be earned through Saturday and evening courses, correspondence and independent study courses, off-campus courses at sites throughout Iowa, televised courses, and daytime on-campus courses.

At The University of Iowa, the B.L.S. is awarded by the College of Liberal Arts and administered by the Division of Continuing Education. For a detailed program description, see “Liberal Studies” in the College of Liberal Arts section of the Catalog.
Labor Center
Director: Laurence M. Clements
The Labor Center targets instruction to the specific needs of the labor movement in Iowa. Staff members combine on-campus and off-campus programs to reach as many people as possible.

Institute of Public Affairs
Acting director: Tim J. Shields
The institute is the primary research and continuing education link between the University and state, city, and county governments in Iowa. Its services are available to state and local government agencies, to citizen groups interested in civic affairs, and to organizations of public officials, such as the League of Iowa Municipalities and the Iowa State Association of Counties.

The institute provides:
- in-service training and continuing education services to public officials, primarily policy makers and key administrators, with a wide variety of information sources and educational programs aimed at meeting organizational and leadership development needs;
- research services, informational resources, and publications ranging from Iowa public policy studies to handbooks for elected officials in Iowa governments; and
- organizational assistance ranging from advising on city council goal setting, management systems, and quality circles to serving on statewide government committees that deal with major concerns of state and local governments.

Video Center
Director: Daniel G. Lind
The University Video Center provides high-quality video services and facilities, including those necessary to sustain and promote research activities. It also coordinates video equipment purchase and inventory and promotes efficient University support of campus video. Toward this end, the center has the personnel and facility resources to help units purchase equipment and supplies and carry out production and post production activities. The center also provides video system design and maintains guidelines for equipment standardization.
Administrative Officers

State Board of Regents
The State Board of Regents 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, as follows.

President: Marvin S. Bernstein, Sioux City
Thomas M. Collins, Cedar Rapids
Thomas C. Dorr, Marcus
Betty Jean Furgerson, Waterloo
Elizabeth D. Hendricks, Cedar Rapids
Melissa L. Johnson-Matthews, Cedar Falls
Nancy C. Pellett, Atliantic
John E. Tyrrell, Manchester
Executive secretary: R. Wayne Richey

Central Administration
President: Hunter R. Rawlings III
Provost: Peter E. Nathan
Vice president for health sciences: Henri R. Manasse, Jr.
Vice president for research: David J. Skorton
Vice president for university relations: Ann M. Rhodes
Vice president for statewide health services: John W. Colloton

Office of the Provost
Provost: Peter E. Nathan
Dean of students Phillip E. Jones
College of Business Administration
Dean: Gary C. Fethke
College of Education
Dean: Steven R. Yussen
College of Engineering
Dean: Richard K. Miller
Graduate College
Dean: Leslie B. Sims
College of Law
Dean: N. William Hines
College of Liberal Arts
Dean: Judith P. Aikin
Division of Continuing Education
Dean: Emmett J. Vaughan
Libraries
University librarian: Sheila Creth
Museum of Art
Director: Stephen S. Prokopoff
Office of International Education and Services
Director: Stephen M. Arum
Summer Session
Director: Michael McNulty

Research
Vice president: David J. Skorton
Center for Advanced Studies
Director: Jay Semel
Center for Health Sciences Research
Director: James E. Rohrer
Division of Sponsored Programs
Director: Brian Harvey
Health Protection Office
Director: James C. Walker
Occupational Health Service
Director: Laurence Fuortes
Office of Information Technology
Director: William F. Decker
State Archaeologist
William Green
Technology Innovation Center
Director: Bruce Wheaton
University of Iowa Press
Director: Edward T. Crowley
University Veterinary Medicine
Director: James H. McLeran

Student Academic Services
Admissions
Director: Michael Barron
University Registrar
Jerald W. Dallam
Undergraduate Academic Advising Center
Director: Juliet Kaufmann
University Examination and Evaluation Services
Director: Joyce E. Moore

Student Administrative Services
Associate provost: Phillip E. Jones
Campus Programs and Student Activities
Director: David Grady
Iowa Memorial Union
Dean: N. William Hines
Student Disability Services
Coordinator: Donna Chandler
Residence Services
Director: George L. Droll
Special Support Services
Co-director: John O. Monick
University Counseling Service
Director: Gerald L. Stone
Women’s Resource and Action Center
Coordinator: Michael McNulty

Finance and University Services
Vice president and treasurer: Douglas M. Young
Controller: Mary J. Beach
Physical Plant
Director: William Fuhrmeister
Planning and Administrative Services
Director: Richard Z. Weller
Public Safety
Director: William Fuhrmeister
Purchasing
Director: Richard Scharff
Recreational Services
Director: Frank H. Converse
University Relations
Directors: Ann M. Rhodes

University Relations
Vice president: Ann M. Rhodes
Alumni Association
Director: D. Richard Emerson
Athletic Training Services
Director: Edward T. Crowley
Health Science Relations
Director: Mary Abboud-Kamps
Intercollegiate Athletics for Men
Director: Robert A. Bowisby
Intercollegiate Athletics for Women
Director: Christine C. H.B. Grant
Old Capitol
Director: Peter E. Nathan
Radial Stations WSUI-KSUI
Director: John O. Monick
State Relations
Director: Ted O. Yanecek
University Relations
Director: Joanne Fritz

Health Sciences Center
Vice president: Henri R. Manasse, Jr.
College of Dentistry
Dean: James H. McLean
College of Medicine
Dean: Robert P. Kelch
College of Nursing
Dean: Geraldine Felton
College of Pharmacy
Dean: Gilbert S. Banker
Regional Child Health Specialty Clinics
Director: Richard P. Nelson
State Hygienic Laboratory
Director: William J. Hausler, Jr.

Student Health Service
Director: Mary L. Khowassah

University Hospitals and Clinics
Director: R. Edward Howell

University Hospital School
Director: Alfred Healy

**General University**

Affirmative Action Affairs
Director: Susan L. Mask

University of Iowa Foundation
President: Darrell D. Wyrick
Academic Personnel

The following persons held University of Iowa faculty appointments with the rank of instructor, assistant professor, associate professor, or professor May 1, 1994. In this listing, the year of first appointment follows the departmental identification, and the year of present appointment is given in parentheses.


Abdul, Francois, Baccalaurate Christian Brothers' Schools (Egypt) 1948, 'PNS Cairo (Egypt) 1949, M. B. Ch. Ain Chans (Egypt) 1955; professor, Internal Medicine/Physiology and Biophysics 1960 (1968)


Alexander, Saramina J., M.B.B.S. Christian Medical School (India) 1965; clinical assistant professor, Internal Medicine 1979

Alfonso, Aixa, B.S. Puerto Rico 1978, Ph.D. Wisconsin (Madison) 1986; assistant professor Biological Sciences 1992


Al-Jarf, Abdel S., M.B., Ch.B. Cairo (Egypt) 1%6; professor, Surgery 1977 (1986)


Altman, Charles V., B.A. Nebraska 1959, M.S. 1962; associate professor, Psychology 1965 (1983)


Anderson, Raymond M. R.S. Iowa 1975, Ph.D. 1979; adjunct assistant professor, Geology 1992


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Antes, Joella J., B.S. Iowa State 1941, M.A. Chicago 1962, assistant professor emeritus, Nursing, 1941 (1972)

Anthony, Tae B.A. Northeast Missouri State 1968, M.A. Iowa 1975; adjunct instructor, Curriculum and Instruction, 1974


Armens, Sven M., B.A. Tufts 1943, M.A. Harvard 1951; associate professor, English, 1951 (1959)


Austin, Milton F., Massachusetts Institute of Technology 1976, M.D. Yale 1980; clinical instructor, Internal Medicine, 1980


Baker, Lynda A., B.S. St. Olaf 1976, M.D. 1980; clinical assistant professor, internal Medicine, 1980


D'Angelo, Nicola, Dr. Rome (Italy) 1953; professor Physics and Astronomy, 1957.


Fellick, Mark D., clinical instructor, Pharmacology, 1980.


Flanigan, Michael J., M.D., B.S. Wisconsin (Milwaukee 1971, M.D. Wisconsin (Madison 1975; assistant professor, Internal Medicine, 1991.


Gross, Thomas J., B.S. Michigan 1980; M.D. Iowa 1989; associate professor, Internal Medicine, 1991

Groves, Donald B., B.S., M.S. North Dakota State 1964, M.S. 1965, Ph.D. Wisconsin 1971; professor, Curriculum and Instruction, 1993

Grove-McKay, Maleah, B.A. Stanford 1972, M.D. 1977; associate professor, Internal Medicine, 1977

Hall, George R, B.A. Augustana 1970, Ph.D. Iowa 1975; associate professor, Geology, 1976

Hall, Margaret S., B.A. Smith 1938, M.F.A. Iowa 1941, M.S. 1944; assistant professor, Art and Art History, 1994

Hall, James, B.A. Minnesota 1971, A.M. Chicago 1975, Ph.D. Wisconsin-Madison 1980; associate professor, Social Work

Hall, Penelope J., B.A. Iowa 1965, M.A. 1967; associate professor, Speech Pathology and Audiology, 1987


Hartman, Gerhard, B.A. Buffalo 1932, M.B.A. 1935, Ph.D. Chicago 1942; professor emeritus, Hospital and Health Administration, 1946 (1979)

Harty, John, B.S. Minnesota 1980, Ph.D. 1988; assistant professor, Microbiology, 1993


Haugen, Tom, B.A. California (Berkeley) 1971, Ph.D. California (Davis) 1976, M.D. Iowa 1983; assistant professor, Pathology, 1980

Hauserman, Nancy R. A.B. Augustana 1970, Ph.D. 1982; assistant professor, Family Practice


Mahan, R., B.A. Boston 1944, M.D. 1948; associate professor, Psychiatry.

Mahoney, Larry T., B.S. Lorah 1969, M.D. Iowa 1973; professor, Pediatrics/Preventive Medicine.

Mainhofer, Waltraud, M.A. Regensburg (West Germany) 1986, Ph.D. 1988; assistant professor, German.

Makar, Adel F., M.B. Assuit (Egypt) 1974; clinical assistant professor, Pediatrics.


Malcolm, Kenneth, B.S. California (Los Angeles) 1983; assistant professor, Pathology.


Malof, Dorothy, M.D. Concordia (Canada) 1978, MDCM McGill-Canda 1982, FRCS (C) Royal College 1989; associate professor, Surgery.

Maloney, Donald F., B.S. Concordia (Canada) 1978, M.D. Augustana 1939, Iowa 1945, Ph.D. 1947; assistant professor emeritus, Counseling.


McCoy, David D., D.D.S. Iowa 1957; associate professor, Preventive and Community Dentistry.


McCoy, Timothy J., B.S. Iowa State 1982, M.D. Iowa 1986; assistant professor, Anesthesiology.


McCarty, Andrew, B.S. South Carolina 1951, M.A. Yale 1987; assistant professor, Theatre Arts.


Mead, Donald G., B.S. Iowa 1949, M.A. 1951, M.D. 1956; associate professor, Preventive Medicine.


Mehta, Robert, B.A. Iowa 1945, M.A. 1947, Ph.D. 1948; associate professor emeritus, General Practice.

Meier, Dorothy M., B.S. Iowa 1957, B.S.N. St. Louis 1963; assistant professor, Nursing.

Meier, David, B.S. Iowa 1977; assistant instructor, Family Dentistry.
Academic Personnel 485
Scheller, Ronald C., B.S. Yale 1942, M.S. 1944, Ph.D. 1946, M.D. 1955; professor emeritus, Internal Medicine, 1959 (1961)
Schott, Helmut G., B.A. Western Reserve 1962, M.D. New York (Buffalo) 1966; associate professor, Preventive Medicine and Environmental Health.
Schott, Helmut G., B.A. Western Reserve 1962, M.D. New York (Buffalo) 1966; associate professor, Preventive Medicine and Environmental Health/Insernal Medicine, 1973 (1979)
Schulz, Konrad S., B.S. Munich (Germany) 1965, M.D. Heidelberg (Germany) 1968; professor, Internal Medicine, 1975 (1990).
Schum, Robert L. Iowa State 1964, B.S. Washington 1965; assistant professor, Nursing 1989
Schweitzer, Steve H., B.S. Iowa 1972, M.D. 1975; clinical assistant professor, Urology, 1985
Wendler, Arthur J., B.E. Wisconsin State Teachers College (LaCrosse) 1929, M.A. Iowa 1952, Ph.D. 1959; associate professor emeritus, Exercise Science, 1937 (1972)
Wenger, Jan C., B.S. Ph. South Dakota 1960, M.S. Minnesota 1966; adjunct assistant professor, Pharmacy, 1976
Wenzel, Richard P., B.S. Haverford 1%1, M.D. Jefferson Medical 1965; professor, Internal Medicine/Preventive Medicine and Environmental Health, 1986
Whilens, Donald J., B.A. Iowa 1966 (1969)
Wild, James G., M.D. Iowa 1975; clinical assistant professor, Internal Medicine, 1988 (1993)
Wilson, Jeff S., B.S. Iowa 1978, M.D. 1983; assistant professor, Internal Medicine, 1991
Wilson, Michael D., B.S. Texas (Austin) 1973, M.D. Texas (Dallas) 1977; associate professor, Internal Medicine, 1986 (1998)
Winikor, George, A.B. Johns Hopkins 1944, M.D. Maryland 1947; professor, Psychiatry, 1990
Winikor, Patricia Lee, B.A. Brown 1981, M.D. Washington 1985; assistant professor, Internal Medicine, 1993
Wintemeyer, Livene, M.A. Iowa 1948, M.D. 1%1; clinical associate professor, Pediatrics, 1992
Wolf, Geoly, 1982
Weld, Marc S., B.S. California Institute of Technology 1979, Ph.D. Johns Hopkins 1984; assistant professor, Biochemistry, 1989
Wolfe, Margaret, professor, Anthropology/Women's Studies, 1985
Woodman, Catherine I., B.A. (Los Angeles) 1958; professor, Biological Sciences 1957 (1967)
Woodward, Jean M., B.S., B. Ph. Rhode Island 1979, M.S. Purdue 1982, Ph.D. Texas-Austin 1985; assistant professor, Pharmacy, 1988
Woodworth, George, B.A. Carleton 1%2, Ph.D. Minnesota 1966; associate professor, Statistics and Actuarial Science/Preventive Medicine and Environmental Health, 1987
Wu, Chun-Fang, B.S. Tunghai (Taiwan) 1969, Ph.D. Purdue 1976; professor, Biological Sciences, 1979 (1989)
Wu-Han-Chin, B.S. National Taiwan 1960, M.S. Rhode Island 1%5, M.S. Yale 1%7, Ph.D. 1970; professor, Civil and Environmental Engineering/ Mechanical Engineering, 1986 (1989)
Wuebschner, Silvano A., Ph.D. Iowa 1993; adjunct assistant professor, History, 1994
WulfekuMer, Warren V., B.A. Iowa State 1952, M.D. 1956; clinical associate professor, Urology, 1978
Wu-Yuan, Christine D., B.S. National Taiwan 1973, Ph.D. Loyola University of Chicago 1975; associate professor, Periodontics, 1990
Yanz, M.D. Tabriz Medical School (Iran) 1965; clinical associate professor, Internal Medicine, 1973 (1983)
Yates, Leroy L., Jr., B.S. Texas 1967, M.D. Loyola Stritch 1986; clinical assistant professor, Obstetrics and Gynecology, 1993
Yerington, Barbara K., B.S.C. Iowa 1958; adjunct assistant professor, Hospital and Health Administration, 1977
Yerkes, Barbara H., B.A. Marquette 1969, M.D. Iowa 1984; adjunct assistant professor, English, 1993
Yossi, Debra L., associate, Preventive and Community Dentistry, 1989
Young, Donald C., B.A. Drake 1951, M.D. Iowa 1955; assistant professor, Radiology, 1990
Young, Mark Alan, A.B. Princeton 1979, Ph.D. California (Berkeley) 1987; assistant professor, Chemistry, 1990
Zach, Karen R. B.S. Iowa 1959; adjunct instructor, Preventive and Community Dentistry, 1990
Zageil, Milton, M.A. Iowa 1936, Ph.D. 1950; associate professor emeritus, German 1946 (1978)
Zavala, Donald C., B.A. Wooster 1944, M.D. Cincinnati 1948; professor emeritus, Internal Medicine, 1969 (1976)
Zebrowski, Patricia M., B.S. SUNY (Geneseo) 1977, M.S. Syracuse 1981, Ph.D. 1987; assistant professor, Speech Pathology and Audiology, 1988
Ziska, James H., B.S. College of St. Thomas 1%(3, M.D. Iowa 1967; clinical assistant professor, Pediatrics, 1976
Zoeller, Guenter, M.A. Bonn (Germany) 1979, Dr. phil. 1982; associate professor Philosophy, 1986 (1991)
Zurbriggen, Thomas L., B.S. Iowa State 1974, M.D. Iowa 1978; clinical instructor, Internal Medicine, 1998
The following is extracted from the Board of Regents section of the Iowa Administrative Code as of May 25, 1994.

Admission Rubs Common to the Three State Universities

681-1.1(262) Admission of undergraduate students directly from high school

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $10 application fee, 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 maybe 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.

681-1.2(262) Admission of undergraduate students by transfer from other colleges

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $10 application fee, 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 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.

*683(262) Transfer credit

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: validate portions or all of their transfer credit by:

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.

Residence

681-1.4(262) Class 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.

d. A person 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.

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(3) Facts

a. The following circumstances, although not necessarily conclusive, have probative value in support of a claim for resident classification:

(1) Residence 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 - 13(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 Rubs for The University of Iowa

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.

Applications 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. Maintained 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.

Application 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. Maintained 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.

Application 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. Maintained 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.

Application 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. Maintained 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.

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 2.50. Since the quality of course work in predental 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 - 206(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 six 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 his 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) 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 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 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. Completed the specific course work as prescribed by the faculty of the college. The director of admissions will provide a list of the course work required.

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:

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
To be considered for admission to the college of pharmacy, students must have earned a 2.00 or C average on all collegiate work undertaken. The minimum grade-point average of 2.00 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
Applicants for admission to liberal arts must meet the rules that are common to the three state institutions in Iowa as listed in 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 or the graduate college. Requirements for permission to take teacher-training courses are listed in the university catalog.
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